CARDINAL
RESOURCES

July 2009 Sampling Report

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

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1.0 Introduction

This report summarizes the methods and results of a field sampling program performed in July 2009 at the Carroll and Dubies Superfund Site (Site), Town of Deerpark, Orange County, New York. 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 July 2009 sampling and analysis event included 13 wells comprising the revised monitoring well network: MW-1, MW-4, OW-2, OW-5, OW-6, OW-8, OW-10R, OW-13R, OW-18, OW-19, OW-21, OW-22, and OW-25. The purpose of this sampling program is to document volatile organic compound (VOC) concentrations in the outwash aquifer at the site, and in surface water and sediment in Gold Creek.

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 2,000 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

The immediate surrounding area includes undeveloped woodlands to the north; undeveloped woodlands and a sand and gravel quarry pit to the northeast; the closed City of Port Jervis landfill, the Orange County Transfer Station, and a concrete products fabrication 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.

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, have been to use 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. The steps in the program 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 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 2), 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. In May and November 2006, 7 B Series wells (OW-2, OW-5, OW-6, OW-17, OW-23, OW-24, and OW-25) in the vicinity of the chlorinated VOC plume were sampled. In August 2006, the sampling program included the 19 wells evaluated in February. In each round, samples were analyzed for VOCs and selected monitored natural attenuation (MNA) parameters, including the dissolved gases ethane, ethene, and methane.

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 have been 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 remain localized. For additional information on the February, May, August, and November 2006 sampling events, refer to the respective quarterly reports (Cardinal Resources, April 2006, July 2006, November 2006, and January 2007).

1.6 Resumption of Annual Monitoring Program

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

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

Before sampling began, groundwater elevations for all site wells were determined from measured depths to water from the reference point elevations. The depth to groundwater was measured using an electronic water-level meter and recorded in a monitoring well sampling form.

2.2 Equipment

Dedicated low-flow bladder pumps were used to purge and sample the entire 2009 monitoring well network, with the exception of wells OW-13R and OW-25. These wells were sampled using a downhole bladder pump that 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 reusable bladder pump.

2.3 Well Purging and Sampling

All wells were purged using low-flow (100 to 200 milliliters per minute [mL/min]) techniques. During purging of each monitoring well, temperature, dissolved oxygen (DO), reduction/oxidation (redox) potential, specific conductance (conductivity), pH, and turbidity were monitored and recorded on field forms in average intervals of 5 minutes. 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, which were calibrated prior to sampling activities. The goal was to obtain three consecutive readings of the field parameters within the following ranges:

- ±1.0 degree centigrade (°C) for temperature
- ±10 percent (%) or ±0.3 milligrams per liter (mg/L) for DO (whichever is greater)
- ±10 millivolts (mV) for redox potential
- ±3% for conductivity
- ±0.1 for pH
- ±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 the monitoring wells was generally clear and contained little suspended sediment. When purging was complete, groundwater samples were collected at a flow rate of between 100 and 200 mL/min directly from the pump tubing. Samples were placed immediately on ice for overnight shipment to TestAmerica Laboratories, North Canton, Ohio.

3.0 Collection of Surface Water and Sediment Samples

As part of the ongoing evaluation of conditions in Gold Creek, 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 2). The results from the Gold Creek sampling program are provided in Section 5.0.

3.1 Surface Water Sampling

Two surface water samples were collected from Gold Creek at the established locations that have been sampled throughout the OU-2 monitoring period at SW-1, the down-stream sample, and SW-2, the upstream sample (Figure 2).

Samples were collected for VOCs at each location directly into the VOC sample vials. The sample bottles were labeled appropriately, placed in a cooler with ice, and sent to the laboratory for analysis.

Surface water elevations were determined at the two locations sampled, and also at the quarry pond, which was not sampled.

3.2 Sediment Sampling

Two sediment samples were collected from the established locations coinciding with SW-1 and SW-2 (Figure 2), and were designated SED-1 and SED-2.

The samples were collected using a stainless-steel trowel from approximately the upper six inches of sediment at the edge of the creek. The stainless-steel trowel was decontaminated between sediment sampling locations.

4.0 Groundwater Results

This section describes the results of the July 2009 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 2.

The groundwater elevations in the wells were on the average about 0.95 foot higher than observed in July 2008; the direction of groundwater flow and gradient were about the same. Groundwater on site flows toward the southeast and Gold Creek. The groundwater gradient across the former lagoon site is approximately 0.090. This gradient transitions to a lower gradient, at about the location of the towpath. From the towpath to Gold Creek, the gradient is very shallow, approximately 0.001. 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 July 2009 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 in 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.

A variety of MNA (monitored natural attenuation) 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.

Eight VOCs were detected in various wells during this sampling event, six of which exceeded regulatory limits. Regulatory exceedances of VOCs in groundwater are reported in Table 5 and plotted in Figure 3.

VOC concentrations in monitoring wells in the July 2009 sampling are within the ranges seen in 2008. 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

Chlorinated VOCs are the predominant constituents on the eastern side of the site, particularly in OW-2, OW-5, and OW-6 (Figure 3), but are detectable in other locations, including OW-13/OW-13R.

Compared to OW-2 and OW-6, groundwater at OW-5 and OW-13/ OW-13R is generally higher in methane or total organic carbon (TOC), 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 (Figure 4). While the initial concentration of chlorinated VOCs was higher in OW-13/ OW-13R compared to OW-5, favorable geochemical conditions resulted in a rapid and smooth decline. Chlorinated VOCs have not exceeded criteria at this location since 2004. In OW-5, conditions for degradation have been somewhat less favorable and the decline has been slower and more variable (Figure 4). However, in 2007 and 2008, only 1,2-dichloroethene exceeded criteria, and in 2009, no chlorinated VOCs exceeded criteria in this well.

In OW-2 and OW-6, the decline in chlorinated VOC concentrations has been retarded by unfavorable geochemical conditions and other factors. Concentrations appeared to peak in the years following OU-1 actions, but since then began to decline. In the period from 2006 through 2009, chlorinated VOC concentrations have declined in OW-2 in particular and OW-6, along with OW-5 (Figure 5). The reductions in total chlorinated VOC concentrations in 2009 compared to 2006 average values are 62% for OW-2; 78% for OW-5; and 25% for OW-6.

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 the highest concentrations observed in MW-4, OW-10R, and OW-13R. Benzene was below the federal Maximum Contaminant Level (MCL) of 5 ug/L in July 2009 in MW-4, OW-10R, OW-18, OW-19, and OW-21, although not below the New York State Standard or Guidance Value (SGV) of 1 ug/L. Benzene exceeded the MCL of 5 ug/L in only two monitoring wells in July 2009, OW-13R (13 ug/L) and OW-22 (5.1 ug/L).

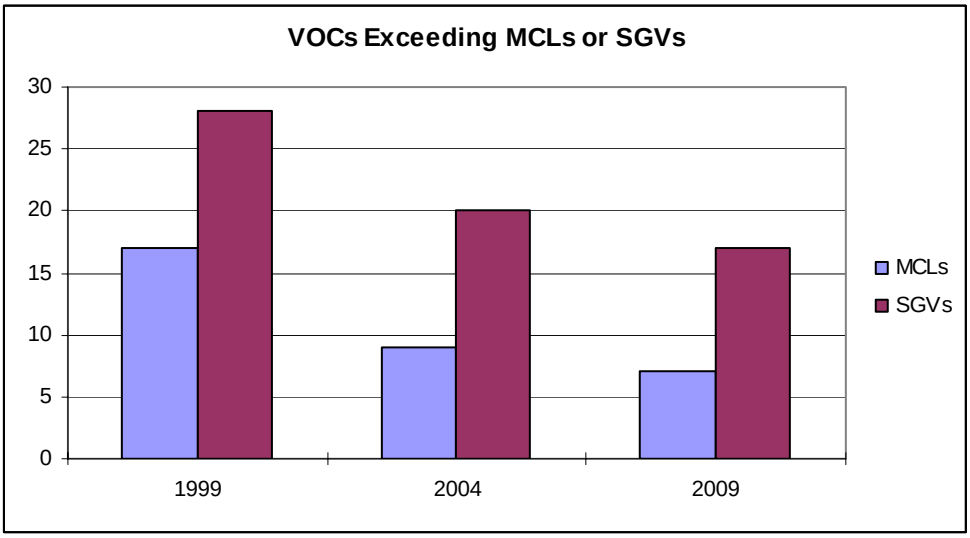
Benzene has exhibited an overall downward trend in individual wells with historically high concentrations, OW-10R, OW-13R, and OW-22, illustrated in Figure 6. There has also been a flattening and mass decline of the benzene plume along the groundwater flow path, illustrated in Figure 7. This depiction shows how the benzene concentration has declined 2 to 3 orders of magnitude since 1999 in OW-10R and OW-13/OW-13R, closest to the source area. The benzene concentration in OW-18, which is located approximately 850 feet downgradient of the former lagoons, has also shown a decline since 1999, from 4.7 ug/L in February 1999 to 2.3 ug/L in July 2009.

Not only do historic trends show declining benzene concentrations, but benzene concentrations have continued to decline in recent years. Figure 8 shows that even though the rate of decline is slowing as concentrations drop, from 2006 to 2009 benzene concentration trends were downward in OW-10R, OW-13R, and OW-22. The reductions in benzene concentrations in 2009 compared to 2006 are 59% for OW-10R; 17% for OW-13R; and 2% for OW-22. The estimated extent of benzene in groundwater in July 2009 is depicted in Figure 9.

4.5 Achievement of MCLs and SGVs

The *Supporting Documentation for Five-Year Review* (Cardinal Resources, 2005) described how in the five years between completion of OU-1 remediation in 1999 and 2004, some, but not all, 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. Only wells consistently monitored from 1999 through 2009 are shown in this table for comparison purposes so that the same wells are compared each time. In July 2009, there were 17 SGV exceedances and 7 MCL

exceedances. The overall trend since 1999 indicates that there has been improvement in groundwater quality relative to MCLs and SGVs:



The decline in the number of wells exceeding MCLs was 22% in 2009 compared to 2006; the decline in the number of wells exceeding SGVs was 15%.

4.6 Monitored Natural Attenuation Trends

A variety of MNA field and laboratory parameters have been analyzed over time 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 the *Supporting Documentation for Five-Year Review* (Cardinal Resources, 2005), along with an evaluation of how those patterns may relate to contaminant distribution within the groundwater plume. The patterns seen in July 2009 are consistent with the observations presented previously, with the areas predicted to be most amenable to degradation in monitoring wells to the south and west (OW-10R, MW-4, OW-13R, OW-19). In these wells,

- Methane concentrations of 50 ug/L or greater were observed;
- Relatively high TOC, 2 mg/L or greater, was found; and
- Low DO and redox potential indicating reduced conditions were found.

Table 6 illustrates the variability of conditions conducive to, or indicative of, natural attenuation of chlorinated VOCs across the site. This weighting and scoring table is adapted from the U.S. EPA's technical protocol for natural attenuation of chlorinated

aliphatic hydrocarbons (U.S. EPA, 1997). It shows high scores for OW-10R and OW-13, located close to the former lagoons on the western side of the Site, and a low scores for OW-2 and OW-25, on the eastern side of the site.

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 7 provides the results for VOCs detected in surface water and sediment samples collected from two locations along Gold Creek (Figure 2).

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

Surface water samples here were nondetectable for VOCs (Table 7). Historic SW-1 and SW-2 samples occasionally had low, estimated concentrations of VOCs below New York State Surface Water Standards (Appendix B, Table B-2).

5.2 Sediment Results

More VOCs than usual were detected in both upgradient and downgradient sediment samples during this sampling round (Table 7). Some of the detected VOCs (acetone, 2-butanone, carbon disulfide, methylene chloride) are common laboratory artifacts. Others, including benzene, 1,2-dichloroethene, and vinyl chloride, have been occasionally detected in sediment in low concentrations. The concentrations of detected VOCs in all cases are below reported guidance values for freshwater sediments (National Oceanic and Atmospheric Administration, 2008; NYSDEC Division of Water, 2004).

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. No VOCs were detected this round in surface water, although there were detections in sediment. The detected concentrations were well below available guidance criteria.

Based on the nondetectable to low detections of VOCs in upstream and downstream samples that do not exceed conservative ecological criteria, 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 packages 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
- Standard VOC QC forms for:
  - 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 two laboratory sample delivery groups (SDGs) 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, 7, B-1, B-2, and B-3 reflect the qualified data. The data qualifiers used as a result of the data review are:

- U - The analyses were analyzed for, but were not detected above the reported sample quantitation limit.
- J - The analyses were positively identified; the associated numerical value is the approximate concentration of the analyses in the sample.
- UJ - The analyses were not detected above the reported quantitation limit, but the reported quantitation limit is approximate.

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

6.2.1 Field QC Samples

The field QC samples for VOC analyses were one surface water duplicate (SW-1); one sediment duplicate (SED-1); one groundwater duplicate (OW-13R); one MS/MSD pair (OW-13R); one decontamination blank for the pump (pump rinsate); three field blanks; and three trip blanks. A field blank was collected for each of the three sampling days, and a trip blank was included with each sample cooler.

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.

7.0 Summary and Conclusions

The results of the 2009 sampling program for the Carroll and Dubies Site show continued progress from 2006 through 2009:

- Chlorinated VOC concentrations in OW-2, OW-5, and OW-6 declined 62%, 78%, and 25%, respectively.
- Benzene concentrations in OW-10R, OW-13R, and OW-22 declined 59%, 17%, and 2%, respectively.
- VOCs continued to be nondetectable at the eastern boundary of the site at OW-8 and OW-25.
- The number of wells exceeding MCLs declined by 22%, and the number of wells exceeding SGVs declined by 15%.
- VOC concentrations in Gold Creek surface water and sediment samples continued to be low to nondetectable, and well below ecological guidance criteria, when detected.

These results continue to confirm the validity of the U.S. EPA's conclusions in the Protectiveness Statement contained in its 2005 Five-Year Review Report:

> *"Because the implemented remedial actions at OUs at the Carroll and Dubies Sewage Disposal Site are protective, the Site is protective of human health and the environment. There are no exposure pathways that would result in unacceptable risks and none are expected as long as the institutional controls, which are in place, and the natural attenuation remedy selected in the decision documents for the Site continue to be properly monitored and maintained."*

These positive environmental trends since the 2005 five-year review continue to demonstrate that:

- The OU-1 and OU-2 remedies are functioning as intended
- The basic assumptions made about the Site during remedy selection are unchanged
- No new information has been found that affects the protectiveness of the remedies

The successes of the OU-1 and OU-2 remedies over the ten-year period suggest that future consideration should be given to a reduced scope in future sampling programs.

8.0 References

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Tables

Table 1
Groundwater Field Stabilization Parameters
July 2009
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well ID	Date	Temperature (°C)	Dissolved Oxygen (mg/L)	Redox (mV)	Specific Conductance (uS/cm)	pH (standard units)	Turbidity (NTUs)
MW-1	07/14/09	9.30	0.39	168.8	152	6.17	0.99
MW-4	07/16/09	10.89	0.70	5.2	298	6.24	1.97
OW-2	07/16/09	11.19	4.05	210.6	86	5.61	0.81
OW-5	07/14/09	12.35	1.92	166.4	216	6.05	0.21
OW-6	07/14/09	10.60	4.88	166.2	60	5.78	0.58
OW-8	07/14/09	11.00	0.32	32.3	93	6.38	4.3
OW-10R	07/15/09	11.49	0.45	18.8	332	6.35	1.17
OW-13R	07/14/09	13.50	0.21	52.1	382	6.36	25.9[(1)]
OW-18	07/16/09	11.63	0.84	-17.4	505	6.31	20.8[(1)]
OW-19	07/15/09	12.79	0.35	12.4	388	6.30	1.70
OW-21	07/15/09	14.12	2.36	16.1	389	6.33	0.79
OW-22	07/15/09	12.55	1.17	-17.9	463	6.17	0.42
OW-25	07/16/09	11.94	10.11	171.0	71	6.23	48.4[(1)]

Notes:
[(1)] Purge water remained slightly greyish and cloudy, resulting in elevated turbidity reading.
mg/L = milligrams per liter
mV = milliVolts
uS/cm = microsiemens per centimeter
NTU = nephelometric turbidity units

Table 2
Groundwater and Surface Water Elevation Data[1]
July 14, 2009
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well No.	Top of Casing Elevation or Staff Gauge[2]	Screened Interval	Depth to Groundwater or Surface Water	Groundwater or Surface Water Elevation
MW-1	469.39	28.5 - 43.5	33.12	436.27
MW-4	470.13	35.3 - 50.3	38.72	431.41
OW-2	472.33	30.0 - 47.0	41.07	431.26
OW-3	472.70	30.0 - 46.5	41.73	430.97
OW-4	473.33	26.5 - 27.5	35.49	437.84
OW-5	459.85	25.5 - 45.5	28.65	431.20
OW-6	464.40	31.4 - 51.4	33.19	431.21
OW-8	464.63	34.6 - 54.6	33.32	431.31
OW-9	472.91	25.3 - 35.3	29.64	443.27
OW-10R	469.27	29.0 - 39.0	28.90	440.37
OW-13R	457.69	25.0 - 35.0	26.65	431.04
OW-15	472.05	22.0 - 32.0	11.88	460.17
OW-16	453.90	18.0 - 28.0	23.02	430.88
OW-17	447.18	11.0 - 21.0	16.40	430.78
OW-18	444.57	11.0 - 21.0	13.89	430.68
OW-19	438.69	5.0 - 15.0	8.30	430.39
OW-21	467.46	37.1 - 47.1	36.65	430.81
OW-22	467.10	38.0 - 48.0	36.28	430.82
OW-23	444.73	29.0 - 39.0	14.10	430.63
OW-24	446.77	14.4 - 24.4	16.21	430.56
OW-25	452.47	20.0 - 30.0	21.60	430.87
SW-1[3]	432.01	-	4.00	428.01
SW-2[3]	432.01	-	1.60	430.41
SW-3[3]	437.44	-	5.80	431.64

Notes:
[1]Data reported in feet; elevations relative - mean sea level; 1988 National Geodetic Vertical Datum.
[2]Top of casing and gauge staff elevations surveyed by Maser Consulting P.A.
[3]Water elevation measured from top of surveyed staff gauge.

Table 3
Summary of Detected TCL Volatile Organic Compounds in Groundwater (ug/L)
July 2009
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Compound	NYSDEC	U.S. EPA	MW-1	MW-4	OW-2	OW-5	OW-6	OW-8	OW-10R	OW-13R	OW-13R DUP
	SGV	MCL	07/14/09	07/16/09	07/16/09	07/14/09	07/14/09	07/14/09	07/15/09	07/14/09	07/14/09
Benzene	1 (S)	5	1.0 U	1.2	2.5 U	1.0 U	1.0 U	1.0 U	2.7	13	12
Chlorobenzene	5 (S)*	100	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	2.3	1.0 U	1.0 U
Chloroethane	5 (S)*	NE	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	0.62 J	2.0 U	2.0 U
1,2-Dichloroethene (total)	5 (S)*	70	1.0 U	1.0 U	53	1.0 U	16	1.0 U	1.0 U	2.4	2.3
Tetrachloroethene	5 (S)*	5	1.0 U	0.34 J	62	3.7	30	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	5 (S)*	1,000	1.0 U	1.0 U	2.5 U	1.0 U	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	9.7	1.5	5.5	1.0 U	1.0 U	0.64 J	0.63 J
Vinyl Chloride	2 (S)	2	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	0.33 J	1.6 J	1.6 J

Compound	NYSDEC	U.S. EPA	OW-18	OW-19	OW-21	OW-22	OW-25
	SGV	MCL	07/16/09	07/15/09	07/15/09	07/15/09	07/16/09
Benzene	1 (S)	5	2.3	1.9	2.1	5.1	1.0 U
Chlorobenzene	5 (S)*	100	9.6	7.9	1.0 U	7.8	1.0 U
Chloroethane	5 (S)*	NE	2.0 U	1.0 J	2.0 U	0.34 J	2.0 U
1,2-Dichloroethene (total)	5 (S)*	70	0.34 J	0.94 J	1.0 U	0.53 J	1.0 U
Tetrachloroethene	5 (S)*	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	5 (S)*	1,000	1.0 U	1.0 U	1.0 U	0.19 J	1.0 U
Trichloroethene	5 (S)*	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2 (S)	2	2.0 U	2.1	0.80 J	0.35 J	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
NE = Not established; no criteria specified
U = The analyte was analyzed for, but was not detected above the reported quantitation limit.
J = Estimated result; result is less than reporting limit.
* = The principal organic contaminant (POC) standard for groundwater of 5 ug/L applies to this substance.
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
July 2009
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well ID	Date	Alkalinity (mg/L)	Chloride (mg/L)	Dissolved Oxygen (mg/L)	Ethane (ug/L)	Ethene (ug/L)	Ferrous Iron (mg/L)*	Methane (ug/L)	Laboratory Nitrate (mg/L)	Redox (mV)	Sulfate (mg/L)	Sulfide (mg/L)	TOC (mg/L)
MW-1	07/14/09	100	3.2	0.39	ND	ND	0.0	0.47 J	2.40	168.8	11.7	8.9	1
MW-4	07/16/09	110	30.4	0.70	ND	ND	4.0	59	ND	5.2	79.7	ND	2
OW-2	07/16/09	29	1.8	4.05	ND	ND	0.0	ND	2.4	210.6	24.0	ND	1
OW-5	07/14/09	91	4.3	1.92	ND	ND	0.2	4.4	1.20	166.4	56.1	ND	2
OW-6	07/14/09	24	ND	4.88	ND	ND	0.0	ND	0.30	166.2	16.9	ND	1
OW-8	07/14/09	52	1.9	0.32	ND	ND	4.0	1.4	ND	32.3	11.7	ND	ND
OW-10R	07/15/09	210	ND	0.45	ND	ND	4.5	1,400	ND	18.8	44.5	ND	2
OW-13R	07/14/09	290 / 280	1.7 / 1.6	0.21	ND / ND	ND / ND	4.0	220 / 210	ND / ND	52.1	22.1 / 22.5	20 J / 12 J	2 J / 3 J
OW-18	07/16/09	360	9.8	0.84	ND	ND	4.0	1,200	0.10	-17.4	7.2	ND	10
OW-19	07/15/09	230	9.2	0.35	ND	ND	4.8	530	ND	12.4	13.7	1.1	7
OW-21	07/15/09	250	4.2	2.36	ND	ND	4.5	110	ND	16.1	29.3	13	3
OW-22	07/15/09	300	11.1	1.17	ND	ND	4.5	1,100	ND	-17.9	9.1	ND	9
OW-25	07/16/09	40	1.1	10.11	ND	ND	0.0	ND	0.30	171.0	11.0	ND	1

Notes:
mg/L = milligrams per liter
ug/L = micrograms per liter
*Ferrous iron was measured in the field (Hach kit).
mV = milliVolts
TOC = total organic carbon
ND = Not detected
U = Analyte not detected at method reporting limit.
J = Estimated result; result is less than the reporting limit.

Table 5
MCL and SGV Exceedances, 1999, 2004, and 2006 through 2009
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Well	Compound	MCL ug/L	SGV ug/L	1999 Exceedance		2004 Exceedance		Feb 2006 Exceedance		Aug 2006 Exceedance		Jun 2007 Exceedance		Jul 2008 Exceedance		Jul 2009 Exceedance	
				MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV
MW-4	Benzene	5	1	X	X		X		X	X	X	X	X		X		X
	1,2-Dichloroethene (1,2-DCE)	70	5		X												
OW-2	Benzene	5	1				X										
	Tetrachloroethene (PCE)	5	5	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
	1,2-Dichloroethene (1,2-DCE)	70	5	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
	Trichloroethene (TCE)	5	5			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
OW-10(R)*	Benzene	5	1	X	X	X	X		X	X	X		X	X	X		X
	Chlorobenzene	100	5		X												
	Methylene chloride	5	5	X	X												
	Toluene	1,000	5		X												
OW-13 - OW-13R**	Benzene	5	1	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
	Chlorobenzene	100	5				X		X		X		X		X		X
	Xylenes (total)	10,000	5						X								
OW-19	Benzene	5	1	X	X		X		X		X		X		X		X
	Chlorobenzene	100	5		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
OW-22	Benzene	5	1	X	X		X	X	X		X		X		X	X	X
	Chlorobenzene	100	5		X		X		X		X						X
	Vinyl chloride	2	2	X	X												
Total				17	28	9	20	9	19	10	19	6	16	6	16	7	17

Notes:

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

**OW-13R was installed in February 2006 to replace OW-13.

Table 6
Weighting and Scoring of Natural Attenuation Parameters
July 2009
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Analyte	Concentration Indicating Conditions for Reductive Dechlorination	Ranking Value	OW-2	OW-10R	OW-13R	OW-25
Dissolved Oxygen	<0.5 mg/L	3	-	3	3	-
Dissolved Oxygen	>1 mg/L	-3	-3	-	-	-3
Nitrate	<1 mg/L	2	-	2	2	2
Iron (II)	>1 mg/L	3	-	3	3	-
Sulfate	<20 mg/L	2	-	-	-	2
Oxidation Reduction Potential (ORP)	<50 mV	1	-	1	-	-
	<-100 mV	2	-	-	-	-
Temperature	>20°C	1	-	-	-	-
Total Organic Carbon	>20 mg/L	1	-	-	-	-
Alkalinity	>2x background	1	-	1	1	-
Chloride	>2x background	2	-	-	-	-
BTEX	>0.1 mg/L	2	-	-	-	-
1,2-Dichloroethene	Detected	2	2	-	2	-
Vinyl Chloride	Detected	2	-	2	2	-
Chloroethane	Detected	2	-	2	-	-
1,1-Dichloroethene	Detected	2	-	-	-	-
1,1-Dichloroethane	Detected	2	-	-	-	-
Methane	Detected	2	-	2	2	-
Ethane	Detected	2	-	-	-	-
Ethene	Detected	2	-	-	-	-
Total Score			**-1**	**16**	**15**	**1**

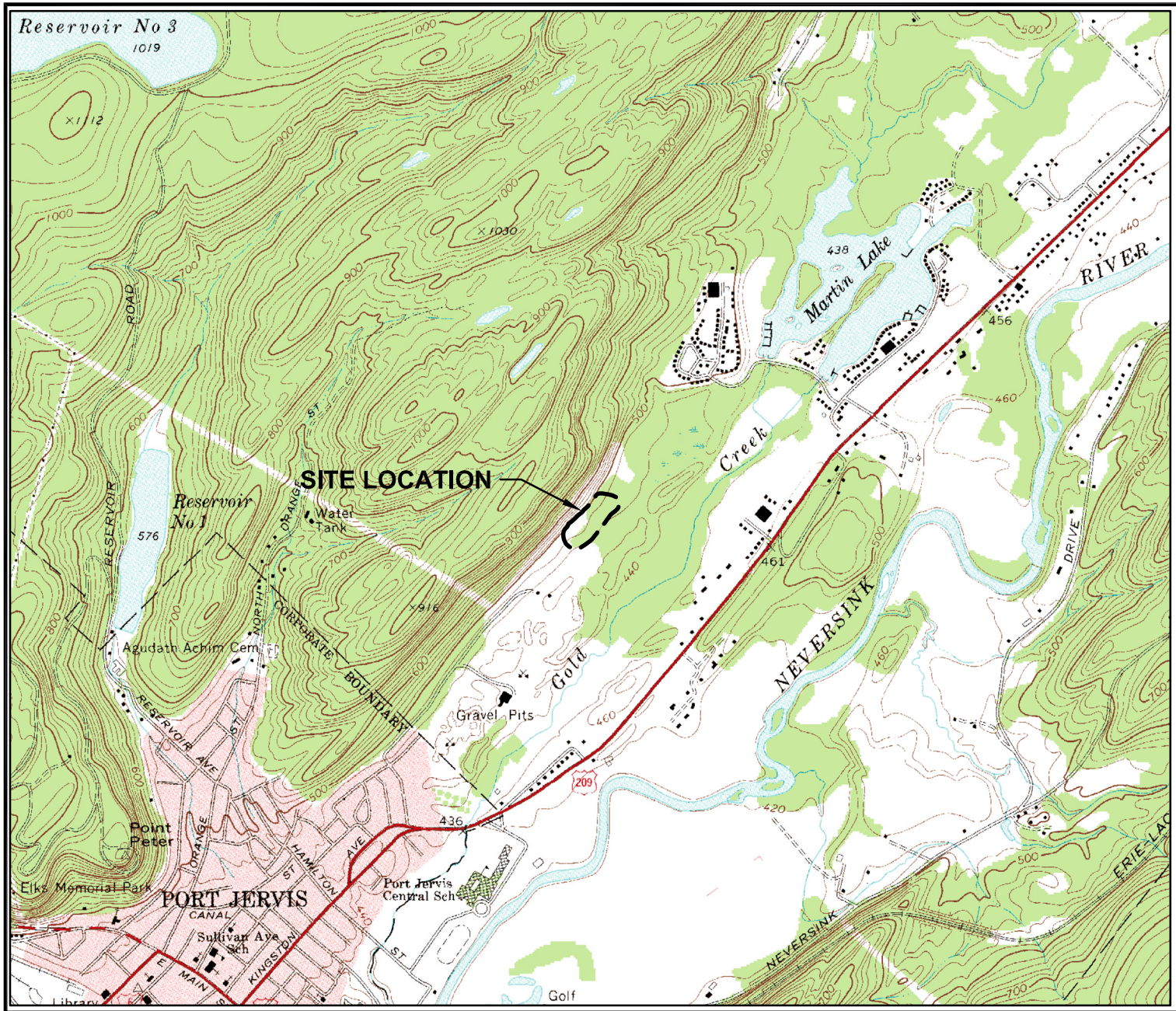
Source: U.S. EPA, 1997.

Table 7
Detected Volatile Organic Compounds
July 2009
Surface Water and Sediment Sampling Locations in Gold Creek
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Location	Sediment Guidance Values	SED-1 / SW-1 (Downstream)				SED-2 / SW-2 (Upstream)	
Sample		SED-1	SED-1 DUP	SW-1	SW-1 DUP	SED-2	SW-2
Constituent	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/kg	ug/L
Acetone	-	**940 J**	**300 J**	10 U	10 U	110 UJ	10 U
Benzene	1,000[(1)]; 590[(2)]	**13 J**	**5.6 J**	1.0 U	1.0 U	28 UJ	1.0 U
2-Butanone	35,000[(1)]	**230 J**	**96 J**	10 U	10 U	110 UJ	10 U
Carbon disulfide	-	**17 J**	**8.2 J**	1.0 U	1.0 U	28 UJ	1.0 U
Chlorobenzene	30,000[(1)]	**5.9 J**	**3.2 J**	1.0 U	1.0 U	28 UJ	1.0 U
Chloroform	10,000[(1)]	25 U	21 U	1.0 U	1.0 U	**1.6 J**	1.0 U
1,2-Dichloroethene (total)	4,000[(1)]	**12 J**	**5.9 J**	1.0 U	1.0 U	28 UJ	1.0 U
1,2-Dichloroethane	1,000[(1)]	**1.7 J**	21 U	1.0 U	1.0 U	28 UJ	1.0 U
Methylene chloride	3,900[(1)]	**9.7 J**	21 U	1.0 U	1.0 U	**8.6 J**	1.0 U
Toluene	47,000[(1)]	**3.1 J**	**1.3 J**	1.0 U	1.0 U	**34 J**	1.0 U
Vinyl chloride	100[(1)]	**8.7 J**	**4.5 J**	2.0 U	2.0 U	56 UJ	2.0 U

Notes:
[(1)]National Oceanic and Atmospheric Administration, 2008, Screening Quick Reference Tables, Dutch Intervention Guidance Values.
[(2)]NYSDEC Division of Water, 2004, TOGS 5.1.9, In-Water and Riparian Management of Sediment and Dredged Material, Class A Threshold Value (no appreciable contamination).
J = Estimated result; less than the reporting limit.
U = The analyte was analyzed for but not detected above the quantitation limit.
UJ = The analyte was not detected above the reporting limit; however, the reporting limit is approximate.
Blue = **Detected constituents**
Acetone was reported in surface water samples; however, the results were qualified during the data validation process as not detected (U) at or above the reported levels due to the presence of acetone in the associated trip blank.

Figures



2,000' 0 2,000'

SCALE IN FEET

LEGEND:

APPROXIMATE SITE BOUNDARY

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

CARDINAL RESOURCES

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

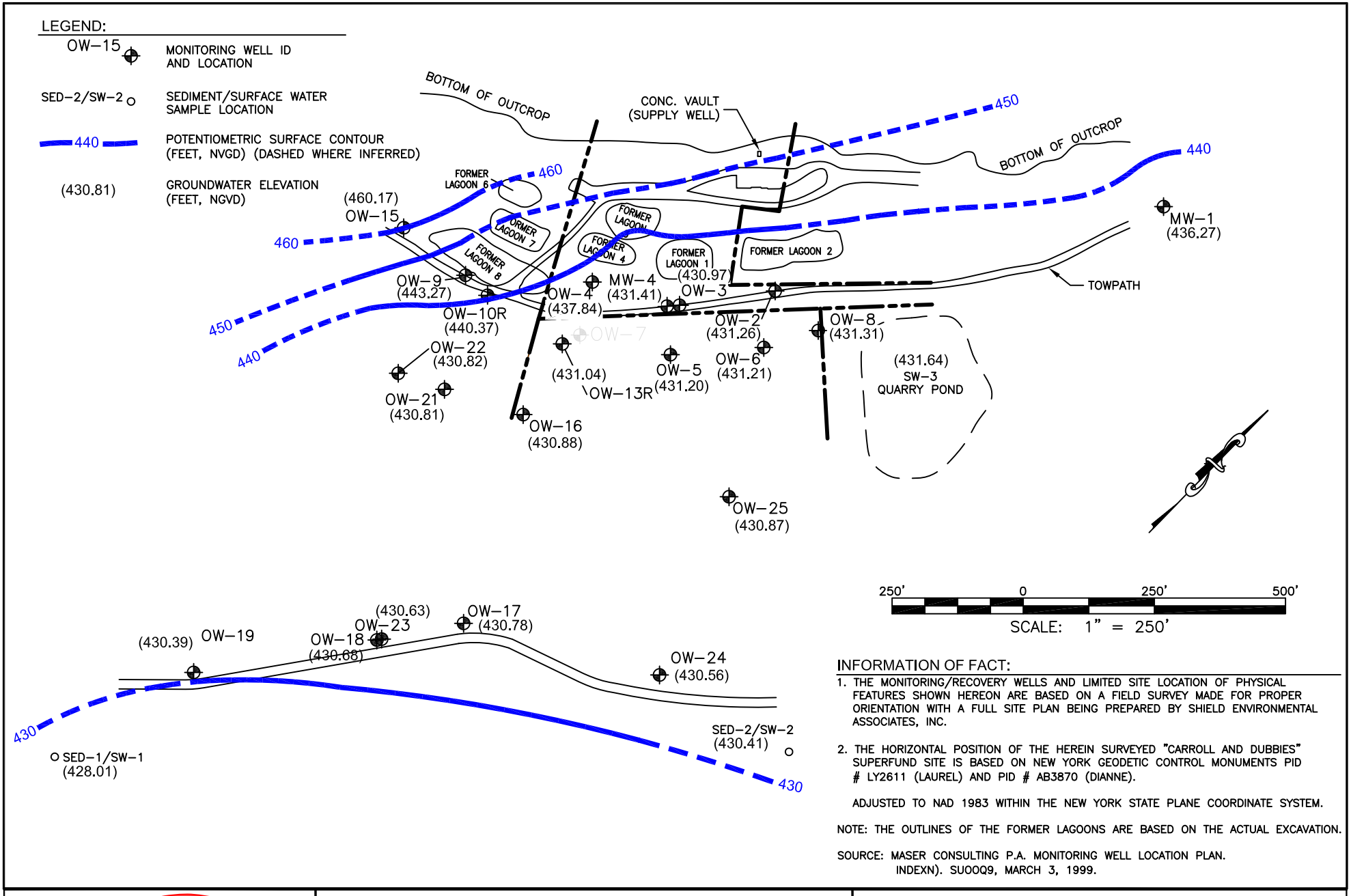
105-0035

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0	ECM						

FIGURE 1

SITE LOCATION MAP

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



INFORMATION OF FACT:

1. THE MONITORING/RECOVERY WELLS AND LIMITED SITE LOCATION OF PHYSICAL FEATURES SHOWN HEREON ARE BASED ON A FIELD SURVEY MADE FOR PROPER ORIENTATION WITH A FULL SITE PLAN BEING PREPARED BY SHIELD ENVIRONMENTAL ASSOCIATES, INC.

2. THE HORIZONTAL POSITION OF THE HEREIN SURVEYED "CARROLL AND DUBBIES" SUPERFUND SITE IS BASED ON NEW YORK GEODETIC CONTROL MONUMENTS PID # LY2611 (LAUREL) AND PID # AB3870 (DIANNE).

   ADJUSTED TO NAD 1983 WITHIN THE NEW YORK STATE PLANE COORDINATE SYSTEM.

NOTE: THE OUTLINES OF THE FORMER LAGOONS ARE BASED ON THE ACTUAL EXCAVATION.

SOURCE: MASER CONSULTING P.A. MONITORING WELL LOCATION PLAN. INDEXN). SUOOQ9, MARCH 3, 1999.

CARDINAL RESOURCES

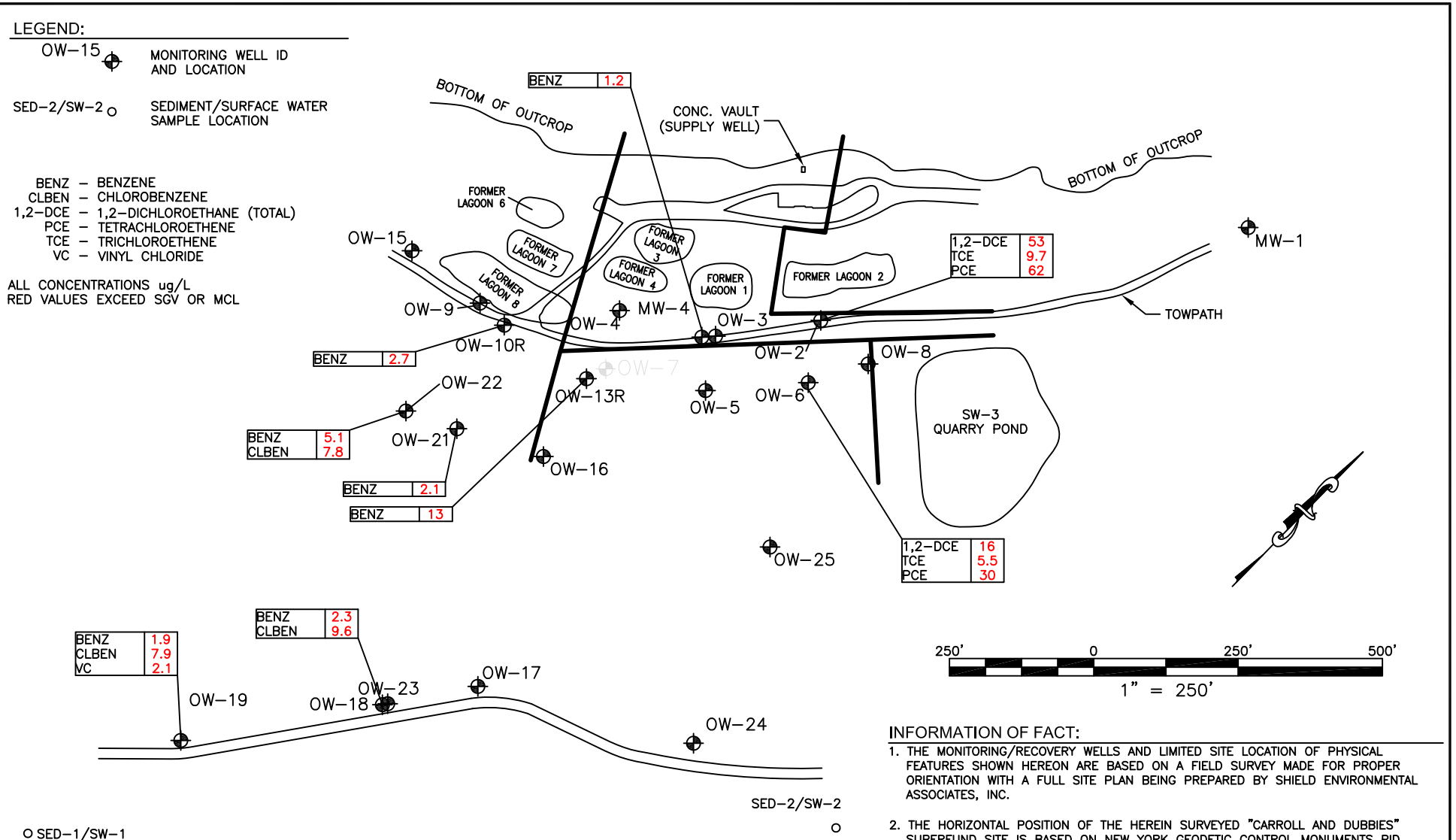
CARROLL AND DUBIES SUPERFUND SITE
TOWN OF DEERPARK, ORANGE COUNTY, NEW YORK
104-0012

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0							

FIGURE 2

GROUNDWATER CONTOUR MAP
JULY 2009

CADD FILE		SCALE	AS NOTED	CURRENT DATE:	08–27–2009
DRAWING NO.	104-0012-0300-02 July09			REVISION	0



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CARDINAL RESOURCES

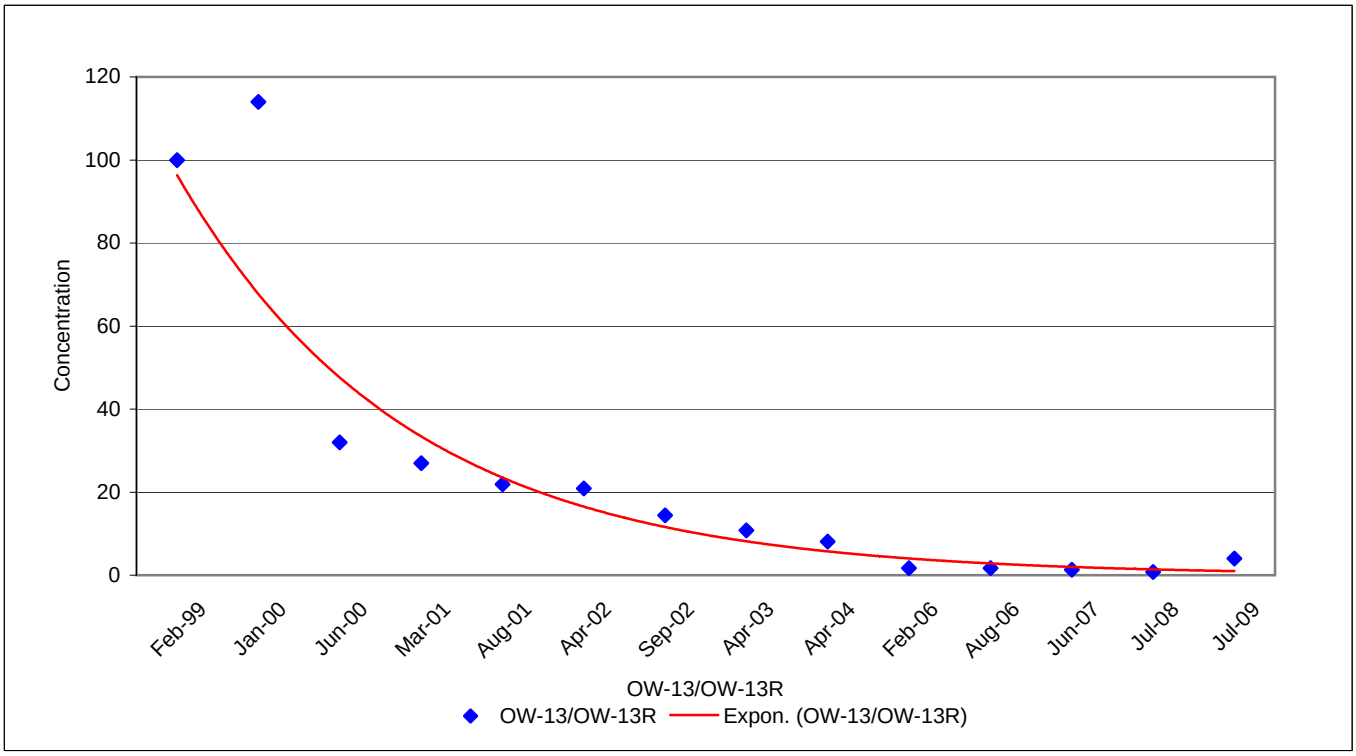
CARROLL AND DUBIES SUPERFUND SITE
TOWN OF DEERPARK, ORANGE COUNTY, NEW YORK
104-0012

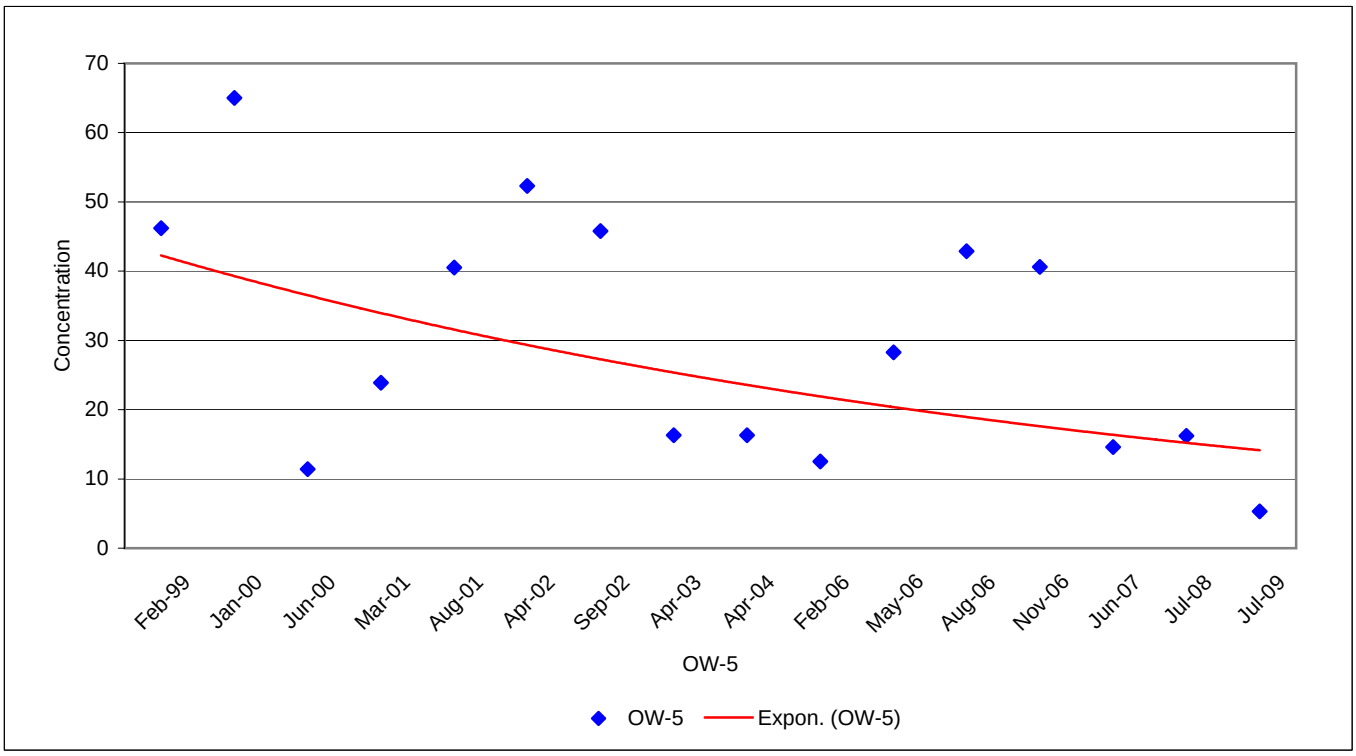
NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0							

FIGURE 3
VOLATILE ORGANIC COMPOUND EXCEEDANCES IN GROUNDWATER
JULY 2009

CADD FILE		SCALE	1"=250'	CURRENT DATE:	08–27–2009
DRAWING NO.	104-0012-0300-03 July09			REVISION	0

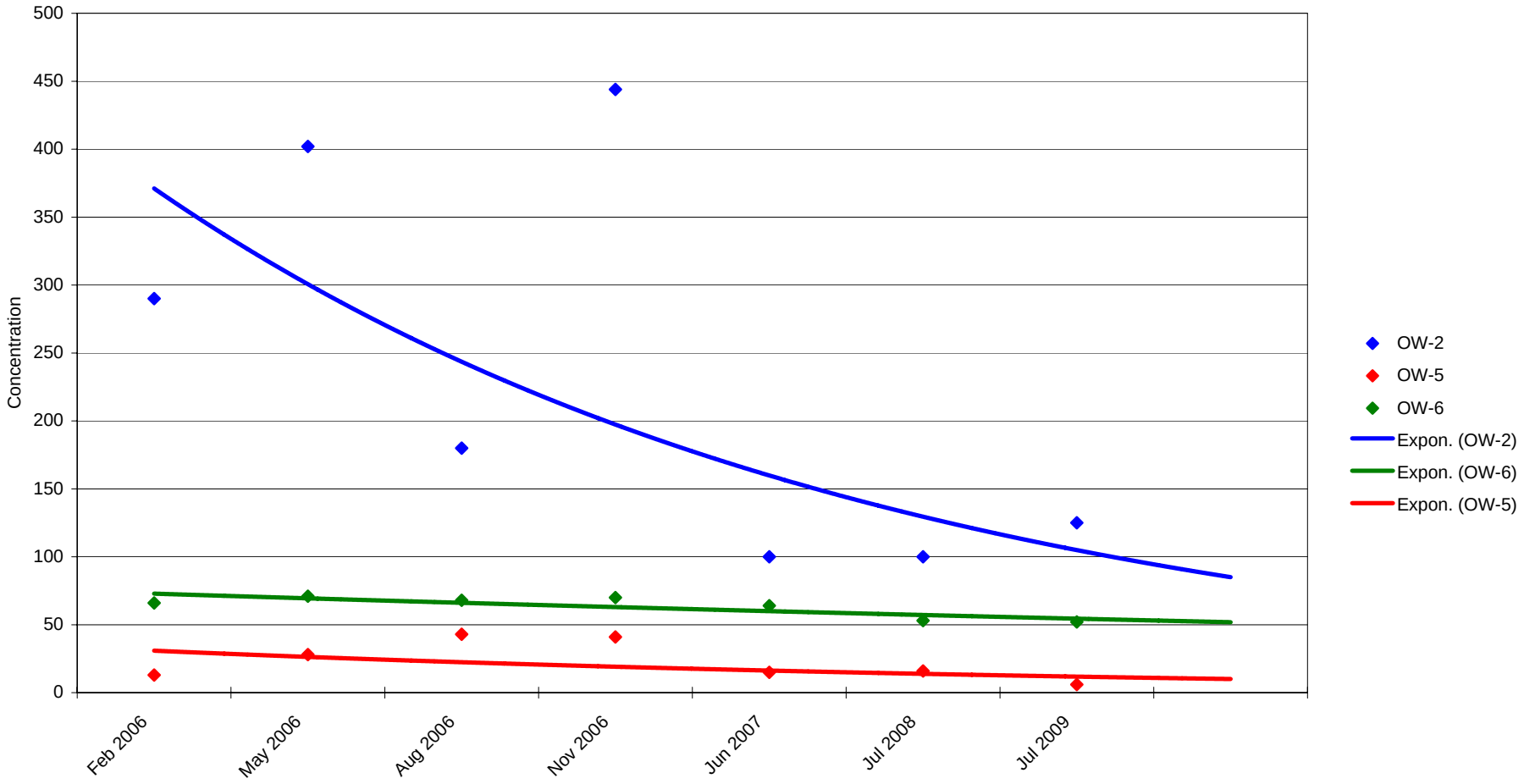
Figure 4
Chlorinated VOC[(1)] Trends in OW-5 and OW-13/13R
Pre-Excavation to July 2009





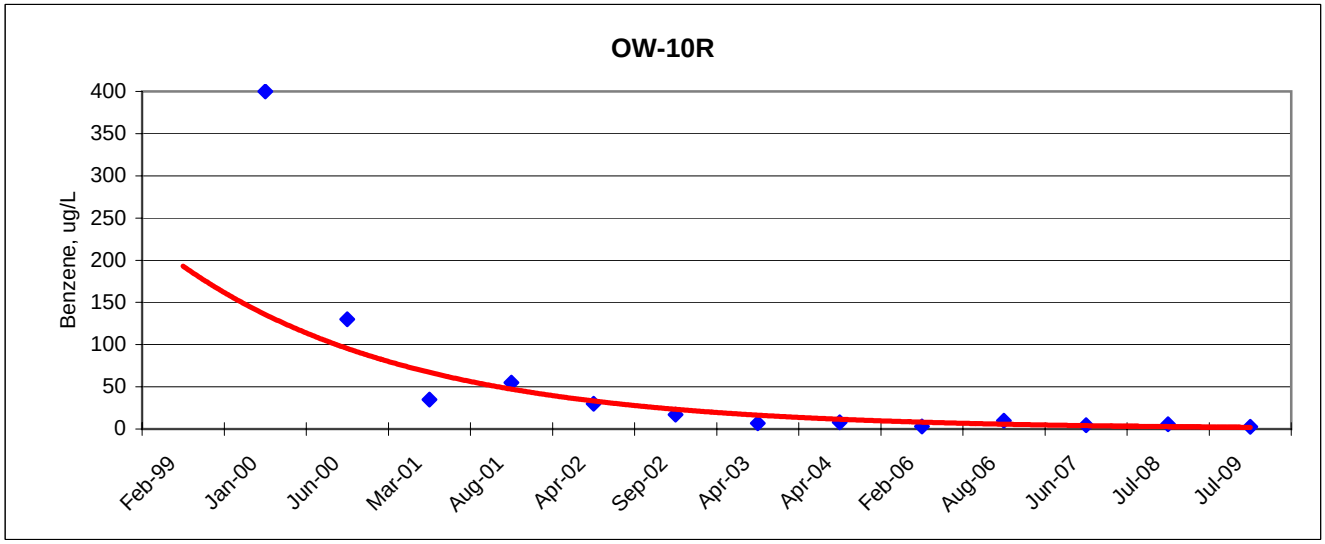
[(1)]Sum of 1,2-dichloroethene, trichloroethene, and tetrachloroethene.

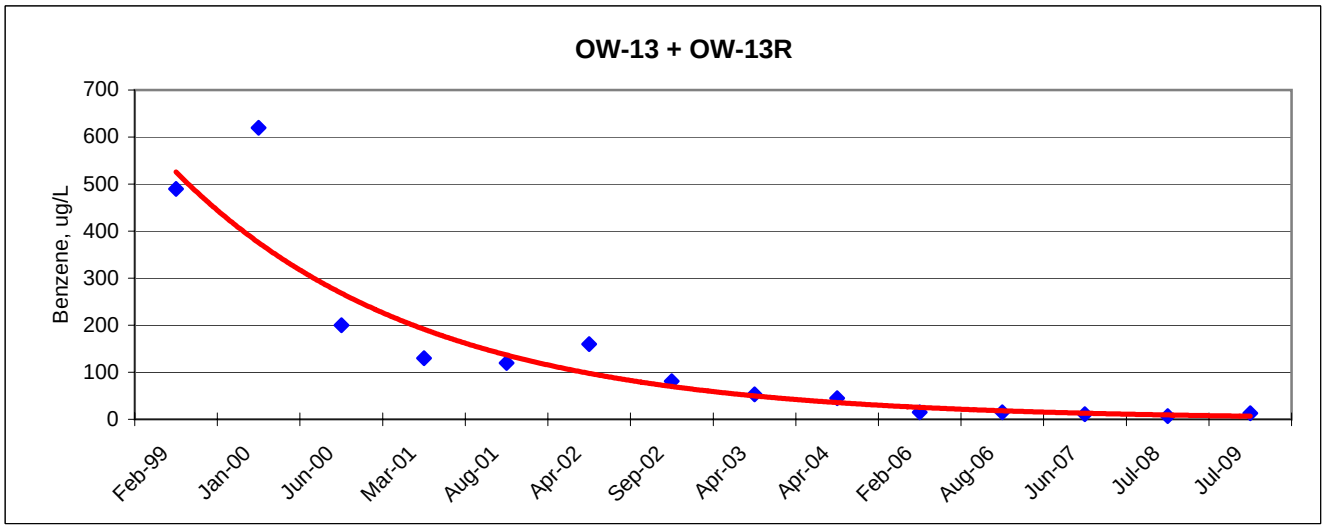
Figure 5
Chlorinated VOC[(1)] Trends in OW-2, OW-5, and OW-6
2006 - 2009

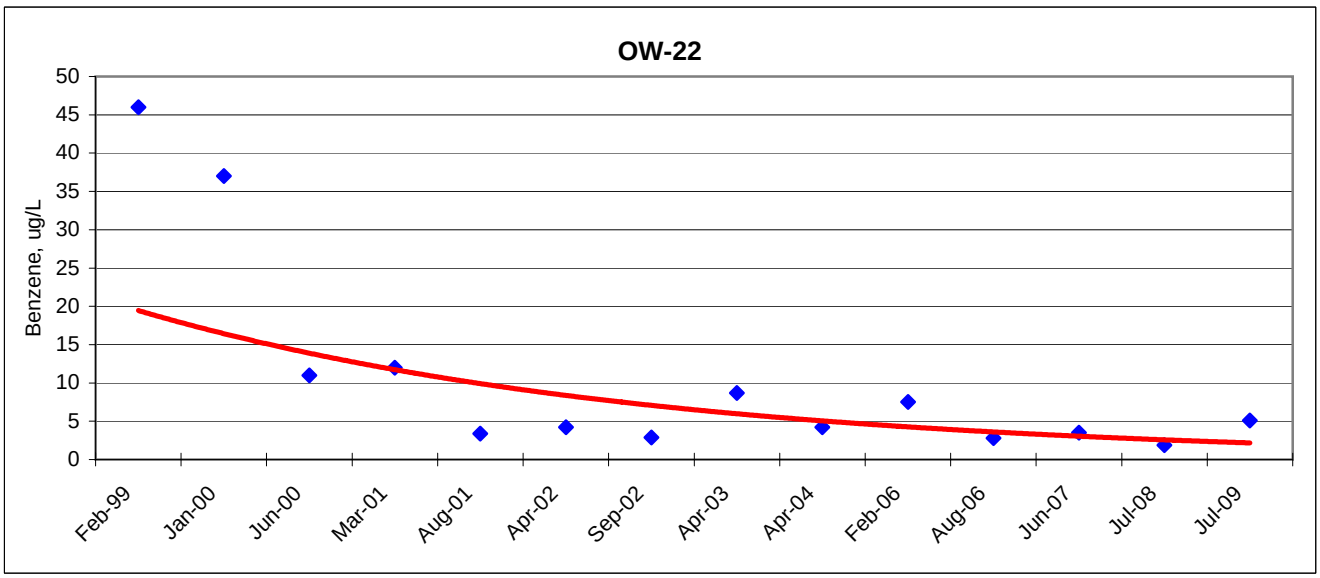


[(1)]Sum of 1,2-dichloroethene, trichloroethene, and tetrachloroethene.

Figure 6
Benzene Concentration Trends in Selected Monitoring Wells
Pre-Excavation to July 2009

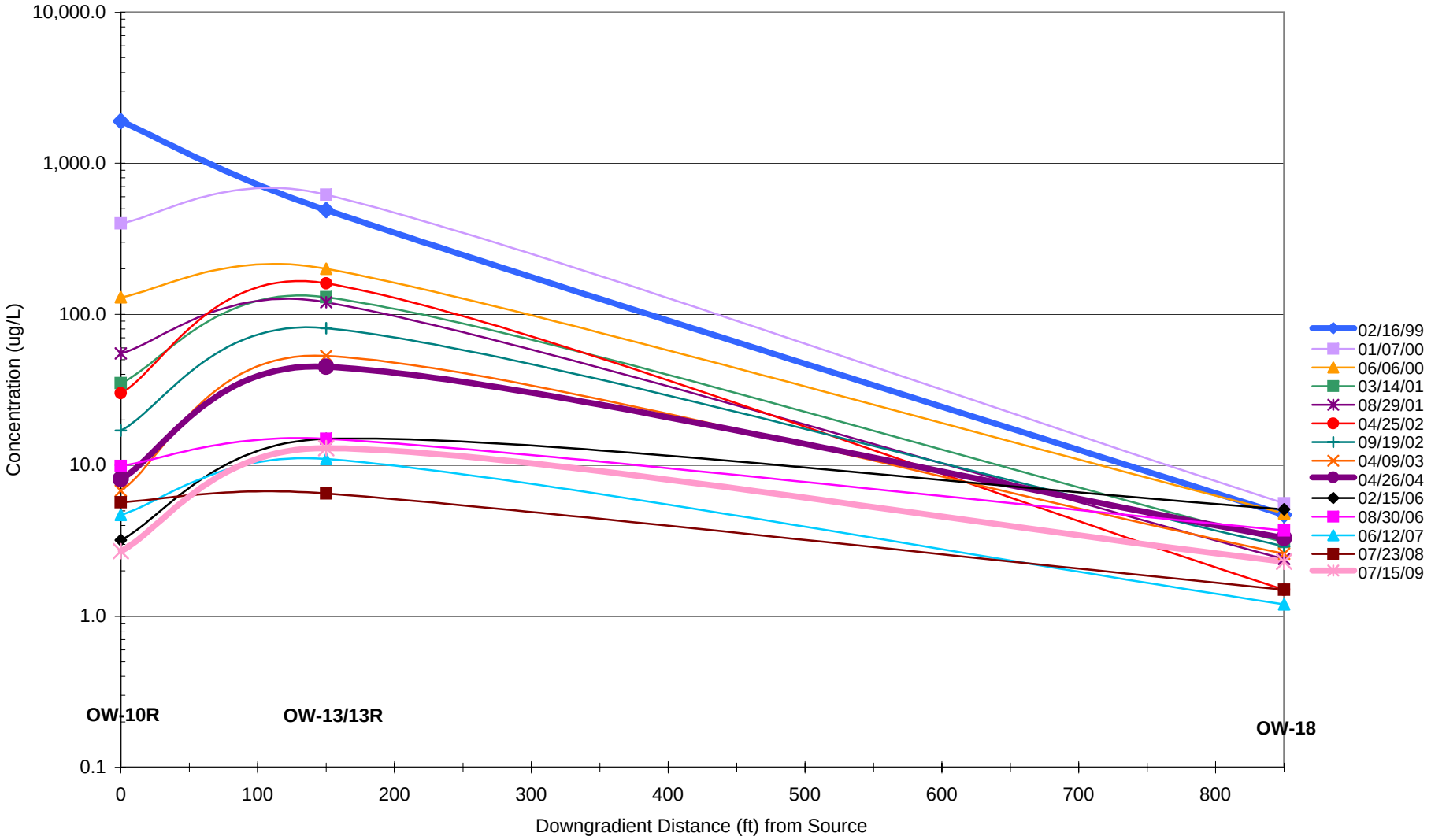






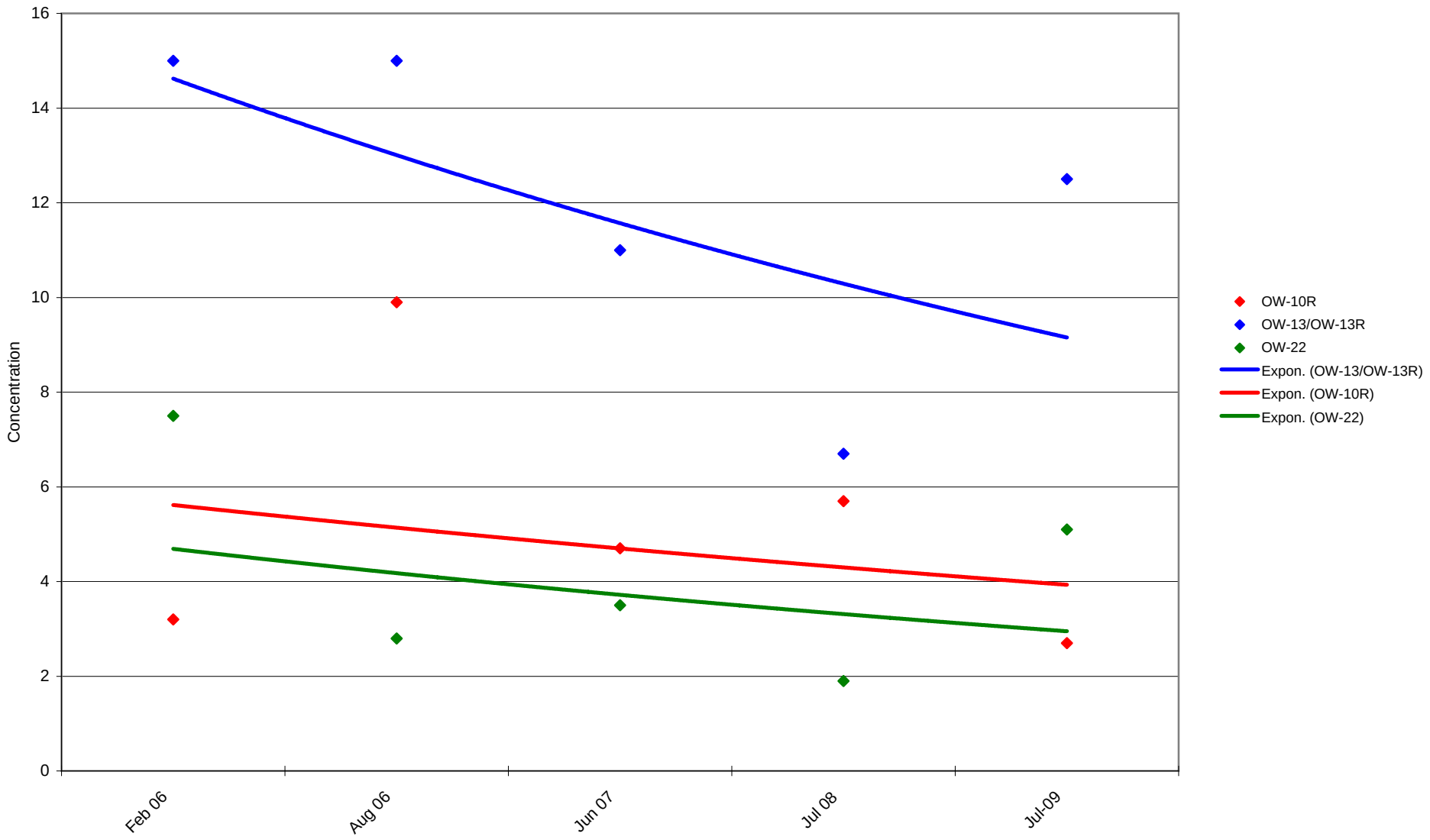
Note: OW-10R, OW-13R, and OW-22 were not sampled during the May and November 2006 sampling rounds.

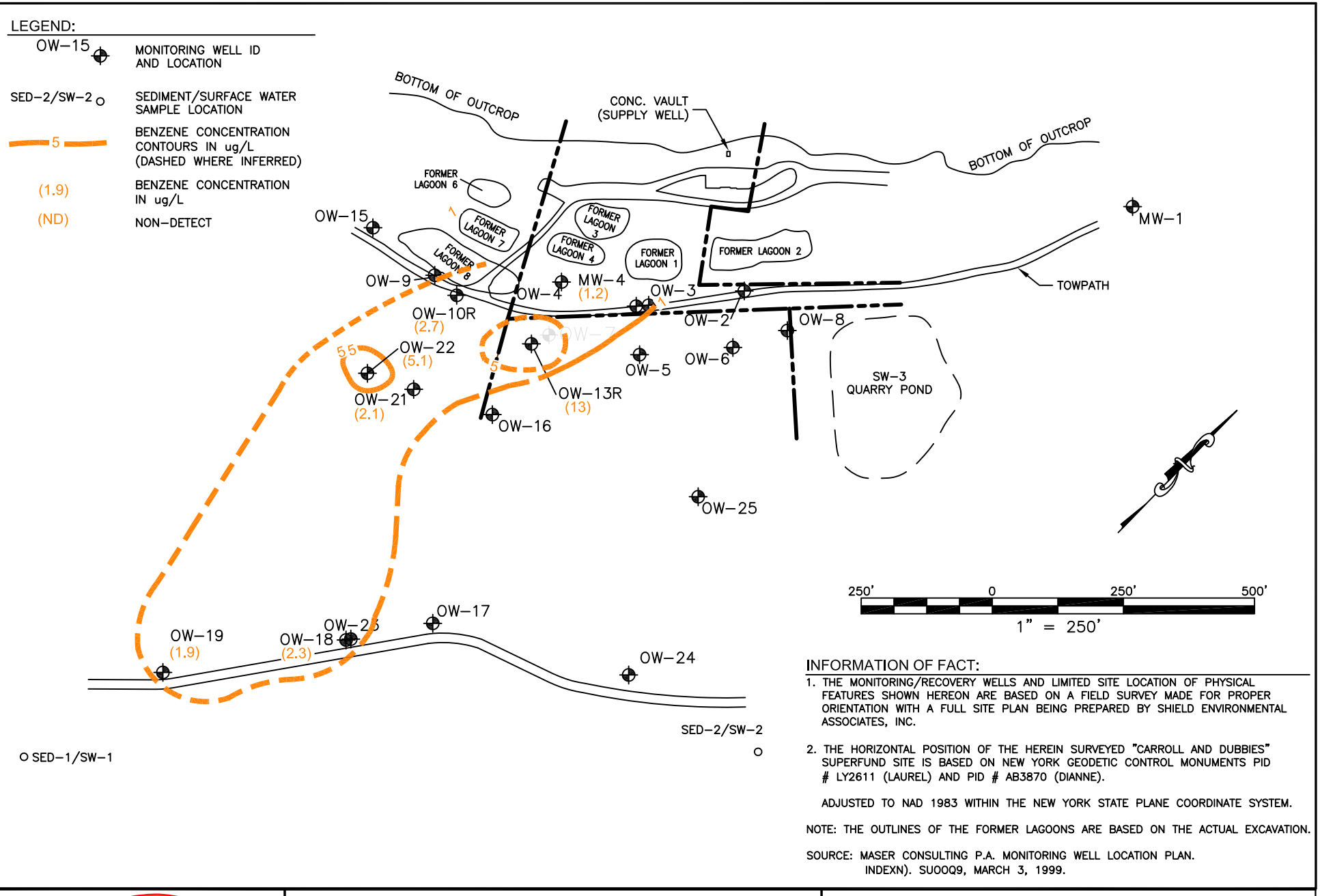
Figure 7
Benzene Concentration Trends Based on Distance from Source



Note: OW-10R, OW-13R, and OW-18 were not sampled in the May and November 2006 sampling rounds.

Figure 8
Benzene Trends in OW-10R, OW-13R, and OW-22
2006 - 2009





INFORMATION OF FACT:

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NOTE: THE OUTLINES OF THE FORMER LAGOONS ARE BASED ON THE ACTUAL EXCAVATION.

SOURCE: MASER CONSULTING P.A. MONITORING WELL LOCATION PLAN. INDEXN). SUOOQ9, MARCH 3, 1999.

CARDINAL RESOURCES

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

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0							

FIGURE 9
BENZENE CONCENTRATIONS IN GROUNDWATER
JULY 2009

CADD FILE		SCALE	1"=250'	CURRENT DATE:	08–27–2009
DRAWING NO.	104-0012-0300-08 July09			REVISION	0

Appendix A
Laboratory Reports with Marked Form Is from Data Review

Analytical Report - # A9G150158

Table of Contents

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 104-0012-0200

CAROLL & DUBIES (C&D)
SDG #: 9G15158

Barbara Jones

Cardinal Resources

TESTAMERICA LABORATORIES, INC.

Nathan Pietras
Project Manager

August 5, 2009

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

CASE NARRATIVE

9G15158

The following report contains the analytical results for three solid samples, fifteen water samples and two quality control samples submitted to TestAmerica North Canton by Cardinal Resources from the Caroll & Dubies (C&D) Site, project number 104-0012-0200. The samples were received July 15, 2009 and July 16, 2009, according to documented sample acceptance procedures.

This SDG consists of (2) laboratory ID's: A9G150158 and A9G160126.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Barbara Jones and Steve Bodnar on July 29, 2009. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North 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 applicable 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.

All solid sample results are reported on an "as received" basis unless otherwise indicated by a dry weight adjustment footnote at the bottom of the analytical report page. The list of parameters which are never reported on a dry weight basis is included on the Sample Summary.

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.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Nathan Pietras, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

CASE NARRATIVE (continued)

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperatures of the coolers upon sample receipt were 3.2 and 3.7°C.

See TestAmerica's Cooler Receipt Form for additional information.

GC/MS VOLATILES

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "B". All target analytes in the Method Blank must be below the reporting limit (RL) or the associated sample(s) must be ND with the exception of common laboratory contaminants.

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for SED 2 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

The internal standard areas were outside acceptance limits for sample(s) SED 2, SED 2MS and SED 2MSD due to matrix effects. (Refer to IS report following this case narrative for additional detail.)

DISSOLVED GASES/RSK

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

The matrix spike/matrix spike duplicate(s) for OW21 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

CASE NARRATIVE (continued)

DISSOLVED GASES/RSK (continued)

For batch(es) 9208134, due to an inconsistent regulator, the gas standards used for generating the primary source and secondary source are not compatible.The second source ICV passes nominally, but the primary source is being used for continuing calibration, batch QC spikes and matrix spikes until the problem is resolved.

GENERAL CHEMISTRY

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data. Program or agency specific requirements take precedence over the requirements listed in this narrative.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica Certifications and Approvals:

The laboratory is certified for the analytes listed on the documents below. These are available upon request.
California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Nevada (#OH-000482008A), OhioVAP (#CL0024), Pennsylvania (#008), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY, USDA Soil Permit

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

9G15158 : A9G150158

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
OW5 07/14/09 08:50 001				
Methane	4.4	0.50	ug/L	RSK SOP-175
Trichloroethene	1.5	1.0	ug/L	SW846 8260B
Tetrachloroethene	3.7	1.0	ug/L	SW846 8260B
Chloride	4.3	1.0	mg/L	MCAWW 300.0A
Sulfate	56.1	1.0	mg/L	MCAWW 300.0A
Nitrate as N	1.2	0.10	mg/L	MCAWW 300.0A
Total Organic Carbon	2	1	mg/L	MCAWW 415.1
Total Alkalinity	91	5.0	mg/L	MCAWW 310.1
OW6 07/14/09 09:50 002				
1,2-Dichloroethene (total)	16	1.0	ug/L	SW846 8260B
Trichloroethene	5.5	1.0	ug/L	SW846 8260B
Tetrachloroethene	30	1.0	ug/L	SW846 8260B
Sulfate	16.9	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.30	0.10	mg/L	MCAWW 300.0A
Total Organic Carbon	1	1	mg/L	MCAWW 415.1
Total Alkalinity	24	5.0	mg/L	MCAWW 310.1
OW13R 07/14/09 11:30 003				
Methane	220	0.50	ug/L	RSK SOP-175
Vinyl chloride	1.6 J	2.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	2.4	1.0	ug/L	SW846 8260B
Trichloroethene	0.64 J	1.0	ug/L	SW846 8260B
Benzene	13	1.0	ug/L	SW846 8260B
Total Sulfide	20	1.0	mg/L	MCAWW 376.1
Chloride	1.7	1.0	mg/L	MCAWW 300.0A
Sulfate	22.1	1.0	mg/L	MCAWW 300.0A
Total Organic Carbon	2	1	mg/L	MCAWW 415.1
Total Alkalinity	290	5.0	mg/L	MCAWW 310.1
OW8 07/14/09 14:00 004				
Methane	1.4	0.50	ug/L	RSK SOP-175
Chloride	1.9	1.0	mg/L	MCAWW 300.0A
Sulfate	11.7	1.0	mg/L	MCAWW 300.0A
Total Alkalinity	52	5.0	mg/L	MCAWW 310.1

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

9G15158 : A9G150158

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DUP1 07/14/09 005				
Methane	210	0.50	ug/L	RSK SOP-175
Vinyl chloride	1.6 J	2.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	2.3	1.0	ug/L	SW846 8260B
Trichloroethene	0.63 J	1.0	ug/L	SW846 8260B
Benzene	12	1.0	ug/L	SW846 8260B
Total Sulfide	12	1.0	mg/L	MCAWW 376.1
Chloride	1.6	1.0	mg/L	MCAWW 300.0A
Sulfate	22.5	1.0	mg/L	MCAWW 300.0A
Total Organic Carbon	3	1	mg/L	MCAWW 415.1
Total Alkalinity	280	5.0	mg/L	MCAWW 310.1
MW1 07/14/09 15:05 007				
Methane	0.47 J	0.50	ug/L	RSK SOP-175
Total Sulfide	8.9	1.0	mg/L	MCAWW 376.1
Chloride	3.2	1.0	mg/L	MCAWW 300.0A
Sulfate	11.7	1.0	mg/L	MCAWW 300.0A
Nitrate as N	2.4	0.10	mg/L	MCAWW 300.0A
Total Organic Carbon	1	1	mg/L	MCAWW 415.1
Total Alkalinity	100	5.0	mg/L	MCAWW 310.1
TB1 07/14/09 008				
Acetone	2.2 J	10	ug/L	SW846 8260B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

9G15158 : A9G160126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
OW22 07/15/09 09:05 001				
Methane	1100	2.5	ug/L	RSK SOP-175
Vinyl chloride	0.35 J	2.0	ug/L	SW846 8260B
Chloroethane	0.34 J	2.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	0.53 J	1.0	ug/L	SW846 8260B
Benzene	5.1	1.0	ug/L	SW846 8260B
Toluene	0.19 J	1.0	ug/L	SW846 8260B
Chlorobenzene	7.8	1.0	ug/L	SW846 8260B
Chloride	11.1	1.0	mg/L	MCAWW 300.0A
Sulfate	9.1	1.0	mg/L	MCAWW 300.0A
Total Organic Carbon	9	1	mg/L	MCAWW 415.1
Total Alkalinity	300	5.0	mg/L	MCAWW 310.1
OW21 07/15/09 10:20 002				
Methane	110	0.50	ug/L	RSK SOP-175
Vinyl chloride	0.80 J	2.0	ug/L	SW846 8260B
Benzene	2.1	1.0	ug/L	SW846 8260B
Total Sulfide	13	1.0	mg/L	MCAWW 376.1
Chloride	4.2	1.0	mg/L	MCAWW 300.0A
Sulfate	29.3	1.0	mg/L	MCAWW 300.0A
Total Organic Carbon	3	1	mg/L	MCAWW 415.1
Total Alkalinity	250	5.0	mg/L	MCAWW 310.1
OW10R 07/15/09 11:40 004				
Methane	1400	2.5	ug/L	RSK SOP-175
Vinyl chloride	0.33 J	2.0	ug/L	SW846 8260B
Chloroethane	0.62 J	2.0	ug/L	SW846 8260B
Benzene	2.7	1.0	ug/L	SW846 8260B
Chlorobenzene	2.3	1.0	ug/L	SW846 8260B
Sulfate	44.5	1.0	mg/L	MCAWW 300.0A
Total Organic Carbon	2	1	mg/L	MCAWW 415.1
Total Alkalinity	210	5.0	mg/L	MCAWW 310.1
SW1 07/15/09 13:20 005				
Acetone	1.4 J	10	ug/L	SW846 8260B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

9G15158 : A9G160126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SW DUP 07/15/09 006				
Acetone	2.1 J	10	ug/L	SW846 8260B
SED 1 07/15/09 13:30 007				
Vinyl chloride	8.7 J	51	ug/kg	SW846 8260B
Methylene chloride	9.7 J	25	ug/kg	SW846 8260B
Acetone	940	100	ug/kg	SW846 8260B
Carbon disulfide	17 J	25	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	12 J	25	ug/kg	SW846 8260B
1,2-Dichloroethane	1.7 J	25	ug/kg	SW846 8260B
2-Butanone	230	100	ug/kg	SW846 8260B
Benzene	13 J	25	ug/kg	SW846 8260B
Toluene	3.1 J	25	ug/kg	SW846 8260B
Chlorobenzene	5.9 J	25	ug/kg	SW846 8260B
Percent Solids	19.7	10.0	%	MCAWW 160.3 MOD
SED DUP 07/15/09 008				
Vinyl chloride	4.5 J	42	ug/kg	SW846 8260B
Methylene chloride	3.7 J,B	21	ug/kg	SW846 8260B
Acetone	300 B	84	ug/kg	SW846 8260B
Carbon disulfide	8.2 J	21	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	5.9 J	21	ug/kg	SW846 8260B
2-Butanone	96	84	ug/kg	SW846 8260B
Benzene	5.6 J	21	ug/kg	SW846 8260B
Toluene	1.3 J	21	ug/kg	SW846 8260B
Chlorobenzene	3.2 J	21	ug/kg	SW846 8260B
Percent Solids	23.9	10.0	%	MCAWW 160.3 MOD
SED 2 07/15/09 14:10 010				
Methylene chloride	8.6 J	28	ug/kg	SW846 8260B
Chloroform	1.6 J	28	ug/kg	SW846 8260B
Toluene	34	28	ug/kg	SW846 8260B
Percent Solids	17.9	10.0	%	MCAWW 160.3 MOD
OW19 07/15/09 14:55 011				
Methane	530	1.0	ug/L	RSK SOP-175
Vinyl chloride	2.1	2.0	ug/L	SW846 8260B
Chloroethane	1.0 J	2.0	ug/L	SW846 8260B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

9G15158 : A9G160126

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
OW19 07/15/09 14:55 011				
1,2-Dichloroethene (total)	0.94 J	1.0	ug/L	SW846 8260B
Benzene	1.9	1.0	ug/L	SW846 8260B
Chlorobenzene	7.9	1.0	ug/L	SW846 8260B
Total Sulfide	1.1	1.0	mg/L	MCAWW 376.1
Chloride	9.2	1.0	mg/L	MCAWW 300.0A
Sulfate	13.7	1.0	mg/L	MCAWW 300.0A
Total Organic Carbon	7	1	mg/L	MCAWW 415.1
Total Alkalinity	230	5.0	mg/L	MCAWW 310.1
TB2 07/15/09 012				
Acetone	2.5 J	10	ug/L	SW846 8260B

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

9G15158

PARAMETER	ANALYTICAL METHOD
Alkalinity	MCAWW 310.1
Chloride	MCAWW 300.0A
Dissolved Gases in Water	RSK SOP-175
Nitrate as N	MCAWW 300.0A
Sulfate	MCAWW 300.0A
Sulfide	MCAWW 376.1
Total Organic Carbon	MCAWW 415.1
Total Residue as Percent Solids	MCAWW 160.3 MOD
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

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.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

SAMPLE SUMMARY

SAMPLE SUMMARY

9G15158 : A9G150158

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LGHM7	001	OW5	07/14/09	08:50
LGHPH	002	OW6	07/14/09	09:50
LGHPK	003	OW13R	07/14/09	11:30
LGHPL	004	OW8	07/14/09	14:00
LGHPM	005	DUP1	07/14/09	
LGHPQ	006	FIELD BLANK 1	07/14/09	14:10
LGHPW	007	MW1	07/14/09	15:05
LGHP0	008	TB1	07/14/09	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

(Continued on next page)

SAMPLE SUMMARY

9G15158 : A9G160126

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LGKPV	001	OW22	07/15/09	09:05
LGKP4	002	OW21	07/15/09	10:20
LGKP6	003	FIELD BLANK 2	07/15/09	10:30
LGKP8	004	OW10R	07/15/09	11:40
LGKP9	005	SW1	07/15/09	13:20
LGKQA	006	SW DUP	07/15/09	
LGKQE	007	SED 1	07/15/09	13:30
LGKQH	008	SED DUP	07/15/09	
LGKQL	009	SW2	07/15/09	14:00
LGKQX	010	SED 2	07/15/09	14:10
LGKQ1	011	OW19	07/15/09	14:55
LGKQ3	012	TB2	07/15/09	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: _____

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other _____

TestAmerica Laboratories, Inc.

COC No: 1 of 1 COCs

Client Contact

Company Name: Cardinal Resources, LLC

Address: 1505 E. Carson St.

City/State/Zip: Pittsburgh, PA 15203

Phone: 412 374 0989

Project Name: Carroll + Dukes (C+D)

Project Number: 104-0012-0200

PO#

Client Project Manager: Barb Jones

Telephone:

Email: BJones@CardinalRes.com

Method of Shipment/Carrier: Fed X

Shipping/Tracking No: 8671 0814 6774

Site Contact: John Vogeding

Telephone: 412 374 0989

Lab Contact: Nathan Pietras

Telephone:

Analysis Turnaround Time (in BUS days)

TAT if different from below _____

☐ 3 weeks
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only

Walk-in client ☐
Lab picking ☐
Lab sampling ☐

Job/SDG No:

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl		ZnAc/ NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite C / Grab	Analyses: TCL VOC's	Methane/Ethane/Ethene	Sulfide	Sulfate	Alkalinity	Chloride	Nitrate (N)	TOC	Sample Specific Notes / Special Instructions:
OW5	7-14-09	0850		X				X		X		X	X		N		X	X	X	X	X	X	X	X	
OW6		0950																							
OW13R		1130																							
OW8		1400																							
Dup 1		—																							
Field Blank 1		1410						—		—		—	—				VOCs ONLY								
MW1		1505						X		X		X	X				X	X	X	X	X	X	X	X	

Possible Hazard Identification

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
John Vogeding	Cardinal Res.	7-14-09/1600			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				TEST AMERICA	15 JUL 09 0915

TAL-0018 (1008)

20

Canton

TestAmerica Cooler Receipt Form/Narrative **Lot Number:** A9G150159

North Canton Facility

Client CARDINAL RESOURCES Project CFD By: [signature] (Signature)

Cooler Received on 15 JUL 2009 Opened on 15 JUL 2009

FedEx ☒ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☐ Other ____

TestAmerica Cooler # A191 Multiple Coolers ☐ Foam Box ☐ Client Cooler ☐ Other ____

1. Were custody seals on the outside of the cooler(s)? Yes ☐ No ☒ Intact? Yes ☐ No ☐ NA ☒
   If YES, Quantity ____ Quantity Unsalvageable ____
   Were custody seals on the outside of cooler(s) signed and dated? Yes ☐ No ☐ NA ☒
   Were custody seals on the bottle(s)? Yes ☐ No ☒
   If YES, are there any exceptions? ____
2. Shippers' packing slip attached to the cooler(s)? Yes ☒ No ☐
3. Did custody papers accompany the sample(s)? Yes ☒ No ☐ Relinquished by client? Yes ☒ No ☐
4. Were the custody papers signed in the appropriate place? Yes ☒ No ☐
5. Packing material used: Bubble Wrap ☒ Foam ☒ None ☐ Other PLASTIC BAG
6. Cooler temperature upon receipt 3.2 °C See back of form for multiple coolers/temps ☐
   METHOD: IR ☒ Other ☐ ____
   COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
8. Could all bottle labels be reconciled with the COC? Yes ☒ No ☐
9. Were sample(s) at the correct pH upon receipt? Yes ☒ No ☐ NA ☐
10. Were correct bottle(s) used for the test(s) indicated? Yes ☒ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☒ NA ☐
12. Sufficient quantity received to perform indicated analyses? Yes ☒ No ☐
13. Was a trip blank present in the cooler(s)? Yes ☒ No ☐ Were VOAs on the COC? Yes ☒ No ☐

Contacted PM NAP Date 7/15/09 by am via Verbal ☒ Voice Mail ☐ Other ☐

Concerning 14

14. CHAIN OF CUSTODY

The following discrepancies occurred:

TRIP BLANK (1x40ml) REC'D NOT ON COC - will log ~~TB1 per NAP~~ Trip as TB1 per NAP.

am 7/15/09

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 Sample Receiving to meet recommended pH level(s). *Nitric Acid Lot#* 031909-*HNO_3; Sulfuric Acid Lot#* 100108-*H_2SO_4; Sodium Hydroxide Lot#* 073007 -*NaOH; Hydrochloric Acid Lot#* 092006-*HCl; Sodium Hydroxide and Zinc Acetate Lot#* 050205-*$(CH_3COO)_2ZN/NaOH$*. What time was preservative added to sample(s)? ____

Client ID	pH	Date	Initials
OW5	>9	15 JUL 09	MAF
OW6	>9		
OW13R	>9		
OW8	>9		
DUP1	>9		
MW1	>9		

SOP: NC-SC-0005, Sample Receiving

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TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler #	Temp. °C	Method	Coolant

Discrepancies Cont'd:

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: _____
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other _____

TestAmerica Laboratories, Inc.

Client Contact

Company Name: Cardinal Resources, LLC	Client Project Manager: Boyd Jones	Site Contact: John Vogeding	Lab Contact: Nathan Pietras
Address: 1505 E. Carson St.	Telephone:	Telephone: 412 374 0989	Telephone:
City/State/Zip: Pittsburgh, PA 15203	Email: BJones@CardinalRes.com	Analysis Turnaround Time (in BUSINESS days)	COC No: 1 of 2 COCs
Phone: 412 374 0989		TAT if different from below: ☐ 3 weeks ☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day	For lab use only: Walk-in client ☐ Lab pickup ☐ Lab sampling ☐ Job/SDG No.:
Project Name: Carroll + Dubies (C+D)	Method of Shipment/Carrier: Fed X		
Project Number: 104-0012-0200	Shipping/Tracking No:		
PO #			

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite (C) / Grab (G)	Analyses: TCL VOC's	Methane/Ethane/Ethene	Sulfate	Sulfide	Alkalinity	Chloride	Nitrate (N)	TOC	Sample Specific Notes / Special Instructions:
OW22	7-15-09	0905		X				X		X		X	X				X	X	X	X	X	X	X	X	
OW21		1020		X				X		X		X	X												
OW21 MS		1020		X				X		X		X	X												
OW21 MSD		1020		X				X		X		X	X												
Field Blank 2		1030		X						X							X	VOC's ONLY							
OW10R		1140		X				X		X		X	X				X	X	X	X	X	X	X	X	
SW1		1320		X						X							X	VOC's ONLY							
SW Dup		—		X						X							X	VOC's ONLY							
Sed 1		1330			X								X				X	VOC's ONLY							
Sed Dup	↓	—			X								X				X	VOC's ONLY							

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
John Vogeding	Cardinal Res.	7-15-09 1600	Chris Lynch	TAL	7-16-09 9:20
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TAL-0018 (1008)

North Canton

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratory location: ______
Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other ______

TestAmerica Laboratories, Inc.

Client Contact			
Company Name: Cardinal Resources, LLC	Client Project Manager: —	Site Contact: John Vogeding	Lab Contact: Nathan Pietras
Address: —	Telephone: —	Telephone: 412 374 0989	Telephone:
City/State/Zip: See Page 1	Email: See Page 1		
Phone:			
Project Name: —	Method of Shipment/Carrier: —		
Project Number:	Shipping/Tracking No:		
PO #			

COC No: 2 of 2 COCs

Analysis Turnaround Time (in BUS days)
TAT if different from below ______
☐ 3 weeks
■ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

For lab use only: Walk-in client ☐ Lab pickup ☐ Lab sampling ☐ Job/SDG No:

Sample Identification	Sample Date	Sample Time	Air	Aqueous	Sediment	Solid	Other:	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite=C/Grab=G	TCL VOCs	Methane/Ethane/Ethene	Sulfate	Sulfide	Alkalinity	Chloride	Nitrate (N)	TOC	Sample Specific Notes / Special Instructions:
SW2	7-15-09	1400		X						X							X	VOCs ONLY							
SW2 MS	↓	↓		X						X							X		↓			↓			
SW2 MSD	↓	↓		X						X							X		↓			↓			
Sed 2	↓	1410			X								X				X		↓			↓			
Sed 2 MS	↓	↓			X								X				X		↓			↓			
Sed 2 MSD	↓	↓			X								X				X		↓			↓			
OW19	↓	1455		X				X		X		X	X				X	X	X	X	X	X	X	X	
TB2	Trip Blank			X						X							X								

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal By Lab ☐ Archive For ______ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
John Vogeding	Cardinal Res.	7-15-09/1600	[signature]	TAL	7-16-09 9:20
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TAL-0018 (1008)

TestAmerica Cooler Receipt Form/Narrative **Lot Number:** 240160126
North Canton Facility

Client Cardinal Resources Project Carroll Dubois By: (Signature)
Cooler Received on 7-16-09 Opened on 7-16-09
FedEx ☒ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☐ Other
TestAmerica Cooler # 4310 Multiple Coolers ☐ Foam Box ☐ Client Cooler ☐ Other

1. Were custody seals on the outside of the cooler(s)? Yes ☐ No ☒ Intact? Yes ☐ No ☐ NA ☒
   If YES, Quantity Quantity Unsalvageable
   Were custody seals on the outside of cooler(s) signed and dated? Yes ☐ No ☐ NA ☒
   Were custody seals on the bottle(s)? Yes ☐ No ☒
   If YES, are there any exceptions?
2. Shippers' packing slip attached to the cooler(s)? Yes ☒ No ☐
3. Did custody papers accompany the sample(s)? Yes ☒ No ☐ Relinquished by client? Yes ☒ No ☐
4. Were the custody papers signed in the appropriate place? Yes ☒ No ☐
5. Packing material used: Bubble Wrap ☒ Foam ☐ None ☐ Other
6. Cooler temperature upon receipt 3.7 °C See back of form for multiple coolers/temps ☐
   METHOD: IR ☒ Other ☐
   COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
7. Did all bottles arrive in good condition (Unbroken)? Yes ☑ No ☐
8. Could all bottle labels be reconciled with the COC? Yes ☑ No ☐
9. Were sample(s) at the correct pH upon receipt? Yes ☑ No ☐ NA ☐
10. Were correct bottle(s) used for the test(s) indicated? Yes ☑ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☑ NA ☐
12. Sufficient quantity received to perform indicated analyses? Yes ☑ No ☐
13. Was a trip blank present in the cooler(s)? Yes ☑ No ☐ Were VOAs on the COC? Yes ☑ No ☐

Contacted PM MAP Date 7/16/09 by via Verbal ☒ Voice Mail ☐ Other ☐
Concerning 14

14. CHAIN OF CUSTODY

The following discrepancies occurred:
COC - no dt. for TB2, will log dt. of prep. sam.

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 Sample Receiving to meet recommended pH level(s). *Nitric Acid Lot#* 031909-HNO_3; *Sulfuric Acid Lot#* 100108-H_2SO_4; *Sodium Hydroxide Lot#* 073007 -*NaOH; Hydrochloric Acid Lot#* 092006-*HCl; Sodium Hydroxide and Zinc Acetate Lot#* 050205-$(CH_3COO)_2ZN/NaOH$. What time was preservative added to sample(s)?

Client ID	pH	Date	Initials
OW 22	≥12	7-16-09	CSL
OW 21	≥12 ≥12 ≥12	"	"
OW 10R	≥12	"	"
OW 19	≥12	"	"

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler #	Temp. °C	Method	Coolant

Discrepancies Cont'd:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

GCMS VOLATILE DATA

Cardinal Resources

Client Sample ID: OW5

GC/MS Volatiles

Lot-Sample #...: A9G150158-001	**Work Order #...:** LGHM71AJ	**Matrix.....:** WG	
Date Sampled...: 07/14/09 08:50	**Date Received..:** 07/15/09		
Prep Date.....: 07/17/09	**Analysis Date..:** 07/17/09		
Prep Batch #...: 9202338			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	**1.5**	**1.0**	**ug/L**
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	**3.7**	**1.0**	**ug/L**
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
Toluene-d8	105	(76 - 110)
4-Bromofluorobenzene	98	(74 - 116)

Cardinal Resources

Client Sample ID: OW6

GC/MS Volatiles

Lot-Sample #...:	A9G150158-002	**Work Order #...:**	LGHPH1AJ	**Matrix.....:**	WG
Date Sampled...:	07/14/09 09:50	**Date Received..:**	07/15/09		
Prep Date.....:	07/17/09	**Analysis Date..:**	07/17/09		
Prep Batch #...:	9202338				
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	**16**	**1.0**	**ug/L**
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	**5.5**	**1.0**	**ug/L**
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	**30**	**1.0**	**ug/L**
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
1,2-Dichloroethane-d4	97	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	97	(74 - 116)

Cardinal Resources

Client Sample ID: OW13R

GC/MS Volatiles

Lot-Sample #...: A9G150158-003	Work Order #...: LGHPK1AJ	Matrix.....: WG	
Date Sampled...: 07/14/09 11:30	Date Received..: 07/15/09		
Prep Date.....: 07/20/09	Analysis Date..: 07/20/09		
Prep Batch #...: 9202386			
Dilution Factor: 1	Initial Wgt/Vol: 5 mL	Final Wgt/Vol..: 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	**1.6 J**	**2.0**	**ug/L**
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	**2.4**	**1.0**	**ug/L**
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	**0.64 J**	**1.0**	**ug/L**
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**13**	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
Toluene-d8	103	(76 - 110)
4-Bromofluorobenzene	97	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: OW13R

GC/MS Volatiles

Lot-Sample #...: A9G150158-003 Work Order #...: LGHPK1AJ Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: OW8

GC/MS Volatiles

Lot-Sample #...: A9G150158-004	**Work Order #...:** LGHPL1AJ	**Matrix.....:** WG	
Date Sampled...: 07/14/09 14:00	**Date Received..:** 07/15/09		
Prep Date.....: 07/20/09	**Analysis Date..:** 07/20/09		
Prep Batch #...: 9202386			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
Toluene-d8	104	(76 - 110)
4-Bromofluorobenzene	101	(74 - 116)

OW-13R

Cardinal Resources

Client Sample ID: DUP1

GC/MS Volatiles

Lot-Sample #...: A9G150158-005	Work Order #...: LGHPM1AJ	Matrix.....: WG	
Date Sampled...: 07/14/09	Date Received..: 07/15/09		
Prep Date.....: 07/20/09	Analysis Date..: 07/20/09		
Prep Batch #...: 9202386			
Dilution Factor: 1	Initial Wgt/Vol: 5 mL	Final Wgt/Vol..: 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	**1.6 J** ✓	**2.0**	**ug/L**
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	**2.3** ✓	**1.0**	**ug/L**
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	**0.63 J** ✓	**1.0**	**ug/L**
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**12** ✓	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
1,2-Dichloroethane-d4	98	(61 - 128)
Toluene-d8	102	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)

$\frac{2.4-2.3}{\frac{1}{2}(2.4+2.3)} \times 100 = \frac{4\%}{0\text{ K}}$

RPD = 8 %

$\frac{13-12}{\frac{1}{2}(13+12)} \times 100$

(Continued on next page)

Cardinal Resources

Client Sample ID: DUP1

GC/MS Volatiles

Lot-Sample #...: A9G150158-005 Work Order #...: LGHPM1AJ Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: FIELD BLANK 1

GC/MS Volatiles

Lot-Sample #...: A9G150158-006	**Work Order #...:** LGHPQ1AA	**Matrix.....:** WQ	
Date Sampled...: 07/14/09 14:10	**Date Received..:** 07/15/09		
Prep Date.....: 07/20/09	**Analysis Date..:** 07/20/09		
Prep Batch #...: 9202386			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
1,2-Dichloroethane-d4	97	(61 - 128)
Toluene-d8	104	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)

Cardinal Resources

Client Sample ID: MW1

GC/MS Volatiles

Lot-Sample #...:	A9G150158-007	**Work Order #...:**	LGHPW1AJ	**Matrix.....:**	WG
Date Sampled...:	07/14/09 15:05	**Date Received..:**	07/15/09		
Prep Date.....:	07/20/09	**Analysis Date..:**	07/20/09		
Prep Batch #...:	9202386				
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	92	(73 - 122)
1,2-Dichloroethane-d4	96	(61 - 128)
Toluene-d8	100	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)

Cardinal Resources

Client Sample ID: TB1

GC/MS Volatiles

Lot-Sample #...: A9G150158-008	Work Order #...: LGHP01AA	Matrix.....: WQ	
Date Sampled...: 07/14/09	Date Received..: 07/15/09		
Prep Date.....: 07/20/09	Analysis Date..: 07/20/09		
Prep Batch #...: 9202386			
Dilution Factor: 1	Initial Wgt/Vol: 5 mL	Final Wgt/Vol..: 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	**2.2 J**	**10**	**ug/L**
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
1,2-Dichloroethane-d4	97	(61 - 128)
Toluene-d8	103	(76 - 110)
4-Bromofluorobenzene	99	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: TB1

GC/MS Volatiles

Lot-Sample #...: A9G150158-008 Work Order #...: LGHP01AA Matrix.....: WQ

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: OW22

GC/MS Volatiles

Lot-Sample #...:	A9G160126-001	**Work Order #...:**	LGKPV1AJ	**Matrix.....:**	WG
Date Sampled...:	07/15/09 09:05	**Date Received..:**	07/16/09		
Prep Date.....:	07/20/09	**Analysis Date..:**	07/20/09		
Prep Batch #...:	9202386				
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	**0.35 J**	**2.0**	**ug/L**
Chloroethane	**0.34 J**	**2.0**	**ug/L**
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	**0.53 J**	**1.0**	**ug/L**
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**5.1**	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	**0.19 J**	**1.0**	**ug/L**
Chlorobenzene	**7.8**	**1.0**	**ug/L**
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
1,2-Dichloroethane-d4	91	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: OW22

GC/MS Volatiles

Lot-Sample #...: A9G160126-001 Work Order #...: LGKPV1AJ Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: OW21

GC/MS Volatiles

Lot-Sample #...: A9G160126-002	**Work Order #...:** LGKP41A1	**Matrix.....:** WG	
Date Sampled...: 07/15/09 10:20	**Date Received..:** 07/16/09		
Prep Date.....: 07/20/09	**Analysis Date..:** 07/20/09		
Prep Batch #...: 9202386			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	**0.80 J**	**2.0**	**ug/L**
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**2.1**	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(73 - 122)
1,2-Dichloroethane-d4	91	(61 - 128)
Toluene-d8	102	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: OW21

GC/MS Volatiles

Lot-Sample #...: A9G160126-002 Work Order #...: LGKP41A1 Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: FIELD BLANK 2

GC/MS Volatiles

Lot-Sample #...:	A9G160126-003	**Work Order #...:**	LGKP61AA	**Matrix.....:**	WQ
Date Sampled...:	07/15/09 10:30	**Date Received..:**	07/16/09		
Prep Date.....:	07/21/09	**Analysis Date..:**	07/21/09		
Prep Batch #...:	9202405				
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
1,2-Dichloroethane-d4	103	(61 - 128)
Toluene-d8	102	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)

Cardinal Resources

Client Sample ID: OW10R

GC/MS Volatiles

Lot-Sample #...: A9G160126-004	Work Order #...: LGKP81AJ	Matrix.....: WG	
Date Sampled...: 07/15/09 11:40	Date Received..: 07/16/09		
Prep Date.....: 07/21/09	Analysis Date..: 07/21/09		
Prep Batch #...: 9202405			
Dilution Factor: 1	Initial Wgt/Vol: 5 mL	Final Wgt/Vol..: 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	**0.33 J**	**2.0**	**ug/L**
Chloroethane	**0.62 J**	**2.0**	**ug/L**
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**2.7**	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	**2.3**	**1.0**	**ug/L**
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
1,2-Dichloroethane-d4	102	(61 - 128)
Toluene-d8	100	(76 - 110)
4-Bromofluorobenzene	93	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: OW10R

GC/MS Volatiles

Lot-Sample #...: A9G160126-004 Work Order #...: LGKP81AJ Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: SW1

GC/MS Volatiles

Lot-Sample #...:	A9G160126-005	Work Order #...:	LGKP91AA	Matrix.....:	WG
Date Sampled...:	07/15/09 13:20	Date Received..:	07/16/09		
Prep Date.....:	07/21/09	Analysis Date..:	07/21/09		
Prep Batch #...:	9202405				
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	1.4 J	**10**	**ug/L**
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	93	(73 - 122)
1,2-Dichloroethane-d4	102	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	93	(74 - 116)

10u based on acetone in T.B.

TB action level for acetone! 2.5 x 10 = 25

(Continued on next page)

Cardinal Resources

Client Sample ID: SW1

GC/MS Volatiles

Lot-Sample #...: A9G160126-005 Work Order #...: LGKP91AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Dup of SW-1

Cardinal Resources

Client Sample ID: SW DUP

GC/MS Volatiles

Lot-Sample #...:	A9G160126-006	Work Order #...:	LGKQA1AA	Matrix.....:	WG
Date Sampled...:	07/15/09	Date Received..:	07/16/09		
Prep Date.....:	07/21/09	Analysis Date..:	07/21/09		
Prep Batch #...:	9202405				
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	21 J	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	91	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)

Based on detection in TB

104

RPD = 40%

exceeds 30% limit x 1 but already J qualified

TB: acetone action level = 2.5 x 10 = 25

(Continued on next page)

Cardinal Resources

Client Sample ID: SW DUP

GC/MS Volatiles

Lot-Sample #...: A9G160126-006 Work Order #...: LGKQA1AA Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: SED 1

GC/MS Volatiles

Lot-Sample #...:	A9G160126-007	Work Order #...:	LGKQE1AC	Matrix.....:	SO
Date Sampled...:	07/15/09 13:30	Date Received..:	07/16/09		
Prep Date.....:	07/20/09	Analysis Date..:	07/21/09		
Prep Batch #...:	9202420				
Dilution Factor:	1	Initial Wgt/Vol:	5 g	Final Wgt/Vol..:	5 mL
% Moisture.....:	80	Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	51	ug/kg
Bromomethane	ND	51	ug/kg
Vinyl chloride	**8.7 J**	**51**	**ug/kg**
Chloroethane	ND	51	ug/kg
Methylene chloride	**9.7 J**	**25**	**ug/kg**
Acetone	**940 J**	**100**	**ug/kg**
Carbon disulfide	**17 J**	**25**	**ug/kg**
1,1-Dichloroethene	ND	25	ug/kg
1,1-Dichloroethane	ND	25	ug/kg
1,2-Dichloroethene (total)	**12 J**	**25**	**ug/kg**
Chloroform	ND	25	ug/kg
1,2-Dichloroethane	**1.7 J**	**25**	**ug/kg**
2-Butanone	**230 J**	**100**	**ug/kg**
1,1,1-Trichloroethane	ND	25	ug/kg
Carbon tetrachloride	ND	25	ug/kg
Bromodichloromethane	ND	25	ug/kg
1,2-Dichloropropane	ND	25	ug/kg
cis-1,3-Dichloropropene	ND	25	ug/kg
Trichloroethene	ND	25	ug/kg
Dibromochloromethane	ND	25	ug/kg
1,1,2-Trichloroethane	ND	25	ug/kg
Benzene	**13 J**	**25**	**ug/kg**
trans-1,3-Dichloropropene	ND	25	ug/kg
Bromoform	ND	25	ug/kg
4-Methyl-2-pentanone	ND	100	ug/kg
2-Hexanone	ND	100	ug/kg
Tetrachloroethene	ND	25	ug/kg
1,1,2,2-Tetrachloroethane	ND	25	ug/kg
Toluene	**3.1 J**	**25**	**ug/kg**
Chlorobenzene	**5.9 J**	**25**	**ug/kg**
Ethylbenzene	ND	25	ug/kg
Styrene	ND	25	ug/kg
Xylenes (total)	ND	25	ug/kg

J based on dup. results + high moisture

Acetone: Action level =

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	91	(59 - 138)
1,2-Dichloroethane-d4	77	(61 - 130)
Toluene-d8	95	(60 - 143)
4-Bromofluorobenzene	74	(47 - 158)

(Continued on next page)

Cardinal Resources

Client Sample ID: SED 1

GC/MS Volatiles

Lot-Sample #...: A9G160126-007 Work Order #...: LGKQE1AC Matrix.....: SO

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

SED 1

Cardinal Resources

Client Sample ID: SED DUP

GC/MS Volatiles

Lot-Sample #...:	A9G160126-008	Work Order #...:	LGKQH1AC	Matrix.....:	SO
Date Sampled...:	07/15/09	Date Received..:	07/16/09		
Prep Date.....:	07/22/09	Analysis Date..:	07/22/09		
Prep Batch #...:	9204193				
Dilution Factor:	1	Initial Wgt/Vol:	5 g	Final Wgt/Vol..:	5 mL
% Moisture.....:	76	Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	42	ug/kg
Bromomethane	ND	42	ug/kg
Vinyl chloride	**4.5 J**	**42**	**ug/kg**
Chloroethane	ND	42	ug/kg
Methylene chloride	**3.7 J,B**	**21**	**ug/kg**
Acetone	**300 B J**	**84**	**ug/kg**
Carbon disulfide	**8.2 J**	**21**	**ug/kg**
1,1-Dichloroethene	ND	21	ug/kg
1,1-Dichloroethane	ND	21	ug/kg
1,2-Dichloroethene (total)	**5.9 J**	**21**	**ug/kg**
Chloroform	ND	21	ug/kg
1,2-Dichloroethane	ND	21	ug/kg
2-Butanone	**96 J**	**84**	**ug/kg**
1,1,1-Trichloroethane	ND	21	ug/kg
Carbon tetrachloride	ND	21	ug/kg
Bromodichloromethane	ND	21	ug/kg
1,2-Dichloropropane	ND	21	ug/kg
cis-1,3-Dichloropropene	ND	21	ug/kg
Trichloroethene	ND	21	ug/kg
Dibromochloromethane	ND	21	ug/kg
1,1,2-Trichloroethane	ND	21	ug/kg
Benzene	**5.6 J**	**21**	**ug/kg**
trans-1,3-Dichloropropene	ND	21	ug/kg
Bromoform	ND	21	ug/kg
4-Methyl-2-pentanone	ND	84	ug/kg
2-Hexanone	ND	84	ug/kg
Tetrachloroethene	ND	21	ug/kg
1,1,2,2-Tetrachloroethane	ND	21	ug/kg
Toluene	**1.3 J**	**21**	**ug/kg**
Chlorobenzene	**3.2 J**	**21**	**ug/kg**
Ethylbenzene	ND	21	ug/kg
Styrene	ND	21	ug/kg
Xylenes (total)	ND	21	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(59 - 138)
1,2-Dichloroethane-d4	125	(61 - 130)
Toluene-d8	111	(60 - 143)
4-Bromofluorobenzene	124	(47 - 158)

Acetone: action level = 10 x 6.9 = 69

Meth. chloride action level = 0.14 x 10 = 1.4

based on high moisture

(Continued on next page)

Cardinal Resources

Client Sample ID: SED DUP

GC/MS Volatiles

Lot-Sample #...: A9G160126-008 Work Order #...: LGKQH1AC Matrix.....: SO

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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

Cardinal Resources

Client Sample ID: SW2

GC/MS Volatiles

Lot-Sample #...: A9G160126-009	**Work Order #...:** LGKQL1AA	**Matrix.....:** WG	
Date Sampled...: 07/15/09 14:00	**Date Received..:** 07/16/09		
Prep Date.....: 07/21/09	**Analysis Date..:** 07/21/09		
Prep Batch #...: 9202405			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
1,2-Dichloroethane-d4	104	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)

Cardinal Resources

Client Sample ID: SED 2

GC/MS Volatiles

Lot-Sample #...: A9G160126-010 Work Order #...: LGKQX1AC Matrix.....: SO
Date Sampled...: 07/15/09 14:10 Date Received..: 07/16/09
Prep Date.....: 07/20/09 Analysis Date..: 07/21/09
Prep Batch #...: 9202420
Dilution Factor: 1 Initial Wgt/Vol: 5 g Final Wgt/Vol..: 5 mL
% Moisture.....: 82 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	56	ug/kg
Bromomethane	ND	56	ug/kg
Vinyl chloride	ND	56	ug/kg
Chloroethane	ND	56	ug/kg
Methylene chloride	**8.6 J**	**28**	**ug/kg**
Acetone	ND	110	ug/kg
Carbon disulfide	ND	28	ug/kg
1,1-Dichloroethene	ND	28	ug/kg
1,1-Dichloroethane	ND	28	ug/kg
1,2-Dichloroethene (total)	ND	28	ug/kg
Chloroform	**1.6 J**	**28**	**ug/kg**
1,2-Dichloroethane	ND	28	ug/kg
2-Butanone	ND	110	ug/kg
1,1,1-Trichloroethane	ND	28	ug/kg
Carbon tetrachloride	ND	28	ug/kg
Bromodichloromethane	ND	28	ug/kg
1,2-Dichloropropane	ND	28	ug/kg
cis-1,3-Dichloropropene	ND	28	ug/kg
Trichloroethene	ND	28	ug/kg
Dibromochloromethane	ND	28	ug/kg
1,1,2-Trichloroethane	ND	28	ug/kg
Benzene	ND	28	ug/kg
trans-1,3-Dichloropropene	ND	28	ug/kg
Bromoform	ND	28	ug/kg
4-Methyl-2-pentanone	ND	110	ug/kg
2-Hexanone	ND	110	ug/kg
Tetrachloroethene	ND	28	ug/kg
1,1,2,2-Tetrachloroethane	ND	28	ug/kg
Toluene	**34 J**	**28**	**ug/kg**
Chlorobenzene	ND	28	ug/kg
Ethylbenzene	ND	28	ug/kg
Styrene	ND	28	ug/kg
Xylenes (total)	ND	28	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(59 - 138)
1,2-Dichloroethane-d4	80	(61 - 130)
Toluene-d8	74	(60 - 143)
4-Bromofluorobenzene	49	(47 - 158)

Low internal std. performance: all ND qualified as UJ

based on high moisture

(Continued on next page)

Cardinal Resources

Client Sample ID: SED 2

GC/MS Volatiles

Lot-Sample #...: A9G160126-010 Work Order #...: LGKQX1AC Matrix.....: SO

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: OW19

GC/MS Volatiles

Lot-Sample #...:	A9G160126-011	**Work Order #...:**	LGKQ11AJ	**Matrix.....:**	WG
Date Sampled...:	07/15/09 14:55	**Date Received..:**	07/16/09		
Prep Date.....:	07/21/09	**Analysis Date..:**	07/21/09		
Prep Batch #...:	9202405				
Dilution Factor:	1	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	**2.1**	**2.0**	**ug/L**
Chloroethane	**1.0 J**	**2.0**	**ug/L**
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	**0.94 J**	**1.0**	**ug/L**
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**1.9**	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	**7.9**	**1.0**	**ug/L**
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
Toluene-d8	104	(76 - 110)
4-Bromofluorobenzene	94	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: OW19

GC/MS Volatiles

Lot-Sample #...: A9G160126-011 Work Order #...: LGKQ11AJ Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: TB2

GC/MS Volatiles

Lot-Sample #...: A9G160126-012	Work Order #...: LGKQ31AA	Matrix.....: WQ	
Date Sampled...: 07/15/09	Date Received..: 07/16/09		
Prep Date.....: 07/21/09	Analysis Date..: 07/21/09		
Prep Batch #...: 9202405			
Dilution Factor: 1	Initial Wgt/Vol: 5 mL	Final Wgt/Vol..: 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	**2.5 J**	**10**	**ug/L**
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
Toluene-d8	104	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: TB2

GC/MS Volatiles

Lot-Sample #...: A9G160126-012 Work Order #...: LGKQ31AA Matrix.....: WQ

NOTE(S):

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGR661AA Matrix.....: WATER
MB Lot-Sample #: A9G210000-338

Prep Date.....: 07/17/09 Final Wgt/Vol..: 5 mL
Analysis Date..: 07/17/09 Prep Batch #...: 9202338
Dilution Factor: 1 Initial Wgt/Vol: 5 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	2.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	93	(73 - 122)
1,2-Dichloroethane-d4	98	(61 - 128)
Toluene-d8	106	(76 - 110)
4-Bromofluorobenzene	94	(74 - 116)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGR661AA Matrix.....: WATER

NOTE(S):

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

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 **Work Order #...:** LGTLM1AA **Matrix.....:** WATER
MB Lot-Sample #: A9G210000-386

Prep Date.....: 07/20/09 **Final Wgt/Vol..:** 5 mL
Analysis Date..: 07/20/09 **Prep Batch #...:** 9202386
Dilution Factor: 1 **Initial Wgt/Vol:** 5 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	2.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	93	(73 - 122)
1,2-Dichloroethane-d4	98	(61 - 128)
Toluene-d8	97	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTLM1AA Matrix.....: WATER

NOTE(S):

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

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 **Work Order #...:** LGTP91AA **Matrix.....:** WATER
MB Lot-Sample #: A9G210000-405

Prep Date.....: 07/21/09 **Final Wgt/Vol..:** 5 mL
Analysis Date..: 07/21/09 **Prep Batch #...:** 9202405
Dilution Factor: 1 **Initial Wgt/Vol:** 5 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	2.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
1,2-Dichloroethane-d4	102	(61 - 128)
Toluene-d8	98	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTP91AA Matrix.....: WATER

NOTE(S):

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

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158
MB Lot-Sample #: A9G210000-420

Work Order #...: LGTQ41AA

Matrix.....: SOLID

Prep Date.....: 07/20/09
Prep Batch #...: 9202420
Initial Wgt/Vol: 5 g

Final Wgt/Vol..: 5 mL

Analysis Date..: 07/20/09
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
Acetone	ND	20	ug/kg	SW846 8260B
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
2-Hexanone	**0.87 J**	**20**	**ug/kg**	**SW846 8260B**
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Styrene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	92	(59 - 138)
1,2-Dichloroethane-d4	95	(61 - 130)
Toluene-d8	92	(60 - 143)
4-Bromofluorobenzene	88	(47 - 158)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTQ41AA Matrix.....: SOLID

NOTE(S):

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

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158
MB Lot-Sample #: A9G230000-193

Work Order #...: LGXKR1AA
Prep Date.....: 07/22/09
Prep Batch #...: 9204193
Initial Wgt/Vol: 5 g

Matrix.....: SOLID
Final Wgt/Vol..: 5 mL

Analysis Date..: 07/22/09
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Methylene chloride	**0.74 J**	**5.0**	**ug/kg**	**SW846 8260B**
Acetone	**6.9 J**	**20**	**ug/kg**	**SW846 8260B**
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	5.0	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
2-Hexanone	ND	20	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Styrene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	106	(59 - 138)
1,2-Dichloroethane-d4	120	(61 - 130)
Toluene-d8	109	(60 - 143)
4-Bromofluorobenzene	111	(47 - 158)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGXKR1AA Matrix.....: SOLID

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGR661AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G210000-338 LGR661AD-LCSD
Prep Date.....: 07/17/09 Analysis Date..: 07/17/09
Prep Batch #...: 9202338
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	89	(63 - 130)			SW846 8260B
	87	(63 - 130)	2.3	(0-20)	SW846 8260B
Trichloroethene	93	(75 - 122)			SW846 8260B
	88	(75 - 122)	5.8	(0-20)	SW846 8260B
Benzene	93	(80 - 116)			SW846 8260B
	87	(80 - 116)	6.4	(0-20)	SW846 8260B
Toluene	101	(74 - 119)			SW846 8260B
	97	(74 - 119)	3.7	(0-20)	SW846 8260B
Chlorobenzene	96	(76 - 117)			SW846 8260B
	92	(76 - 117)	4.0	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	95	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	98	(61 - 128)
Toluene-d8	101	(76 - 110)
	102	(76 - 110)
4-Bromofluorobenzene	91	(74 - 116)
	95	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGR661AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G210000-338 LGR661AD-LCSD
Prep Date.....: 07/17/09 Analysis Date..: 07/17/09
Prep Batch #...: 9202338
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	10	8.9	ug/L	89		SW846 8260B
	10	8.7	ug/L	87	2.3	SW846 8260B
Trichloroethene	10	9.3	ug/L	93		SW846 8260B
	10	8.8	ug/L	88	5.8	SW846 8260B
Benzene	10	9.3	ug/L	93		SW846 8260B
	10	8.7	ug/L	87	6.4	SW846 8260B
Toluene	10	10	ug/L	101		SW846 8260B
	10	9.7	ug/L	97	3.7	SW846 8260B
Chlorobenzene	10	9.6	ug/L	96		SW846 8260B
	10	9.2	ug/L	92	4.0	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	95	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	98	(61 - 128)
Toluene-d8	101	(76 - 110)
	102	(76 - 110)
4-Bromofluorobenzene	91	(74 - 116)
	95	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTLM1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G210000-386 LGTLM1AD-LCSD
Prep Date.....: 07/20/09 Analysis Date..: 07/20/09
Prep Batch #...: 9202386
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	85	(63 - 130)			SW846 8260B
	87	(63 - 130)	2.4	(0-20)	SW846 8260B
Trichloroethene	86	(75 - 122)			SW846 8260B
	87	(75 - 122)	1.8	(0-20)	SW846 8260B
Benzene	86	(80 - 116)			SW846 8260B
	88	(80 - 116)	1.9	(0-20)	SW846 8260B
Toluene	93	(74 - 119)			SW846 8260B
	90	(74 - 119)	2.5	(0-20)	SW846 8260B
Chlorobenzene	92	(76 - 117)			SW846 8260B
	91	(76 - 117)	0.61	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	96	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	101	(61 - 128)
Toluene-d8	100	(76 - 110)
	96	(76 - 110)
4-Bromofluorobenzene	99	(74 - 116)
	97	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTLM1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G210000-386 LGTLM1AD-LCSD
Prep Date.....: 07/20/09 Analysis Date..: 07/20/09
Prep Batch #...: 9202386
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	10	8.5	ug/L	85		SW846 8260B
	10	8.7	ug/L	87	2.4	SW846 8260B
Trichloroethene	10	8.6	ug/L	86		SW846 8260B
	10	8.7	ug/L	87	1.8	SW846 8260B
Benzene	10	8.6	ug/L	86		SW846 8260B
	10	8.8	ug/L	88	1.9	SW846 8260B
Toluene	10	9.3	ug/L	93		SW846 8260B
	10	9.0	ug/L	90	2.5	SW846 8260B
Chlorobenzene	10	9.2	ug/L	92		SW846 8260B
	10	9.1	ug/L	91	0.61	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	96	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
	101	(61 - 128)
Toluene-d8	100	(76 - 110)
	96	(76 - 110)
4-Bromofluorobenzene	99	(74 - 116)
	97	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTP91AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G210000-405 LGTP91AD-LCSD
Prep Date.....: 07/21/09 Analysis Date..: 07/21/09
Prep Batch #...: 9202405
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	85	(63 - 130)			SW846 8260B
	85	(63 - 130)	0.10	(0-20)	SW846 8260B
Trichloroethene	87	(75 - 122)			SW846 8260B
	89	(75 - 122)	1.5	(0-20)	SW846 8260B
Benzene	91	(80 - 116)			SW846 8260B
	91	(80 - 116)	0.19	(0-20)	SW846 8260B
Toluene	97	(74 - 119)			SW846 8260B
	97	(74 - 119)	0.040	(0-20)	SW846 8260B
Chlorobenzene	95	(76 - 117)			SW846 8260B
	94	(76 - 117)	0.83	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
	97	(73 - 122)
1,2-Dichloroethane-d4	100	(61 - 128)
	100	(61 - 128)
Toluene-d8	97	(76 - 110)
	99	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	98	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTP91AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G210000-405 LGTP91AD-LCSD
Prep Date.....: 07/21/09 Analysis Date..: 07/21/09
Prep Batch #...: 9202405
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	10	8.5	ug/L	85		SW846 8260B
	10	8.5	ug/L	85	0.10	SW846 8260B
Trichloroethene	10	8.7	ug/L	87		SW846 8260B
	10	8.9	ug/L	89	1.5	SW846 8260B
Benzene	10	9.1	ug/L	91		SW846 8260B
	10	9.1	ug/L	91	0.19	SW846 8260B
Toluene	10	9.7	ug/L	97		SW846 8260B
	10	9.7	ug/L	97	0.040	SW846 8260B
Chlorobenzene	10	9.5	ug/L	95		SW846 8260B
	10	9.4	ug/L	94	0.83	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
	97	(73 - 122)
1,2-Dichloroethane-d4	100	(61 - 128)
	100	(61 - 128)
Toluene-d8	97	(76 - 110)
	99	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	98	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTQ41AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: A9G210000-420 LGTQ41AD-LCSD
Prep Date.....: 07/20/09 Analysis Date..: 07/20/09
Prep Batch #...: 9202420
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	76	(55 - 142)			SW846 8260B
	85	(55 - 142)	11	(0-27)	SW846 8260B
Trichloroethene	79	(70 - 131)			SW846 8260B
	104 p	(70 - 131)	27	(0-23)	SW846 8260B
Benzene	81	(75 - 129)			SW846 8260B
	89	(75 - 129)	8.7	(0-20)	SW846 8260B
Toluene	81	(71 - 130)			SW846 8260B
	88	(71 - 130)	9.1	(0-24)	SW846 8260B
Chlorobenzene	82	(75 - 127)			SW846 8260B
	89	(75 - 127)	8.2	(0-22)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	93	(59 - 138)
	92	(59 - 138)
1,2-Dichloroethane-d4	88	(61 - 130)
	92	(61 - 130)
Toluene-d8	92	(60 - 143)
	97	(60 - 143)
4-Bromofluorobenzene	89	(47 - 158)
	89	(47 - 158)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGTQ41AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: A9G210000-420 LGTQ41AD-LCSD
Prep Date.....: 07/20/09 Analysis Date..: 07/20/09
Prep Batch #...: 9202420
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	50	38	ug/kg	76		SW846 8260B
	50	42	ug/kg	85	11	SW846 8260B
Trichloroethene	50	40	ug/kg	79		SW846 8260B
	50	52 p	ug/kg	104	27	SW846 8260B
Benzene	50	41	ug/kg	81		SW846 8260B
	50	44	ug/kg	89	8.7	SW846 8260B
Toluene	50	40	ug/kg	81		SW846 8260B
	50	44	ug/kg	88	9.1	SW846 8260B
Chlorobenzene	50	41	ug/kg	82		SW846 8260B
	50	44	ug/kg	89	8.2	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	93	(59 - 138)
	92	(59 - 138)
1,2-Dichloroethane-d4	88	(61 - 130)
	92	(61 - 130)
Toluene-d8	92	(60 - 143)
	97	(60 - 143)
4-Bromofluorobenzene	89	(47 - 158)
	89	(47 - 158)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGXKR1AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: A9G230000-193 LGXKR1AD-LCSD
Prep Date.....: 07/22/09 Analysis Date..: 07/22/09
Prep Batch #...: 9204193
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	102	(55 - 142)			SW846 8260B
	104	(55 - 142)	2.4	(0-27)	SW846 8260B
Trichloroethene	88	(70 - 131)			SW846 8260B
	92	(70 - 131)	4.2	(0-23)	SW846 8260B
Benzene	103	(75 - 129)			SW846 8260B
	104	(75 - 129)	1.2	(0-20)	SW846 8260B
Toluene	102	(71 - 130)			SW846 8260B
	103	(71 - 130)	1.1	(0-24)	SW846 8260B
Chlorobenzene	94	(75 - 127)			SW846 8260B
	96	(75 - 127)	1.4	(0-22)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(59 - 138)
	105	(59 - 138)
1,2-Dichloroethane-d4	111	(61 - 130)
	118	(61 - 130)
Toluene-d8	112	(60 - 143)
	111	(60 - 143)
4-Bromofluorobenzene	108	(47 - 158)
	108	(47 - 158)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGXKR1AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: A9G230000-193 LGXKR1AD-LCSD
Prep Date.....: 07/22/09 Analysis Date..: 07/22/09
Prep Batch #...: 9204193
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	50	51	ug/kg	102		SW846 8260B
	50	52	ug/kg	104	2.4	SW846 8260B
Trichloroethene	50	44	ug/kg	88		SW846 8260B
	50	46	ug/kg	92	4.2	SW846 8260B
Benzene	50	51	ug/kg	103		SW846 8260B
	50	52	ug/kg	104	1.2	SW846 8260B
Toluene	50	51	ug/kg	102		SW846 8260B
	50	51	ug/kg	103	1.1	SW846 8260B
Chlorobenzene	50	47	ug/kg	94		SW846 8260B
	50	48	ug/kg	96	1.4	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(59 - 138)
	105	(59 - 138)
1,2-Dichloroethane-d4	111	(61 - 130)
	118	(61 - 130)
Toluene-d8	112	(60 - 143)
	111	(60 - 143)
4-Bromofluorobenzene	108	(47 - 158)
	108	(47 - 158)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...:	9G15158	**Work Order #...:**	LGKRJ1AC-MS	**Matrix.....:**	WATER
MS Lot-Sample #:	A9G160134-001		LGKRJ1AD-MSD		
Date Sampled...:	07/15/09 09:30	**Date Received..:**	07/16/09		
Prep Date.....:	07/17/09	**Analysis Date..:**	07/17/09		
Prep Batch #...:	9202338				
Dilution Factor:	3.33	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	89	(62 - 130)			SW846 8260B
	91	(62 - 130)	2.2	(0-20)	SW846 8260B
Trichloroethene	90	(62 - 130)			SW846 8260B
	91	(62 - 130)	0.57	(0-20)	SW846 8260B
Benzene	99	(78 - 118)			SW846 8260B
	97	(78 - 118)	1.3	(0-20)	SW846 8260B
Toluene	101	(70 - 119)			SW846 8260B
	103	(70 - 119)	2.0	(0-20)	SW846 8260B
Chlorobenzene	98	(76 - 117)			SW846 8260B
	99	(76 - 117)	0.81	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	93	(73 - 122)
	91	(73 - 122)
1,2-Dichloroethane-d4	93	(61 - 128)
	90	(61 - 128)
Toluene-d8	101	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	94	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGKRJ1AC-MS Matrix.....: WATER
MS Lot-Sample #: A9G160134-001 LGKRJ1AD-MSD
Date Sampled...: 07/15/09 09:30 Date Received..: 07/16/09
Prep Date.....: 07/17/09 Analysis Date..: 07/17/09
Prep Batch #...: 9202338
Dilution Factor: 3.33 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,1-Dichloroethene	ND	33	30	ug/L	89		SW846 8260B
	ND	33	30	ug/L	91	2.2	SW846 8260B
Trichloroethene	ND	33	30	ug/L	90		SW846 8260B
	ND	33	30	ug/L	91	0.57	SW846 8260B
Benzene	11	33	44	ug/L	99		SW846 8260B
	11	33	44	ug/L	97	1.3	SW846 8260B
Toluene	ND	33	33	ug/L	101		SW846 8260B
	ND	33	34	ug/L	103	2.0	SW846 8260B
Chlorobenzene	7.0	33	40	ug/L	98		SW846 8260B
	7.0	33	40	ug/L	99	0.81	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	93	(73 - 122)
	91	(73 - 122)
1,2-Dichloroethane-d4	93	(61 - 128)
	90	(61 - 128)
Toluene-d8	101	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	94	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGKP41A2-MS Matrix.....: WG
MS Lot-Sample #: A9G160126-002 LGKP41A3-MSD
Date Sampled...: 07/15/09 10:20 Date Received..: 07/16/09
Prep Date.....: 07/20/09 Analysis Date..: 07/20/09
Prep Batch #...: 9202386
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	92	(62 - 130)			SW846 8260B
	91	(62 - 130)	1.6	(0-20)	SW846 8260B
Trichloroethene	86	(62 - 130)			SW846 8260B
	86	(62 - 130)	0.09	(0-20)	SW846 8260B
Benzene	90	(78 - 118)			SW846 8260B
	89	(78 - 118)	1.0	(0-20)	SW846 8260B
Toluene	98	(70 - 119)			SW846 8260B
	96	(70 - 119)	2.0	(0-20)	SW846 8260B
Chlorobenzene	94	(76 - 117)			SW846 8260B
	91	(76 - 117)	2.2	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
	95	(73 - 122)
1,2-Dichloroethane-d4	91	(61 - 128)
	92	(61 - 128)
Toluene-d8	101	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	97	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGKP41A2-MS Matrix.....: WG
MS Lot-Sample #: A9G160126-002 LGKP41A3-MSD
Date Sampled...: 07/15/09 10:20 Date Received..: 07/16/09
Prep Date.....: 07/20/09 Analysis Date..: 07/20/09
Prep Batch #...: 9202386
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,1-Dichloroethene	ND	10	9.2	ug/L	92		SW846 8260B
	ND	10	9.1	ug/L	91	1.6	SW846 8260B
Trichloroethene	ND	10	8.6	ug/L	86		SW846 8260B
	ND	10	8.6	ug/L	86	0.09	SW846 8260B
Benzene	2.1	10	11	ug/L	90		SW846 8260B
	2.1	10	11	ug/L	89	1.0	SW846 8260B
Toluene	ND	10	9.8	ug/L	98		SW846 8260B
	ND	10	9.6	ug/L	96	2.0	SW846 8260B
Chlorobenzene	ND	10	9.4	ug/L	94		SW846 8260B
	ND	10	9.1	ug/L	91	2.2	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
	95	(73 - 122)
1,2-Dichloroethane-d4	91	(61 - 128)
	92	(61 - 128)
Toluene-d8	101	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	97	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...:	9G15158	**Work Order #...:**	LGKX21AC-MS	**Matrix.....:**	WATER
MS Lot-Sample #:	A9G160159-002		LGKX21AD-MSD		
Date Sampled...:	07/14/09 11:40	**Date Received..:**	07/16/09		
Prep Date.....:	07/21/09	**Analysis Date..:**	07/21/09		
Prep Batch #...:	9202405				
Dilution Factor:	1.43	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	89	(62 - 130)			SW846 8260B
	86	(62 - 130)	2.9	(0-20)	SW846 8260B
Trichloroethene	92	(62 - 130)			SW846 8260B
	91	(62 - 130)	0.58	(0-20)	SW846 8260B
Benzene	91	(78 - 118)			SW846 8260B
	88	(78 - 118)	3.0	(0-20)	SW846 8260B
Toluene	100	(70 - 119)			SW846 8260B
	95	(70 - 119)	6.0	(0-20)	SW846 8260B
Chlorobenzene	95	(76 - 117)			SW846 8260B
	89	(76 - 117)	6.6	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	92	(73 - 122)
	94	(73 - 122)
1,2-Dichloroethane-d4	89	(61 - 128)
	98	(61 - 128)
Toluene-d8	101	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)
	96	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGKX21AC-MS Matrix.....: WATER
MS Lot-Sample #: A9G160159-002 LGKX21AD-MSD
Date Sampled...: 07/14/09 11:40 Date Received..: 07/16/09
Prep Date.....: 07/21/09 Analysis Date..: 07/21/09
Prep Batch #...: 9202405
Dilution Factor: 1.43 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,1-Dichloroethene	0.37	14	13	ug/L	89		SW846 8260B
	0.37	14	13	ug/L	86	2.9	SW846 8260B
Trichloroethene	13	14	26	ug/L	92		SW846 8260B
	13	14	26	ug/L	91	0.58	SW846 8260B
Benzene	ND	14	13	ug/L	91		SW846 8260B
	ND	14	13	ug/L	88	3.0	SW846 8260B
Toluene	ND	14	14	ug/L	100		SW846 8260B
	ND	14	14	ug/L	95	6.0	SW846 8260B
Chlorobenzene	ND	14	14	ug/L	95		SW846 8260B
	ND	14	13	ug/L	89	6.6	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	92	(73 - 122)
	94	(73 - 122)
1,2-Dichloroethane-d4	89	(61 - 128)
	98	(61 - 128)
Toluene-d8	101	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	92	(74 - 116)
	96	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...:	9G15158	Work Order #...:	LGKQL1AC-MS	Matrix.....:	WG
MS Lot-Sample #:	A9G160126-009		LGKQL1AD-MSD		
Date Sampled...:	07/15/09 14:00	Date Received..:	07/16/09		
Prep Date.....:	07/21/09	Analysis Date..:	07/21/09		
Prep Batch #...:	9202405				
Dilution Factor:	1	Initial Wgt/Vol:	5 mL	Final Wgt/Vol..:	5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	82	(62 - 130)			SW846 8260B
	84	(62 - 130)	2.4	(0-20)	SW846 8260B
Trichloroethene	85	(62 - 130)			SW846 8260B
	86	(62 - 130)	1.5	(0-20)	SW846 8260B
Benzene	88	(78 - 118)			SW846 8260B
	87	(78 - 118)	0.90	(0-20)	SW846 8260B
Toluene	97	(70 - 119)			SW846 8260B
	95	(70 - 119)	1.9	(0-20)	SW846 8260B
Chlorobenzene	93	(76 - 117)			SW846 8260B
	90	(76 - 117)	3.2	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
	94	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
	101	(61 - 128)
Toluene-d8	100	(76 - 110)
	98	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	95	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: 9G15158 Work Order #...: LGKQL1AC-MS Matrix.....: WG
MS Lot-Sample #: A9G160126-009 LGKQL1AD-MSD
Date Sampled...: 07/15/09 14:00 Date Received..: 07/16/09
Prep Date.....: 07/21/09 Analysis Date..: 07/21/09
Prep Batch #...: 9202405
Dilution Factor: 1 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,1-Dichloroethene	ND	10	8.2	ug/L	82		SW846 8260B
	ND	10	8.4	ug/L	84	2.4	SW846 8260B
Trichloroethene	ND	10	8.5	ug/L	85		SW846 8260B
	ND	10	8.6	ug/L	86	1.5	SW846 8260B
Benzene	ND	10	8.8	ug/L	88		SW846 8260B
	ND	10	8.7	ug/L	87	0.90	SW846 8260B
Toluene	ND	10	9.7	ug/L	97		SW846 8260B
	ND	10	9.5	ug/L	95	1.9	SW846 8260B
Chlorobenzene	ND	10	9.3	ug/L	93		SW846 8260B
	ND	10	9.0	ug/L	90	3.2	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(73 - 122)
	94	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
	101	(61 - 128)
Toluene-d8	100	(76 - 110)
	98	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)
	95	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

TestAmerica

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GC VOLATILE DATA

Cardinal Resources

Client Sample ID: OW5

GC Volatiles

Lot-Sample #...:	A9G150158-001	Work Order #...:	LGHM71AH	Matrix.....:	WG
Date Sampled...:	07/14/09 08:50	Date Received..:	07/15/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	4.4	0.50	ug/L

Cardinal Resources

Client Sample ID: OW6

GC Volatiles

Lot-Sample #...:	A9G150158-002	Work Order #...:	LGHPH1AH	Matrix.....:	WG
Date Sampled...:	07/14/09 09:50	Date Received..:	07/15/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	ND	0.50	ug/L

Cardinal Resources

Client Sample ID: OW13R

GC Volatiles

Lot-Sample #...:	A9G150158-003	Work Order #...:	LGHPK1AH	Matrix.....:	WG
Date Sampled...:	07/14/09 11:30	Date Received..:	07/15/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	220	0.50	ug/L

Cardinal Resources

Client Sample ID: OW8

GC Volatiles

Lot-Sample #...:	A9G150158-004	Work Order #...:	LGHPL1AH	Matrix.....:	WG
Date Sampled...:	07/14/09 14:00	Date Received..:	07/15/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	1.4	0.50	ug/L

Cardinal Resources

Client Sample ID: DUP1

GC Volatiles

Lot-Sample #...:	A9G150158-005	Work Order #...:	LGHPM1AH	Matrix.....:	WG
Date Sampled...:	07/14/09	Date Received..:	07/15/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	210	0.50	ug/L

$\frac{220-210}{\frac{1}{2}(220+210)} \times 100 =$

4.65% RPD

OK

OW-13R

Dup.

Cardinal Resources

Client Sample ID: MW1

GC Volatiles

Lot-Sample #...:	A9G150158-007	Work Order #...:	LGHPW1AH	Matrix.....:	WG
Date Sampled...:	07/14/09 15:05	Date Received..:	07/15/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	0.47 J	0.50	ug/L

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: OW22

GC Volatiles

Lot-Sample #...:	A9G160126-001	Work Order #...:	LGKPV1AH	Matrix.....:	WG
Date Sampled...:	07/15/09 09:05	Date Received..:	07/16/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	5	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	2.5	ug/L
Ethene	ND	2.5	ug/L
Methane	1100	2.5	ug/L

Cardinal Resources

Client Sample ID: OW21

GC Volatiles

Lot-Sample #...:	A9G160126-002	Work Order #...:	LGKP41AW	Matrix.....:	WG
Date Sampled...:	07/15/09 10:20	Date Received..:	07/16/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	110	0.50	ug/L

Cardinal Resources

Client Sample ID: OW10R

GC Volatiles

Lot-Sample #...:	A9G160126-004	Work Order #...:	LGKP81AH	Matrix.....:	WG
Date Sampled...:	07/15/09 11:40	Date Received..:	07/16/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	5	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	2.5	ug/L
Ethene	ND	2.5	ug/L
Methane	1400	2.5	ug/L

Cardinal Resources

Client Sample ID: OW19

GC Volatiles

Lot-Sample #...:	A9G160126-011	Work Order #...:	LGKQ11AH	Matrix.....:	WG
Date Sampled...:	07/15/09 14:55	Date Received..:	07/16/09		
Prep Date.....:	07/24/09	Analysis Date..:	07/24/09		
Prep Batch #...:	9208134				
Dilution Factor:	2	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	1.0	ug/L
Ethene	ND	1.0	ug/L
Methane	530	1.0	ug/L

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: 9G15158
MB Lot-Sample #: A9G270000-134

Work Order #...: LG4KJ1AA

Matrix.....: WATER

Prep Date.....: 07/24/09
Prep Batch #...: 9208134
Initial Wgt/Vol: 1 mL

Final Wgt/Vol..: 1 mL

Analysis Date..: 07/24/09
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methane	ND	0.50	ug/L	RSK SOP-175
Ethane	ND	0.50	ug/L	RSK SOP-175
Ethene	ND	0.50	ug/L	RSK SOP-175

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: 9G15158 Work Order #...: LG4KJ1AC Matrix.....: WATER
LCS Lot-Sample#: A9G270000-134
Prep Date.....: 07/23/09 Analysis Date..: 07/23/09
Prep Batch #...: 9208134
Dilution Factor: 1 Final Wgt/Vol..: 1 mL
Initial Wgt/Vol: 1 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Methane	79	(75 - 127)	RSK SOP-175
Ethane	83	(74 - 138)	RSK SOP-175
Ethene	79	(73 - 140)	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: 9G15158 Work Order #...: LG4KJ1AC Matrix.....: WATER
LCS Lot-Sample#: A9G270000-134
Prep Date.....: 07/23/09 Analysis Date..: 07/23/09
Prep Batch #...: 9208134
Dilution Factor: 1 Final Wgt/Vol..: 1 mL
Initial Wgt/Vol: 1 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Methane	73	58	ug/L	79	RSK SOP-175
Ethane	140	110	ug/L	83	RSK SOP-175
Ethene	130	100	ug/L	79	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: 9G15158 Work Order #...: LGKP41AX-MS Matrix.....: WG
MS Lot-Sample #: A9G160126-002 LGKP41A0-MSD
Date Sampled...: 07/15/09 10:20 Date Received..: 07/16/09
Prep Date.....: 07/24/09 Analysis Date..: 07/24/09
Prep Batch #...: 9208134
Dilution Factor: 1 Initial Wgt/Vol: 1 mL Final Wgt/Vol..: 1 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Methane	110	(75 - 127)			RSK SOP-175
	133 a	(75 - 127)	8.6	(0-30)	RSK SOP-175
Ethane	86	(74 - 138)			RSK SOP-175
	87	(74 - 138)	1.2	(0-30)	RSK SOP-175
Ethene	90	(73 - 140)			RSK SOP-175
	90	(73 - 140)	0.08	(0-30)	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: 9G15158 Work Order #...: LGKP41AX-MS Matrix.....: WG
MS Lot-Sample #: A9G160126-002 LGKP41A0-MSD
Date Sampled...: 07/15/09 10:20 Date Received..: 07/16/09
Prep Date.....: 07/24/09 Analysis Date..: 07/24/09
Prep Batch #...: 9208134
Dilution Factor: 1 Initial Wgt/Vol: 1 mL Final Wgt/Vol..: 1 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Methane	110	73	190	ug/L	110		RSK SOP-175
	110	73	210	ug/L	133 a	8.6	RSK SOP-175
Ethane	ND	140	120	ug/L	86		RSK SOP-175
	ND	140	120	ug/L	87	1.2	RSK SOP-175
Ethene	ND	130	110	ug/L	90		RSK SOP-175
	ND	130	110	ug/L	90	0.08	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

TestAmerica

GENERAL CHEMISTRY DATA

Cardinal Resources

Client Sample ID: OW5

General Chemistry

Lot-Sample #...: A9G150158-001 Work Order #...: LGHM7 Matrix.....: WG
Date Sampled...: 07/14/09 08:50 Date Received..: 07/15/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	4.3	1.0	mg/L	MCAWW 300.0A	07/15/09	9197355
		Dilution Factor: 1				
Nitrate as N	1.2	0.10	mg/L	MCAWW 300.0A	07/15/09	9197354
		Dilution Factor: 1				
Sulfate	56.1	1.0	mg/L	MCAWW 300.0A	07/15/09	9197352
		Dilution Factor: 1				
Total Alkalinity	91	5.0	mg/L	MCAWW 310.1	07/16/09	9198042
		Dilution Factor: 1				
Total Organic Carbon	2	1	mg/L	MCAWW 415.1	07/16/09	9197053
		Dilution Factor: 1				
Total Sulfide	ND	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1				

Cardinal Resources

Client Sample ID: OW6

General Chemistry

Lot-Sample #...: A9G150158-002 Work Order #...: LGHPH Matrix.....: WG
Date Sampled...: 07/14/09 09:50 Date Received..: 07/15/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	ND	1.0	mg/L	MCAWW 300.0A	07/15/09	9197355
		Dilution Factor: 1				
Nitrate as N	0.30	0.10	mg/L	MCAWW 300.0A	07/15/09	9197354
		Dilution Factor: 1				
Sulfate	16.9	1.0	mg/L	MCAWW 300.0A	07/15/09	9197352
		Dilution Factor: 1				
Total Alkalinity	24	5.0	mg/L	MCAWW 310.1	07/16/09	9198042
		Dilution Factor: 1				
Total Organic Carbon	1	1	mg/L	MCAWW 415.1	07/16/09	9197053
		Dilution Factor: 1				
Total Sulfide	ND	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1				

Cardinal Resources

Client Sample ID: OW13R

General Chemistry

Lot-Sample #...: A9G150158-003 Work Order #...: LGHPK Matrix.....: WG
Date Sampled...: 07/14/09 11:30 Date Received..: 07/15/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	1.7	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/15/09	9197355
Nitrate as N	ND	0.10 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/15/09	9197354
Sulfate	22.1	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/15/09	9197352
Total Alkalinity	290	5.0 Dilution Factor: 1	mg/L	MCAWW 310.1	07/16/09	9198042
Total Organic Carbon	2 (J)	1 Dilution Factor: 1	mg/L	MCAWW 415.1	07/16/09	9197053
Total Sulfide	20 (J)	1.0 Dilution Factor: 1	mg/L	MCAWW 376.1	07/17/09	9198246

Qualified based on field dup. analysis >30%

Cardinal Resources

Client Sample ID: OW8

General Chemistry

Lot-Sample #...: A9G150158-004 Work Order #...: LGHPL Matrix.....: WG
Date Sampled...: 07/14/09 14:00 Date Received..: 07/15/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	1.9	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/15/09	9197355
Nitrate as N	ND	0.10 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/16/09	9198212
Sulfate	11.7	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/15/09	9197352
Total Alkalinity	52	5.0 Dilution Factor: 1	mg/L	MCAWW 310.1	07/16/09	9198042
Total Organic Carbon	ND	1 Dilution Factor: 1	mg/L	MCAWW 415.1	07/16/09	9197053
Total Sulfide	ND	1.0 Dilution Factor: 1	mg/L	MCAWW 376.1	07/17/09	9198246

Cardinal Resources

Client Sample ID: DUP1

General Chemistry

Lot-Sample #...: A9G150158-005 Work Order #...: LGHPM Matrix.....: WG
Date Sampled...: 07/14/09 Date Received..: 07/15/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	1.6 ✓	1.0	mg/L	MCAWW 300.0A	07/15/09	9197355
	Dilution Factor: 1					
Nitrate as N	ND ✓	0.10	mg/L	MCAWW 300.0A	07/16/09	9198212
	Dilution Factor: 1					
Sulfate	22.5 ✓	1.0	mg/L	MCAWW 300.0A	07/15/09	9197352
	Dilution Factor: 1					
Total Alkalinity	280 ✓	5.0	mg/L	MCAWW 310.1	07/16/09	9198042
	Dilution Factor: 1					
Total Organic Carbon	3 J	1	mg/L	MCAWW 415.1	07/16/09	9197053
	Dilution Factor: 1					
Total Sulfide	12 J	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
	Dilution Factor: 1					

$$TOC: \frac{3-2}{\frac{1}{2}(3+2)} \times 100 = 40\%$$

$$\text{sulfide}: \frac{20-12}{\frac{1}{2}(20+12)} \times 100 = 50\%$$

Qualified based on field dup. analysis
RPD > 30%

Cardinal Resources

Client Sample ID: MW1

General Chemistry

Lot-Sample #...: A9G150158-007 Work Order #...: LGHPW Matrix.....: WG
Date Sampled...: 07/14/09 15:05 Date Received..: 07/15/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	3.2	1.0	mg/L	MCAWW 300.0A	07/15/09	9197355
		Dilution Factor: 1				
Nitrate as N	2.4	0.10	mg/L	MCAWW 300.0A	07/16/09	9198212
		Dilution Factor: 1				
Sulfate	11.7	1.0	mg/L	MCAWW 300.0A	07/15/09	9197352
		Dilution Factor: 1				
Total Alkalinity	100	5.0	mg/L	MCAWW 310.1	07/16/09	9198042
		Dilution Factor: 1				
Total Organic Carbon	1	1	mg/L	MCAWW 415.1	07/16/09	9197053
		Dilution Factor: 1				
Total Sulfide	8.9	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1				

Cardinal Resources

Client Sample ID: OW22

General Chemistry

Lot-Sample #...: A9G160126-001 Work Order #...: LGKPV Matrix.....: WG
Date Sampled...: 07/15/09 09:05 Date Received..: 07/16/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	11.1	1.0	mg/L	MCAWW 300.0A	07/16/09	9198213
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	07/16/09	9198212
		Dilution Factor: 1				
Sulfate	9.1	1.0	mg/L	MCAWW 300.0A	07/16/09	9198211
		Dilution Factor: 1				
Total Alkalinity	300	5.0	mg/L	MCAWW 310.1	07/17/09	9198042
		Dilution Factor: 1				
Total Organic Carbon	9	1	mg/L	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1				
Total Sulfide	ND	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1				

Cardinal Resources

Client Sample ID: OW21

General Chemistry

Lot-Sample #...: A9G160126-002 Work Order #...: LGKP4 Matrix.....: WG
Date Sampled...: 07/15/09 10:20 Date Received..: 07/16/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	4.2	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/16/09	9198210
Nitrate as N	ND	0.10 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/16/09	9198212
Sulfate	29.3	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/16/09	9198211
Total Alkalinity	250	5.0 Dilution Factor: 1	mg/L	MCAWW 310.1	07/17/09	9198042
Total Organic Carbon	3	1 Dilution Factor: 1	mg/L	MCAWW 415.1	07/20/09	9201305
Total Sulfide	13	1.0 Dilution Factor: 1	mg/L	MCAWW 376.1	07/17/09	9198246

Cardinal Resources

Client Sample ID: OW10R

General Chemistry

Lot-Sample #...: A9G160126-004 Work Order #...: LGKP8 Matrix.....: WG
Date Sampled...: 07/15/09 11:40 Date Received..: 07/16/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	ND	1.0	mg/L	MCAWW 300.0A	07/16/09	9198210
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	07/16/09	9198212
		Dilution Factor: 1				
Sulfate	44.5	1.0	mg/L	MCAWW 300.0A	07/16/09	9198211
		Dilution Factor: 1				
Total Alkalinity	210	5.0	mg/L	MCAWW 310.1	07/17/09	9198042
		Dilution Factor: 1				
Total Organic Carbon	2	1	mg/L	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1				
Total Sulfide	ND	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1				

Cardinal Resources

Client Sample ID: SED 1

General Chemistry

Lot-Sample #...: A9G160126-007 Work Order #...: LGKQE Matrix.....: SO
Date Sampled...: 07/15/09 13:30 Date Received..: 07/16/09
% Moisture.....: 80

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	19.7	10.0	%	MCAWW 160.3 MOD	07/17-07/20/09	9198143

Dilution Factor: 1

Cardinal Resources

Client Sample ID: SED DUP

General Chemistry

Lot-Sample #...: A9G160126-008 Work Order #...: LGKQH Matrix.....: SO
Date Sampled...: 07/15/09 Date Received..: 07/16/09
% Moisture.....: 76

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	23.9	10.0	%	MCAWW 160.3 MOD	07/17-07/20/09	9198143

Dilution Factor: 1

$$\frac{23.9 - 19.7}{\frac{1}{2}(23.9 + 19.7)} \times 100 = 19.3\%$$

RPD within limits

Cardinal Resources

Client Sample ID: SED 2

General Chemistry

Lot-Sample #...: A9G160126-010 Work Order #...: LGKQX Matrix.....: SO
Date Sampled...: 07/15/09 14:10 Date Received..: 07/16/09
% Moisture.....: 82

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids	17.9	10.0	%	MCAWW 160.3 MOD	07/17-07/20/09	9198143

Dilution Factor: 1

Cardinal Resources

Client Sample ID: OW19

General Chemistry

Lot-Sample #...: A9G160126-011 Work Order #...: LGKQ1 Matrix.....: WG
Date Sampled...: 07/15/09 14:55 Date Received..: 07/16/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	9.2	1.0	mg/L	MCAWW 300.0A	07/17/09	9198210
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	07/17/09	9198212
		Dilution Factor: 1				
Sulfate	13.7	1.0	mg/L	MCAWW 300.0A	07/17/09	9198211
		Dilution Factor: 1				
Total Alkalinity	230	5.0	mg/L	MCAWW 310.1	07/17/09	9198042
		Dilution Factor: 1				
Total Organic Carbon	7	1	mg/L	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1				
Total Sulfide	1.1	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1				

METHOD BLANK REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: LGLEM1AA		MB Lot-Sample #:	A9G160000-355	
	ND	1.0	mg/L	MCAWW 300.0A	07/16/09	9197355
		Dilution Factor: 1				
Chloride		Work Order #: LGMTD1AA		MB Lot-Sample #:	A9G170000-213	
	ND	1.0	mg/L	MCAWW 300.0A	07/16/09	9198213
		Dilution Factor: 1				
Chloride		Work Order #: LGMR61AE		MB Lot-Sample #:	A9G170000-210	
	ND	1.0	mg/L	MCAWW 300.0A	07/17/09	9198210
		Dilution Factor: 1				
Nitrate as N		Work Order #: LGLEJ1AA		MB Lot-Sample #:	A9G160000-354	
	ND	0.10	mg/L	MCAWW 300.0A	07/15/09	9197354
		Dilution Factor: 1				
Nitrate as N		Work Order #: LGMR91AA		MB Lot-Sample #:	A9G170000-212	
	ND	0.10	mg/L	MCAWW 300.0A	07/16/09	9198212
		Dilution Factor: 1				
Sulfate		Work Order #: LGLEC1AA		MB Lot-Sample #:	A9G160000-352	
	ND	1.0	mg/L	MCAWW 300.0A	07/15/09	9197352
		Dilution Factor: 1				
Sulfate		Work Order #: LGMR81AA		MB Lot-Sample #:	A9G170000-211	
	ND	1.0	mg/L	MCAWW 300.0A	07/16/09	9198211
		Dilution Factor: 1				
Total Alkalinity		Work Order #: LGL861AA		MB Lot-Sample #:	A9G170000-042	
	ND	5.0	mg/L	MCAWW 310.1	07/17/09	9198042
		Dilution Factor: 1				
Total Organic Carbon		Work Order #: LGMAG1AA		MB Lot-Sample #:	A9G160000-053	
	ND	1	mg/L	MCAWW 415.1	07/16/09	9197053
		Dilution Factor: 1				
Total Organic Carbon		Work Order #: LGQ381AA		MB Lot-Sample #:	A9G200000-305	
	ND	1	mg/L	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1				
Total Sulfide		Work Order #: LGMX01AA		MB Lot-Sample #:	A9G170000-246	
	ND	1.0	mg/L	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1				

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids		Work Order #: LGMGX1AA		MB Lot-Sample #:	A9G170000-143	
	ND	10.0	%	MCAWW 160.3 MOD	07/17-07/20/09	9198143
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: 9G15158 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#:LGLEM1AC-LCS/LGLEM1AD-LCSD LCS Lot-Sample#: A9G160000-355					
	103	(90 - 110)			MCAWW 300.0A	07/16/09	9197355
	102	(90 - 110)	0.19	(0-20)	MCAWW 300.0A	07/16/09	9197355
		Dilution Factor: 1					
Chloride		WO#:LGMR61AF-LCS/LGMR61AG-LCSD LCS Lot-Sample#: A9G170000-210					
	106	(90 - 110)			MCAWW 300.0A	07/17/09	9198210
	105	(90 - 110)	0.38	(0-20)	MCAWW 300.0A	07/17/09	9198210
		Dilution Factor: 1					
Chloride		WO#:LGMTD1AC-LCS/LGMTD1AD-LCSD LCS Lot-Sample#: A9G170000-213					
	107	(90 - 110)			MCAWW 300.0A	07/16/09	9198213
	107	(90 - 110)	0.37	(0-20)	MCAWW 300.0A	07/16/09	9198213
		Dilution Factor: 1					
Nitrate as N		WO#:LGLEJ1AC-LCS/LGLEJ1AD-LCSD LCS Lot-Sample#: A9G160000-354					
	92	(90 - 110)			MCAWW 300.0A	07/15/09	9197354
	92	(90 - 110)	0.0	(0-20)	MCAWW 300.0A	07/15/09	9197354
		Dilution Factor: 1					
Nitrate as N		WO#:LGMR91AC-LCS/LGMR91AD-LCSD LCS Lot-Sample#: A9G170000-212					
	100	(90 - 110)			MCAWW 300.0A	07/16/09	9198212
	100	(90 - 110)	0.0	(0-20)	MCAWW 300.0A	07/16/09	9198212
		Dilution Factor: 1					
Sulfate		WO#:LGLEC1AC-LCS/LGLEC1AD-LCSD LCS Lot-Sample#: A9G160000-352					
	94	(90 - 110)			MCAWW 300.0A	07/15/09	9197352
	94	(90 - 110)	0.42	(0-20)	MCAWW 300.0A	07/15/09	9197352
		Dilution Factor: 1					
Sulfate		WO#:LGMR81AC-LCS/LGMR81AD-LCSD LCS Lot-Sample#: A9G170000-211					
	100	(90 - 110)			MCAWW 300.0A	07/16/09	9198211
	100	(90 - 110)	0.20	(0-20)	MCAWW 300.0A	07/16/09	9198211
		Dilution Factor: 1					

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: 9G15158 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			WO#:LGLEM1AC-LCS/LGLEM1AD-LCSD				LCS Lot-Sample#: A9G160000-355	
	50.0	51.3	mg/L	103		MCAWW 300.0A	07/16/09	9197355
	50.0	51.2	mg/L	102	0.19	MCAWW 300.0A	07/16/09	9197355
			Dilution Factor: 1					
Chloride			WO#:LGMR61AF-LCS/LGMR61AG-LCSD				LCS Lot-Sample#: A9G170000-210	
	50.0	52.8	mg/L	106		MCAWW 300.0A	07/17/09	9198210
	50.0	52.6	mg/L	105	0.38	MCAWW 300.0A	07/17/09	9198210
			Dilution Factor: 1					
Chloride			WO#:LGMTD1AC-LCS/LGMTD1AD-LCSD				LCS Lot-Sample#: A9G170000-213	
	50.0	53.7	mg/L	107		MCAWW 300.0A	07/16/09	9198213
	50.0	53.5	mg/L	107	0.37	MCAWW 300.0A	07/16/09	9198213
			Dilution Factor: 1					
Nitrate as N			WO#:LGLEJ1AC-LCS/LGLEJ1AD-LCSD				LCS Lot-Sample#: A9G160000-354	
	2.5	2.3	mg/L	92		MCAWW 300.0A	07/15/09	9197354
	2.5	2.3	mg/L	92	0.0	MCAWW 300.0A	07/15/09	9197354
			Dilution Factor: 1					
Nitrate as N			WO#:LGMR91AC-LCS/LGMR91AD-LCSD				LCS Lot-Sample#: A9G170000-212	
	2.5	2.5	mg/L	100		MCAWW 300.0A	07/16/09	9198212
	2.5	2.5	mg/L	100	0.0	MCAWW 300.0A	07/16/09	9198212
			Dilution Factor: 1					
Sulfate			WO#:LGLEC1AC-LCS/LGLEC1AD-LCSD				LCS Lot-Sample#: A9G160000-352	
	50.0	46.9	mg/L	94		MCAWW 300.0A	07/15/09	9197352
	50.0	47.1	mg/L	94	0.42	MCAWW 300.0A	07/15/09	9197352
			Dilution Factor: 1					
Sulfate			WO#:LGMR81AC-LCS/LGMR81AD-LCSD				LCS Lot-Sample#: A9G170000-211	
	50.0	50.0	mg/L	100		MCAWW 300.0A	07/16/09	9198211
	50.0	50.1	mg/L	100	0.20	MCAWW 300.0A	07/16/09	9198211
			Dilution Factor: 1					

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity		Work Order #: LGL861AC	LCS Lot-Sample#: A9G170000-042		
	101	(90 - 127)	MCAWW 310.1	07/17/09	9198042
		Dilution Factor: 1			
Total Organic Carbon		Work Order #: LGMAG1AC	LCS Lot-Sample#: A9G160000-053		
	99	(88 - 115)	MCAWW 415.1	07/16/09	9197053
		Dilution Factor: 1			
Total Organic Carbon		Work Order #: LGQ381AC	LCS Lot-Sample#: A9G200000-305		
	109	(88 - 115)	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1			
Total Sulfide		Work Order #: LGMX01AC	LCS Lot-Sample#: A9G170000-246		
	100	(79 - 104)	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1			

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity			Work Order #: LGL861AC LCS Lot-Sample#: A9G170000-042				
	71	71	mg/L	101	MCAWW 310.1	07/17/09	9198042
			Dilution Factor: 1				
Total Organic Carbon			Work Order #: LGMAG1AC LCS Lot-Sample#: A9G160000-053				
	35	34	mg/L	99	MCAWW 415.1	07/16/09	9197053
			Dilution Factor: 1				
Total Organic Carbon			Work Order #: LGQ381AC LCS Lot-Sample#: A9G200000-305				
	35	38	mg/L	109	MCAWW 415.1	07/20/09	9201305
			Dilution Factor: 1				
Total Sulfide			Work Order #: LGMX01AC LCS Lot-Sample#: A9G170000-246				
	19	19	mg/L	100	MCAWW 376.1	07/17/09	9198246
			Dilution Factor: 1				

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WATER
Date Sampled...: 07/14/09 11:12 Date Received..: 07/15/09

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Organic Carbon		WO#: LGH1F1A0-MS/LGH1F1A1-MSD				MS Lot-Sample #: A9G150219-001	
	112	(72 - 136)			MCAWW 415.1	07/16/09	9197053
	109	(72 - 136)	2.7	(0-20)	MCAWW 415.1	07/16/09	9197053
		Dilution Factor: 1					

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WATER
Date Sampled...: 07/14/09 11:12 Date Received..: 07/15/09

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Organic Carbon			WO#: LGH1F1A0-MS/LGH1F1A1-MSD				MS Lot-Sample #: A9G150219-001		
	ND	25	29	mg/L	112		MCAWW 415.1	07/16/09	9197053
	ND	25	28	mg/L	109	2.7	MCAWW 415.1	07/16/09	9197053

Dilution Factor: 1

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: 9G15158 **Matrix.....:** WG
Date Sampled...: 07/15/09 10:20 **Date Received..:** 07/16/09

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#: LGKP41AU-MS/LGKP41AV-MSD				MS Lot-Sample #: A9G160126-002	
	108	(80 - 120)			MCAWW 300.0A	07/16/09	9198210
	108	(80 - 120)	0.0	(0-20)	MCAWW 300.0A	07/16/09	9198210
		Dilution Factor: 1					
Nitrate as N		WO#: LGKP41AM-MS/LGKP41AN-MSD				MS Lot-Sample #: A9G160126-002	
	96	(80 - 120)			MCAWW 300.0A	07/16/09	9198212
	100	(80 - 120)	4.1	(0-20)	MCAWW 300.0A	07/16/09	9198212
		Dilution Factor: 1					
Sulfate		WO#: LGKP41AQ-MS/LGKP41AR-MSD				MS Lot-Sample #: A9G160126-002	
	108	(80 - 120)			MCAWW 300.0A	07/16/09	9198211
	107	(80 - 120)	0.48	(0-20)	MCAWW 300.0A	07/16/09	9198211
		Dilution Factor: 1					
Total Alkalinity		WO#: LGKP41AC-MS/LGKP41AD-MSD				MS Lot-Sample #: A9G160126-002	
	74	(10 - 160)			MCAWW 310.1	07/17/09	9198042
	74	(10 - 160)	0.12	(0-24)	MCAWW 310.1	07/17/09	9198042
		Dilution Factor: 1					
Total Organic Carbon		WO#: LGKP41AF-MS/LGKP41AG-MSD				MS Lot-Sample #: A9G160126-002	
	104	(72 - 136)			MCAWW 415.1	07/20/09	9201305
	105	(72 - 136)	0.42	(0-20)	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1					
Total Sulfide		WO#: LGKP41AJ-MS/LGKP41AK-MSD				MS Lot-Sample #: A9G160126-002	
	89	(75 - 107)			MCAWW 376.1	07/17/09	9198246
	88	(75 - 107)	0.68	(0-20)	MCAWW 376.1	07/17/09	9198246
		Dilution Factor: 1					

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: 9G15158 **Matrix.....:** WG
Date Sampled...: 07/15/09 10:20 **Date Received..:** 07/16/09

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			WO#: LGKP41AU-MS/LGKP41AV-MSD		MS Lot-Sample #: A9G160126-002				
	4.2	50.0	58.0	mg/L	108		MCAWW 300.0A	07/16/09	9198210
	4.2	50.0	58.0	mg/L	108	0.0	MCAWW 300.0A	07/16/09	9198210
			Dilution Factor: 1						
Nitrate as N			WO#: LGKP41AM-MS/LGKP41AN-MSD		MS Lot-Sample #: A9G160126-002				
	ND	2.5	2.4	mg/L	96		MCAWW 300.0A	07/16/09	9198212
	ND	2.5	2.5	mg/L	100	4.1	MCAWW 300.0A	07/16/09	9198212
			Dilution Factor: 1						
Sulfate			WO#: LGKP41AQ-MS/LGKP41AR-MSD		MS Lot-Sample #: A9G160126-002				
	29.3	50.0	83.3	mg/L	108		MCAWW 300.0A	07/16/09	9198211
	29.3	50.0	82.9	mg/L	107	0.48	MCAWW 300.0A	07/16/09	9198211
			Dilution Factor: 1						
Total Alkalinity			WO#: LGKP41AC-MS/LGKP41AD-MSD		MS Lot-Sample #: A9G160126-002				
	250	500	620	mg/L	74		MCAWW 310.1	07/17/09	9198042
	250	500	620	mg/L	74	0.12	MCAWW 310.1	07/17/09	9198042
			Dilution Factor: 1						
Total Organic Carbon			WO#: LGKP41AF-MS/LGKP41AG-MSD		MS Lot-Sample #: A9G160126-002				
	3	25	29	mg/L	104		MCAWW 415.1	07/20/09	9201305
	3	25	29	mg/L	105	0.42	MCAWW 415.1	07/20/09	9201305
			Dilution Factor: 1						
Total Sulfide			WO#: LGKP41AJ-MS/LGKP41AK-MSD		MS Lot-Sample #: A9G160126-002				
	13	38	47	mg/L	89		MCAWW 376.1	07/17/09	9198246
	13	38	47	mg/L	88	0.68	MCAWW 376.1	07/17/09	9198246
			Dilution Factor: 1						

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WG
Date Sampled...: 07/14/09 14:00 Date Received..: 07/15/09

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate		Work Order #...: LGHPL1AK		MS Lot-Sample #: A9G150158-004	
	97	(80 - 120)	MCAWW 300.0A	07/15/09	9197352
		Dilution Factor: 1			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WG
Date Sampled...: 07/14/09 14:00 Date Received..: 07/15/09

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sulfate			Work Order #...: LGHPL1AK			MS Lot-Sample #: A9G150158-004		
	11.7	50.0	60.0	mg/L	97	MCAWW 300.0A	07/15/09	9197352
			Dilution Factor: 1					

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WATER
Date Sampled...: 07/14/09 Date Received..: 07/15/09

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #...: LGG331C4		MS Lot-Sample #: A9G150106-002	
	117	(80 - 120)	MCAWW 300.0A	07/16/09	9198210
		Dilution Factor: 1			
Nitrate as N		Work Order #...: LGH1F1AW		MS Lot-Sample #: A9G150219-001	
	88	(80 - 120)	MCAWW 300.0A	07/15/09	9197354
		Dilution Factor: 1			
Sulfate		Work Order #...: LGH1F1AV		MS Lot-Sample #: A9G150219-001	
	93	(80 - 120)	MCAWW 300.0A	07/15/09	9197352
		Dilution Factor: 1			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: 9G15158 Matrix.....: WATER
Date Sampled...: 07/14/09 Date Received..: 07/15/09

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			Work Order #...: LGG331C4			MS Lot-Sample #: A9G150106-002		
	46.3	50.0	105	mg/L	117	MCAWW 300.0A	07/16/09	9198210
			Dilution Factor: 1					
Nitrate as N			Work Order #...: LGH1F1AW			MS Lot-Sample #: A9G150219-001		
	ND	2.5	2.2	mg/L	88	MCAWW 300.0A	07/15/09	9197354
			Dilution Factor: 1					
Sulfate			Work Order #...: LGH1F1AV			MS Lot-Sample #: A9G150219-001		
	ND	50.0	46.4	mg/L	93	MCAWW 300.0A	07/15/09	9197352
			Dilution Factor: 1					

NOTE(S):

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

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A9G150158 **Work Order #...:** LGKQX-SMP LGKQX-DUP **Matrix.....:** SO

Date Sampled...: 07/15/09 14:10 **Date Received..:** 07/16/09

% Moisture.....: 82

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A9G160126-010		
	17.9	18.4	%	3.0	(0-20)	MCAWW 160.3 MOD	07/17-07/20/09	9198143

Dilution Factor: 1

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: A9G150158 Work Order #...: LGKR7-SMP LGKR7-DUP Matrix.....: SOLID

Date Sampled...: 07/15/09 01:30 Date Received..: 07/16/09

% Moisture.....: 16

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Solids						SD Lot-Sample #: A9G160140-001		
	84.3	84.9	%	0.62	(0-20)	MCAWW 160.3 MOD	07/17-07/20/09	9198143

Dilution Factor: 1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

END OF REPORT

Analytical Report - # A9G170133

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 104-0012-0200

CARROLL & DUBIES (C&D)

Lot #: A9G170133

Barbara Jones

Cardinal Resources

TESTAMERICA LABORATORIES, INC.

Nathan Pietras
Project Manager

August 5, 2009

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

CASE NARRATIVE

A9G170133

The following report contains the analytical results for six water samples and one quality control sample submitted to TestAmerica North Canton by Cardinal Resources from the Carroll & Dubies (C&D) Site, project number 104-0012-0200. The samples were received July 17, 2009, according to documented sample acceptance procedures.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Barbara Jones and Steve Bodnar on July 29, 2009. A summary of QC data for these analyses is included at the back of the report.

TestAmerica North 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 applicable 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.

Please refer to the Quality Control Elements Narrative following this case narrative for additional quality control information.

If you have any questions, please call the Project Manager, Nathan Pietras, at 330-497-9396.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 2.5°C.

CASE NARRATIVE (continued)

SAMPLE RECEIVING

See TestAmerica's Cooler Receipt Form for additional information.

GC/MS VOLATILES

The sample(s) that contain results between the MDL and the RL were flagged with "J". There is a possibility of false positive or mis-identification at these quantitation levels. In analytical methods requiring confirmation of the analyte reported, confirmation was performed only down to the standard reporting limit (SRL). The acceptance criteria for QC samples may not be met at these quantitation levels.

DISSOLVED GASES/RSK

For batch(es) 9209059, due to an inconsistent regulator, the gas standards used for generating the primary source and secondary source are not compatible. The second source ICV passes nominally, but the primary source is being used for continuing calibration, batch QC spikes and matrix spikes until the problem is resolved.

GENERAL CHEMISTRY

Matrix spike recovery and relative percent difference (RPD) data were not calculated for some analytes for batch(es) 9201027 due to the sample concentration reading greater than four times the spike amount. See the Matrix Spike Report for the affected analytes which will be flagged with "NC, MSB".

The matrix spike/matrix spike duplicate(s) for batch(es) 9201028 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

QUALITY CONTROL ELEMENTS NARRATIVE

TestAmerica conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data. Program or agency specific requirements take precedence over the requirements listed in this narrative.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. TestAmerica North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples.

For SW846/RCRA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

For 600 series/CWA methods, QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE (MS). An MS is prepared and analyzed at a 10% frequency for GC Methods and at a 5% frequency for GC/MS methods.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. Multi peak responders may not be included in the target spike list due to co-elution. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. Comparison of only the failed parameters from the first batch are evaluated. The only exception to the rework requirement is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed in the table.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals ICP-MS	Metals ICP Trace
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

For certain methods (600 series methods/CWA), a Matrix Spike is required in place of a Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Matrix Spike/Sample Duplicate (MS/DU).

The acceptance criteria do not apply to samples that are diluted.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepared and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

The acceptance criteria do not apply to samples that are diluted. All other surrogate recoveries will be reported.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide and PCB methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria. The second surrogate must have a recovery of 10% or greater.

TestAmerica Certifications and Approvals:

The laboratory is certified for the analytes listed on the documents below. These are available upon request.
California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Nevada (#OH-000482008A), OhioVAP (#CL0024), Pennsylvania (#008), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY, USDA Soil Permit

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY - Detection Highlights

A9G170133

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MW4 07/16/09 08:40 001				
Methane	59	0.50	ug/L	RSK SOP-175
Benzene	1.2	1.0	ug/L	SW846 8260B
Tetrachloroethene	0.34 J	1.0	ug/L	SW846 8260B
Chloride	30.4	1.0	mg/L	MCAWW 300.0A
Sulfate	79.7	1.0	mg/L	MCAWW 300.0A
Total Organic Carbon	2	1	mg/L	MCAWW 415.1
Total Alkalinity	110	5.0	mg/L	MCAWW 310.1
OW2 07/16/09 10:05 003				
1,2-Dichloroethene (total)	53	2.5	ug/L	SW846 8260B
Trichloroethene	9.7	2.5	ug/L	SW846 8260B
Tetrachloroethene	62	2.5	ug/L	SW846 8260B
Chloride	1.8	1.0	mg/L	MCAWW 300.0A
Sulfate	24.0	1.0	mg/L	MCAWW 300.0A
Nitrate as N	2.4	0.10	mg/L	MCAWW 300.0A
Total Organic Carbon	1	1	mg/L	MCAWW 415.1
Total Alkalinity	29	5.0	mg/L	MCAWW 310.1
OW18 07/16/09 11:20 004				
Methane	1200	0.50	ug/L	RSK SOP-175
1,2-Dichloroethene (total)	0.34 J	1.0	ug/L	SW846 8260B
Benzene	2.3	1.0	ug/L	SW846 8260B
Chlorobenzene	9.6	1.0	ug/L	SW846 8260B
Chloride	9.8	1.0	mg/L	MCAWW 300.0A
Sulfate	7.2	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.10	0.10	mg/L	MCAWW 300.0A
Total Organic Carbon	10	1	mg/L	MCAWW 415.1
Total Alkalinity	360	5.0	mg/L	MCAWW 310.1
OW25 07/16/09 12:55 005				
Chloride	1.1	1.0	mg/L	MCAWW 300.0A
Sulfate	11.0	1.0	mg/L	MCAWW 300.0A
Nitrate as N	0.30	0.10	mg/L	MCAWW 300.0A
Total Organic Carbon	1	1	mg/L	MCAWW 415.1

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A9G170133

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
OW25 07/16/09 12:55 005				
Total Alkalinity	40	5.0	mg/L	MCAWW 310.1
TB3 07/16/09 007				
Acetone	2.6 J	10	ug/L	SW846 8260B

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

METHOD SUMMARY

ANALYTICAL METHODS SUMMARY

A9G170133

PARAMETER	ANALYTICAL METHOD
Alkalinity	MCAWW 310.1
Chloride	MCAWW 300.0A
Dissolved Gases in Water	RSK SOP-175
Nitrate as N	MCAWW 300.0A
Sulfate	MCAWW 300.0A
Sulfide	MCAWW 376.1
Total Organic Carbon	MCAWW 415.1
Volatile Organics by GC/MS	SW846 8260B

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

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.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

SAMPLE SUMMARY

SAMPLE SUMMARY

A9G170133

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LGMM0	001	MW4	07/16/09	08:40
LGMNE	002	FIELD BLANK 3	07/16/09	08:50
LGMNK	003	OW2	07/16/09	10:05
LGMNM	004	OW18	07/16/09	11:20
LGMNQ	005	OW25	07/16/09	12:55
LGMNR	006	PUMP RINSE	07/16/09	13:15
LGMNW	007	TB3	07/16/09	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

SHIPPING AND RECEIVING DOCUMENTS

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

15

TestAmerica Laboratory location: _____

Regulatory program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other _____

TestAmerica Laboratories, Inc.

Client Contact				
Company Name: Cardinal Resources, LLC	Client Project Manager: Barb Jones	Site Contact: John Vogelsong	Lab Contact: Nathan Pietras	COC No:
Address: 1505 E. Carson St.	Telephone: 412 374 0980	Telephone: 412 374 0989	Telephone:	1 of 1 COCs
City/State/Zip: Pittsburgh, PA	Email: BJones@Cardinalres.com	TAT if different from below: ☐ 3 weeks ■ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day	Analyses	For lab use only: Walk-in client ☐ Lab pickup ☐ Lab sampling ☐
Phone: 412 374 0989				
Project Name: Carroll + Dubies (C+D)	Method of Shipment/Carrier: Fed X			
Project Number: 104-0012-0200	Shipping/Tracking No: 8693 7515 1060			Job/SDG No.:
PO#				

Sample Identification	Sample Date	Sample Time	Matrix: Air	Aqueous	Sediment	Solid	Other:	Containers & Preservatives: H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Unpres	Other:	Filtered Sample (Y/N)	Composite (C) / Grab (G)	TCL VOC	Methane/Ethane/Ethene	Sulfate	Sulfide	Alkalinity	Chloride	Nitrate (N)	TOC			Sample Specific Notes / Special Instructions:
MW4	7-16-09	0840		X				X		X		X	X		N		X	X	X	X	X	X	X	X			
Field Blank 3	↓	0850		X						X					—		X	— VOCs ONLY —									
OW2		1005		X				X		X		X	X		N		X	X	X	X	X	X	X	X			
OW18		1120		X				X		X		X	X		N		X	X	X	X	X	X	X	X			
OW25		1255		X				X		X		X	X		N		X	X	X	X	X	X	X	X			
Pump Rinse	↓	1315		X						X					—		X	— VOCs ONLY —									
TB3	Trip Blank (Lab Prepared)			X						X					—		X	— VOCs ONLY —									

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return to Client ☒ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
John Vogelsong	Cardinal Res.	7-16-09/1600			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				TA NC	7-17-09 0920

TAL-0018 (1008)

North Canton

TestAmerica Cooler Receipt Form/Narrative **Lot Number:** A9G170133
North Canton Facility

Client CARDINAL RESOURCES Project Carroll + Dubois By: _____
Cooler Received on 7-17-09 Opened on 7.17-09 (Signature)
FedEx ☑ UPS ☐ DHL ☐ FAS ☐ Stetson ☐ Client Drop Off ☐ TestAmerica Courier ☐ Other _____
TestAmerica Cooler # 6837 Multiple Coolers ☐ Foam Box ☐ Client Cooler ☐ Other _____

1. Were custody seals on the outside of the cooler(s)? Yes ☐ No ☑ Intact? Yes ☐ No ☐ NA ☑
   If YES, Quantity_____ Quantity Unsalvageable_____
   Were custody seals on the outside of cooler(s) signed and dated? Yes ☐ No ☐ NA ☑
   Were custody seals on the bottle(s)? Yes ☐ No ☑
   If YES, are there any exceptions? _____
2. Shippers' packing slip attached to the cooler(s)? Yes ☑ No ☐
3. Did custody papers accompany the sample(s)? Yes ☑ No ☐ Relinquished by client? Yes ☑ No ☐
4. Were the custody papers signed in the appropriate place? Yes ☑ No ☐
5. Packing material used: Bubble Wrap ☑ Foam ☐ None ☐ Other _____
6. Cooler temperature upon receipt 2-5 °C See back of form for multiple coolers/temps ☐
   METHOD: IR ☑ Other ☐ _____
   COOLANT: Wet Ice ☑ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐
7. Did all bottles arrive in good condition (Unbroken)? Yes ☑ No ☐
8. Could all bottle labels be reconciled with the COC? Yes ☑ No ☐
9. Were sample(s) at the correct pH upon receipt? Yes ☑ No ☐ NA ☐
10. Were correct bottle(s) used for the test(s) indicated? Yes ☑ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☑ NA ☐
12. Sufficient quantity received to perform indicated analyses? Yes ☑ No ☐
13. Was a trip blank present in the cooler(s)? Yes ☑ No ☐ Were VOAs on the COC? Yes ☑ No ☐

Contacted PM NAP 7/17/09 Date 7/17/09 by _____ via Verbal ☐ Voice Mail ☐ Other ☐
Concerning _____

14. CHAIN OF CUSTODY

The following discrepancies occurred:

COC: TB3 w/ no dt — will log dt from prev. sam.

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 Sample Receiving to meet recommended pH level(s). *Nitric Acid Lot#* 031909-HNO_3; *Sulfuric Acid Lot#* 100108-H_2SO_4; *Sodium Hydroxide Lot#* 073007 -*NaOH; Hydrochloric Acid Lot#* 092006-*HCl; Sodium Hydroxide and Zinc Acetate Lot#* 050205-$(CH_3COO)_2ZN$/*NaOH*. What time was preservative added to sample(s)? _____

Client ID	pH	Date	Initials
4	7-9	7.17.09	LO
2	7-9	"	"
18	7-9	"	"
25	7-9	"	"

TestAmerica Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler #	Temp. °C	Method	Coolant

Discrepancies Cont'd:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

GCMS VOLATILE DATA

Cardinal Resources

Client Sample ID: MW4

GC/MS Volatiles

Lot-Sample #...: A9G170133-001	**Work Order #...:** LGMM01AJ	**Matrix.....:** WG	
Date Sampled...: 07/16/09 08:40	**Date Received..:** 07/17/09		
Prep Date.....: 07/23/09	**Analysis Date..:** 07/23/09		
Prep Batch #...: 9208327			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**1.2**	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	**0.34 J**	**1.0**	**ug/L**
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	101	(73 - 122)
1,2-Dichloroethane-d4	104	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: MW4

GC/MS Volatiles

Lot-Sample #...: A9G170133-001 Work Order #...: LGMM01AJ Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: FIELD BLANK 3

GC/MS Volatiles

Lot-Sample #...: A9G170133-002	**Work Order #...:** LGMNE1AA	**Matrix.....:** WQ	
Date Sampled...: 07/16/09 08:50	**Date Received..:** 07/17/09		
Prep Date.....: 07/23/09	**Analysis Date..:** 07/23/09		
Prep Batch #...: 9208327			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
1,2-Dichloroethane-d4	102	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	100	(74 - 116)

Cardinal Resources

Client Sample ID: OW2

GC/MS Volatiles

Lot-Sample #...: A9G170133-003	**Work Order #...:** LGMNK1AJ	**Matrix.....:** WG	
Date Sampled...: 07/16/09 10:05	**Date Received..:** 07/17/09		
Prep Date.....: 07/23/09	**Analysis Date..:** 07/23/09		
Prep Batch #...: 9208327			
Dilution Factor: 2.5	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Vinyl chloride	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Methylene chloride	ND	2.5	ug/L
Acetone	ND	25	ug/L
Carbon disulfide	ND	2.5	ug/L
1,1-Dichloroethene	ND	2.5	ug/L
1,1-Dichloroethane	ND	2.5	ug/L
1,2-Dichloroethene (total)	**53**	**2.5**	**ug/L**
Chloroform	ND	2.5	ug/L
1,2-Dichloroethane	ND	2.5	ug/L
2-Butanone	ND	25	ug/L
1,1,1-Trichloroethane	ND	2.5	ug/L
Carbon tetrachloride	ND	2.5	ug/L
Bromodichloromethane	ND	2.5	ug/L
1,2-Dichloropropane	ND	2.5	ug/L
cis-1,3-Dichloropropene	ND	2.5	ug/L
Trichloroethene	**9.7**	**2.5**	**ug/L**
Dibromochloromethane	ND	2.5	ug/L
1,1,2-Trichloroethane	ND	2.5	ug/L
Benzene	ND	2.5	ug/L
trans-1,3-Dichloropropene	ND	2.5	ug/L
Bromoform	ND	2.5	ug/L
4-Methyl-2-pentanone	ND	12	ug/L
2-Hexanone	ND	25	ug/L
Tetrachloroethene	**62**	**2.5**	**ug/L**
1,1,2,2-Tetrachloroethane	ND	2.5	ug/L
Toluene	ND	2.5	ug/L
Chlorobenzene	ND	2.5	ug/L
Ethylbenzene	ND	2.5	ug/L
Styrene	ND	2.5	ug/L
Xylenes (total)	ND	2.5	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
Toluene-d8	98	(76 - 110)
4-Bromofluorobenzene	98	(74 - 116)

Cardinal Resources

Client Sample ID: OW18

GC/MS Volatiles

Lot-Sample #...: A9G170133-004	**Work Order #...:** LGMNM1AJ	**Matrix.....:** WG	
Date Sampled...: 07/16/09 11:20	**Date Received..:** 07/17/09		
Prep Date.....: 07/23/09	**Analysis Date..:** 07/23/09		
Prep Batch #...: 9208327			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	**0.34 J**	**1.0**	**ug/L**
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	**2.3**	**1.0**	**ug/L**
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	**9.6**	**1.0**	**ug/L**
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(73 - 122)
1,2-Dichloroethane-d4	103	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	96	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: OW18

GC/MS Volatiles

Lot-Sample #...: A9G170133-004 Work Order #...: LGMNM1AJ Matrix.....: WG

NOTE(S):

J Estimated result. Result is less than RL.

Cardinal Resources

Client Sample ID: OW25

GC/MS Volatiles

Lot-Sample #...: A9G170133-005	**Work Order #...:** LGMNQ1AJ	**Matrix.....:** WG	
Date Sampled...: 07/16/09 12:55	**Date Received..:** 07/17/09		
Prep Date.....: 07/23/09	**Analysis Date..:** 07/23/09		
Prep Batch #...: 9208327			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	103	(73 - 122)
1,2-Dichloroethane-d4	102	(61 - 128)
Toluene-d8	99	(76 - 110)
4-Bromofluorobenzene	97	(74 - 116)

Cardinal Resources

Client Sample ID: PUMP RINSE

GC/MS Volatiles

Lot-Sample #...: A9G170133-006	**Work Order #...:** LGMNR1AA	**Matrix.....:** WQ	
Date Sampled...: 07/16/09 13:15	**Date Received..:** 07/17/09		
Prep Date.....: 07/23/09	**Analysis Date..:** 07/23/09		
Prep Batch #...: 9208327			
Dilution Factor: 1	**Initial Wgt/Vol:** 5 mL	**Final Wgt/Vol..:** 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(73 - 122)
1,2-Dichloroethane-d4	100	(61 - 128)
Toluene-d8	99	(76 - 110)
4-Bromofluorobenzene	99	(74 - 116)

Cardinal Resources

Client Sample ID: TB3

GC/MS Volatiles

Lot-Sample #...: A9G170133-007	Work Order #...: LGMNW1AA	Matrix.....: WQ	
Date Sampled...: 07/16/09	Date Received..: 07/17/09		
Prep Date.....: 07/23/09	Analysis Date..: 07/23/09		
Prep Batch #...: 9208327			
Dilution Factor: 1	Initial Wgt/Vol: 5 mL	Final Wgt/Vol..: 5 mL	
	Method.....: SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	2.0	ug/L
Bromomethane	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Chloroethane	ND	2.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	**2.6 J**	**10**	**ug/L**
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(73 - 122)
1,2-Dichloroethane-d4	99	(61 - 128)
Toluene-d8	96	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)

(Continued on next page)

Cardinal Resources

Client Sample ID: TB3

GC/MS Volatiles

Lot-Sample #...: A9G170133-007 Work Order #...: LGMNW1AA Matrix.....: WQ

NOTE(S):

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A9G170133 Work Order #...: LG42G1AA Matrix.....: WATER
MB Lot-Sample #: A9G270000-327

Prep Date.....: 07/23/09 Final Wgt/Vol..: 5 mL
Analysis Date..: 07/23/09 Prep Batch #...: 9208327
Dilution Factor: 1 Initial Wgt/Vol: 5 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	2.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Methylene chloride	**0.39 J**	**1.0**	**ug/L**	**SW846 8260B**
Acetone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	1.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(73 - 122)
1,2-Dichloroethane-d4	102	(61 - 128)
Toluene-d8	103	(76 - 110)
4-Bromofluorobenzene	94	(74 - 116)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A9G170133 Work Order #...: LG42G1AA Matrix.....: WATER

NOTE(S):

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

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A9G170133 Work Order #...: LG42G1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G270000-327 LG42G1AD-LCSD
Prep Date.....: 07/23/09 Analysis Date..: 07/23/09
Prep Batch #...: 9208327
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	89	(63 - 130)			SW846 8260B
	92	(63 - 130)	3.1	(0-20)	SW846 8260B
Trichloroethene	88	(75 - 122)			SW846 8260B
	93	(75 - 122)	4.6	(0-20)	SW846 8260B
Benzene	92	(80 - 116)			SW846 8260B
	96	(80 - 116)	4.1	(0-20)	SW846 8260B
Toluene	100	(74 - 119)			SW846 8260B
	101	(74 - 119)	1.2	(0-20)	SW846 8260B
Chlorobenzene	97	(76 - 117)			SW846 8260B
	96	(76 - 117)	0.68	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
	96	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
	103	(61 - 128)
Toluene-d8	103	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)
	97	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A9G170133 Work Order #...: LG42G1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: A9G270000-327 LG42G1AD-LCSD
Prep Date.....: 07/23/09 Analysis Date..: 07/23/09
Prep Batch #...: 9208327
Dilution Factor: 1 Final Wgt/Vol..: 5 mL
Initial Wgt/Vol: 5 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	10	8.9	ug/L	89		SW846 8260B
	10	9.2	ug/L	92	3.1	SW846 8260B
Trichloroethene	10	8.8	ug/L	88		SW846 8260B
	10	9.3	ug/L	93	4.6	SW846 8260B
Benzene	10	9.2	ug/L	92		SW846 8260B
	10	9.6	ug/L	96	4.1	SW846 8260B
Toluene	10	10	ug/L	100		SW846 8260B
	10	10	ug/L	101	1.2	SW846 8260B
Chlorobenzene	10	9.7	ug/L	97		SW846 8260B
	10	9.6	ug/L	96	0.68	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(73 - 122)
	96	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
	103	(61 - 128)
Toluene-d8	103	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	95	(74 - 116)
	97	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...:	A9G170133	**Work Order #...:**	LGM071AC-MS	**Matrix.....:**	WATER
MS Lot-Sample #:	A9G170181-007		LGM071AD-MSD		
Date Sampled...:	07/15/09 15:25	**Date Received..:**	07/17/09		
Prep Date.....:	07/23/09	**Analysis Date..:**	07/23/09		
Prep Batch #...:	9208327				
Dilution Factor:	333.33	**Initial Wgt/Vol:**	5 mL	**Final Wgt/Vol..:**	5 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	89	(62 - 130)			SW846 8260B
	91	(62 - 130)	2.5	(0-20)	SW846 8260B
Trichloroethene	93	(62 - 130)			SW846 8260B
	90	(62 - 130)	0.97	(0-20)	SW846 8260B
Benzene	95	(78 - 118)			SW846 8260B
	94	(78 - 118)	1.1	(0-20)	SW846 8260B
Toluene	100	(70 - 119)			SW846 8260B
	100	(70 - 119)	0.10	(0-20)	SW846 8260B
Chlorobenzene	97	(76 - 117)			SW846 8260B
	97	(76 - 117)	0.61	(0-20)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	97	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
	99	(61 - 128)
Toluene-d8	98	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	99	(74 - 116)
	101	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A9G170133 Work Order #...: LGM071AC-MS Matrix.....: WATER
MS Lot-Sample #: A9G170181-007 LGM071AD-MSD
Date Sampled...: 07/15/09 15:25 Date Received..: 07/17/09
Prep Date.....: 07/23/09 Analysis Date..: 07/23/09
Prep Batch #...: 9208327
Dilution Factor: 333.33 Initial Wgt/Vol: 5 mL Final Wgt/Vol..: 5 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
1,1-Dichloroethene	ND	3300	3000	ug/L	89		SW846 8260B
	ND	3300	3000	ug/L	91	2.5	SW846 8260B
Trichloroethene	6900	3300	10000	ug/L	93		SW846 8260B
	6900	3300	9900	ug/L	90	0.97	SW846 8260B
Benzene	ND	3300	3200	ug/L	95		SW846 8260B
	ND	3300	3100	ug/L	94	1.1	SW846 8260B
Toluene	ND	3300	3300	ug/L	100		SW846 8260B
	ND	3300	3300	ug/L	100	0.10	SW846 8260B
Chlorobenzene	ND	3300	3200	ug/L	97		SW846 8260B
	ND	3300	3200	ug/L	97	0.61	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(73 - 122)
	97	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
	99	(61 - 128)
Toluene-d8	98	(76 - 110)
	101	(76 - 110)
4-Bromofluorobenzene	99	(74 - 116)
	101	(74 - 116)

NOTE(S):

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

Bold print denotes control parameters

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GC VOLATILE DATA

Cardinal Resources

Client Sample ID: MW4

GC Volatiles

Lot-Sample #...:	A9G170133-001	Work Order #...:	LGMM01AH	Matrix.....:	WG
Date Sampled...:	07/16/09 08:40	Date Received..:	07/17/09		
Prep Date.....:	07/27/09	Analysis Date..:	07/27/09		
Prep Batch #...:	9209059				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	59	0.50	ug/L

Cardinal Resources

Client Sample ID: OW2

GC Volatiles

Lot-Sample #...:	A9G170133-003	Work Order #...:	LGMNK1AH	Matrix.....:	WG
Date Sampled...:	07/16/09 10:05	Date Received..:	07/17/09		
Prep Date.....:	07/27/09	Analysis Date..:	07/27/09		
Prep Batch #...:	9209059				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	ND	0.50	ug/L

Cardinal Resources

Client Sample ID: OW18

GC Volatiles

Lot-Sample #...:	A9G170133-004	Work Order #...:	LGMNM1AH	Matrix.....:	WG
Date Sampled...:	07/16/09 11:20	Date Received..:	07/17/09		
Prep Date.....:	07/27/09	Analysis Date..:	07/27/09		
Prep Batch #...:	9209059				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	1200	0.50	ug/L

Cardinal Resources

Client Sample ID: OW25

GC Volatiles

Lot-Sample #...:	A9G170133-005	Work Order #...:	LGMNQ1AH	Matrix.....:	WG
Date Sampled...:	07/16/09 12:55	Date Received..:	07/17/09		
Prep Date.....:	07/27/09	Analysis Date..:	07/27/09		
Prep Batch #...:	9209059				
Dilution Factor:	1	Initial Wgt/Vol:	1 mL	Final Wgt/Vol..:	1 mL
		Method.....:	RSK SOP-175		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethane	ND	0.50	ug/L
Ethene	ND	0.50	ug/L
Methane	ND	0.50	ug/L

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: A9G170133 Work Order #...: LG5JP1AA Matrix.....: WATER
MB Lot-Sample #: A9G280000-059

Prep Date.....: 07/27/09 Final Wgt/Vol..: 1 mL
Analysis Date..: 07/27/09 Prep Batch #...: 9209059
Dilution Factor: 1 Initial Wgt/Vol: 1 mL

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methane	ND	0.50	ug/L	RSK SOP-175
Ethane	ND	0.50	ug/L	RSK SOP-175
Ethene	ND	0.50	ug/L	RSK SOP-175

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: A9G170133 Work Order #...: LG5JP1AC Matrix.....: WATER
LCS Lot-Sample#: A9G280000-059
Prep Date.....: 07/27/09 Analysis Date..: 07/27/09
Prep Batch #...: 9209059
Dilution Factor: 1 Final Wgt/Vol..: 1 mL
Initial Wgt/Vol: 1 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Methane	100	(75 - 127)	RSK SOP-175
Ethane	100	(74 - 138)	RSK SOP-175
Ethene	104	(73 - 140)	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: A9G170133 Work Order #...: LG5JP1AC Matrix.....: WATER
LCS Lot-Sample#: A9G280000-059
Prep Date.....: 07/27/09 Analysis Date..: 07/27/09
Prep Batch #...: 9209059
Dilution Factor: 1 Final Wgt/Vol..: 1 mL
Initial Wgt/Vol: 1 mL

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Methane	73	73	ug/L	100	RSK SOP-175
Ethane	140	140	ug/L	100	RSK SOP-175
Ethene	130	130	ug/L	104	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: A9G170133 Work Order #...: LGL9K1AF-MS Matrix.....: WATER
MS Lot-Sample #: A9G170101-005 LGL9K1AG-MSD
Date Sampled...: 07/16/09 12:45 Date Received..: 07/17/09
Prep Date.....: 07/27/09 Analysis Date..: 07/27/09
Prep Batch #...: 9209059
Dilution Factor: 1 Initial Wgt/Vol: 1 mL Final Wgt/Vol..: 1 mL

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Methane	100	(75 - 127)			RSK SOP-175
	99	(75 - 127)	1.1	(0-30)	RSK SOP-175
Ethane	99	(74 - 138)			RSK SOP-175
	98	(74 - 138)	0.51	(0-30)	RSK SOP-175
Ethene	100	(73 - 140)			RSK SOP-175
	98	(73 - 140)	2.5	(0-30)	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: A9G170133 Work Order #...: LGL9K1AF-MS Matrix.....: WATER
MS Lot-Sample #: A9G170101-005 LGL9K1AG-MSD
Date Sampled...: 07/16/09 12:45 Date Received..: 07/17/09
Prep Date.....: 07/27/09 Analysis Date..: 07/27/09
Prep Batch #...: 9209059
Dilution Factor: 1 Initial Wgt/Vol: 1 mL Final Wgt/Vol..: 1 mL

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Methane	ND	73	73	ug/L	100		RSK SOP-175
	ND	73	72	ug/L	99	1.1	RSK SOP-175
Ethane	ND	140	140	ug/L	99		RSK SOP-175
	ND	140	130	ug/L	98	0.51	RSK SOP-175
Ethene	ND	130	130	ug/L	100		RSK SOP-175
	ND	130	120	ug/L	98	2.5	RSK SOP-175

NOTE(S):

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

Bold print denotes control parameters

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GENERAL CHEMISTRY DATA

Cardinal Resources

Client Sample ID: MW4

General Chemistry

Lot-Sample #...: A9G170133-001 Work Order #...: LGMM0 Matrix.....: WG
Date Sampled...: 07/16/09 08:40 Date Received..: 07/17/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	30.4	1.0	mg/L	MCAWW 300.0A	07/17/09	9201027
		Dilution Factor: 1				
Nitrate as N	ND	0.10	mg/L	MCAWW 300.0A	07/17/09	9201029
		Dilution Factor: 1				
Sulfate	79.7	1.0	mg/L	MCAWW 300.0A	07/17/09	9201028
		Dilution Factor: 1				
Total Alkalinity	110	5.0	mg/L	MCAWW 310.1	07/17/09	9201061
		Dilution Factor: 1				
Total Organic Carbon	2	1	mg/L	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1				
Total Sulfide	ND	1.0	mg/L	MCAWW 376.1	07/21/09	9202253
		Dilution Factor: 1				

Cardinal Resources

Client Sample ID: OW2

General Chemistry

Lot-Sample #...: A9G170133-003 Work Order #...: LGMNK Matrix.....: WG
Date Sampled...: 07/16/09 10:05 Date Received..: 07/17/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	1.8	1.0	mg/L	MCAWW 300.0A	07/17/09	9201027
		Dilution Factor: 1				
Nitrate as N	2.4	0.10	mg/L	MCAWW 300.0A	07/17/09	9201029
		Dilution Factor: 1				
Sulfate	24.0	1.0	mg/L	MCAWW 300.0A	07/17/09	9201028
		Dilution Factor: 1				
Total Alkalinity	29	5.0	mg/L	MCAWW 310.1	07/17/09	9201061
		Dilution Factor: 1				
Total Organic Carbon	1	1	mg/L	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1				
Total Sulfide	ND	1.0	mg/L	MCAWW 376.1	07/21/09	9202253
		Dilution Factor: 1				

Cardinal Resources

Client Sample ID: OW18

General Chemistry

Lot-Sample #...: A9G170133-004 Work Order #...: LGMNM Matrix.....: WG
Date Sampled...: 07/16/09 11:20 Date Received..: 07/17/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	9.8	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/17/09	9201030
Nitrate as N	0.10	0.10 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/17/09	9201029
Sulfate	7.2	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/17/09	9201028
Total Alkalinity	360	5.0 Dilution Factor: 1	mg/L	MCAWW 310.1	07/17/09	9201061
Total Organic Carbon	10	1 Dilution Factor: 1	mg/L	MCAWW 415.1	07/20/09	9201305
Total Sulfide	ND	1.0 Dilution Factor: 1	mg/L	MCAWW 376.1	07/21/09	9202253

Cardinal Resources

Client Sample ID: OW25

General Chemistry

Lot-Sample #...: A9G170133-005 Work Order #...: LGMNQ Matrix.....: WG
Date Sampled...: 07/16/09 12:55 Date Received..: 07/17/09

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride	1.1	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/17/09	9201030
Nitrate as N	0.30	0.10 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/17/09	9201029
Sulfate	11.0	1.0 Dilution Factor: 1	mg/L	MCAWW 300.0A	07/17/09	9201028
Total Alkalinity	40	5.0 Dilution Factor: 1	mg/L	MCAWW 310.1	07/17/09	9201061
Total Organic Carbon	1	1 Dilution Factor: 1	mg/L	MCAWW 415.1	07/20/09	9201305
Total Sulfide	ND	1.0 Dilution Factor: 1	mg/L	MCAWW 376.1	07/21/09	9202253

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: LGPP61AA		MB Lot-Sample #:	A9G200000-027	
	ND	1.0	mg/L	MCAWW 300.0A	07/17/09	9201027
		Dilution Factor: 1				
Chloride		Work Order #: LGPQA1AA		MB Lot-Sample #:	A9G200000-030	
	ND	1.0	mg/L	MCAWW 300.0A	07/17/09	9201030
		Dilution Factor: 1				
Nitrate as N		Work Order #: LGPP91AA		MB Lot-Sample #:	A9G200000-029	
	ND	0.10	mg/L	MCAWW 300.0A	07/17/09	9201029
		Dilution Factor: 1				
Sulfate		Work Order #: LGPP81AA		MB Lot-Sample #:	A9G200000-028	
	ND	1.0	mg/L	MCAWW 300.0A	07/17/09	9201028
		Dilution Factor: 1				
Total Alkalinity		Work Order #: LGPRH1AA		MB Lot-Sample #:	A9G200000-061	
	ND	5.0	mg/L	MCAWW 310.1	07/17/09	9201061
		Dilution Factor: 1				
Total Organic Carbon		Work Order #: LGQ381AA		MB Lot-Sample #:	A9G200000-305	
	ND	1	mg/L	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1				
Total Sulfide		Work Order #: LGR5F1AA		MB Lot-Sample #:	A9G210000-253	
	ND	1.0	mg/L	MCAWW 376.1	07/21/09	9202253
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: A9G170133 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#:LGPP61AC-LCS/LGPP61AD-LCSD LCS Lot-Sample#: A9G200000-027					
	106	(90 - 110)			MCAWW 300.0A	07/17/09	9201027
	106	(90 - 110)	0.18	(0-20)	MCAWW 300.0A	07/17/09	9201027
		Dilution Factor: 1					
Chloride		WO#:LGPQA1AC-LCS/LGPQA1AD-LCSD LCS Lot-Sample#: A9G200000-030					
	108	(90 - 110)			MCAWW 300.0A	07/17/09	9201030
	108	(90 - 110)	0.37	(0-20)	MCAWW 300.0A	07/17/09	9201030
		Dilution Factor: 1					
Nitrate as N		WO#:LGPP91AC-LCS/LGPP91AD-LCSD LCS Lot-Sample#: A9G200000-029					
	100	(90 - 110)			MCAWW 300.0A	07/17/09	9201029
	100	(90 - 110)	0.0	(0-20)	MCAWW 300.0A	07/17/09	9201029
		Dilution Factor: 1					
Sulfate		WO#:LGPP81AC-LCS/LGPP81AD-LCSD LCS Lot-Sample#: A9G200000-028					
	99	(90 - 110)			MCAWW 300.0A	07/17/09	9201028
	99	(90 - 110)	0.80	(0-20)	MCAWW 300.0A	07/17/09	9201028
		Dilution Factor: 1					
Total Sulfide		WO#:LGR5F1AC-LCS/LGR5F1AD-LCSD LCS Lot-Sample#: A9G210000-253					
	101	(79 - 104)			MCAWW 376.1	07/21/09	9202253
	101	(79 - 104)	0.0	(0-20)	MCAWW 376.1	07/21/09	9202253
		Dilution Factor: 1					

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: A9G170133 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#:LGPP61AC-LCS/LGPP61AD-LCSD				LCS Lot-Sample#: A9G200000-027		
	50.0	53.0	mg/L	106		MCAWW 300.0A	07/17/09	9201027
	50.0	53.1	mg/L	106	0.18	MCAWW 300.0A	07/17/09	9201027
		Dilution Factor: 1						
Chloride		WO#:LGPQA1AC-LCS/LGPQA1AD-LCSD				LCS Lot-Sample#: A9G200000-030		
	50.0	54.0	mg/L	108		MCAWW 300.0A	07/17/09	9201030
	50.0	53.8	mg/L	108	0.37	MCAWW 300.0A	07/17/09	9201030
		Dilution Factor: 1						
Nitrate as N		WO#:LGPP91AC-LCS/LGPP91AD-LCSD				LCS Lot-Sample#: A9G200000-029		
	2.5	2.5	mg/L	100		MCAWW 300.0A	07/17/09	9201029
	2.5	2.5	mg/L	100	0.0	MCAWW 300.0A	07/17/09	9201029
		Dilution Factor: 1						
Sulfate		WO#:LGPP81AC-LCS/LGPP81AD-LCSD				LCS Lot-Sample#: A9G200000-028		
	50.0	49.3	mg/L	99		MCAWW 300.0A	07/17/09	9201028
	50.0	49.7	mg/L	99	0.80	MCAWW 300.0A	07/17/09	9201028
		Dilution Factor: 1						
Total Sulfide		WO#:LGR5F1AC-LCS/LGR5F1AD-LCSD				LCS Lot-Sample#: A9G210000-253		
	18	18	mg/L	101		MCAWW 376.1	07/21/09	9202253
	18	18	mg/L	101	0.0	MCAWW 376.1	07/21/09	9202253
		Dilution Factor: 1						

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity		Work Order #: LGPRH1AC	LCS Lot-Sample#: A9G200000-061		
	99	(90 - 127)	MCAWW 310.1	07/17/09	9201061
		Dilution Factor: 1			
Total Organic Carbon		Work Order #: LGQ381AC	LCS Lot-Sample#: A9G200000-305		
	109	(88 - 115)	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1			

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity			Work Order #: LGPRH1AC LCS Lot-Sample#: A9G200000-061				
	71	70	mg/L	99	MCAWW 310.1	07/17/09	9201061
			Dilution Factor: 1				
Total Organic Carbon			Work Order #: LGQ381AC LCS Lot-Sample#: A9G200000-305				
	35	38	mg/L	109	MCAWW 415.1	07/20/09	9201305
			Dilution Factor: 1				

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A9G170133 **Matrix.....:** WATER
Date Sampled...: 07/15/09 10:20 **Date Received..:** 07/16/09

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#: LGLLF1AW-MS/LGLLF1AX-MSD				MS Lot-Sample #: A9G160259-003	
	NC,MSB	(80 - 120)			MCAWW 300.0A	07/17/09	9201027
	NC,MSB	(80 - 120)		(0-20)	MCAWW 300.0A	07/17/09	9201027
		Dilution Factor: 5					
Sulfate		WO#: LGLLF1A1-MS/LGLLF1A2-MSD				MS Lot-Sample #: A9G160259-003	
	131 N	(80 - 120)			MCAWW 300.0A	07/17/09	9201028
	124 N	(80 - 120)	2.6	(0-20)	MCAWW 300.0A	07/17/09	9201028
		Dilution Factor: 5					
Total Organic Carbon		WO#: LGKP41AF-MS/LGKP41AG-MSD				MS Lot-Sample #: A9G160126-002	
	104	(72 - 136)			MCAWW 415.1	07/20/09	9201305
	105	(72 - 136)	0.42	(0-20)	MCAWW 415.1	07/20/09	9201305
		Dilution Factor: 1					

NOTE(S):

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

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD may be outside control limits because the sample amount was greater than 4X the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WATER
Date Sampled...: 07/15/09 10:20 Date Received..: 07/16/09

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			WO#: LGLLF1AW-MS/LGLLF1AX-MSD				MS Lot-Sample #: A9G160259-003		
	816	50.0	853	mg/L			MCAWW 300.0A	07/17/09	9201027
			Qualifiers: NC,MSB						
	816	50.0	832	mg/L			MCAWW 300.0A	07/17/09	9201027
			Qualifiers: NC,MSB						
			Dilution Factor: 5						
Sulfate			WO#: LGLLF1A1-MS/LGLLF1A2-MSD				MS Lot-Sample #: A9G160259-003		
	68.0	50.0	134 N	mg/L	131		MCAWW 300.0A	07/17/09	9201028
	68.0	50.0	130 N	mg/L	124	2.6	MCAWW 300.0A	07/17/09	9201028
			Dilution Factor: 5						
Total Organic Carbon			WO#: LGKP41AF-MS/LGKP41AG-MSD				MS Lot-Sample #: A9G160126-002		
	3	25	29	mg/L	104		MCAWW 415.1	07/20/09	9201305
	3	25	29	mg/L	105	0.42	MCAWW 415.1	07/20/09	9201305
			Dilution Factor: 1						

NOTE(S):

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

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD may be outside control limits because the sample amount was greater than 4X the spike amount.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WATER
Date Sampled...: 07/13/09 15:20 Date Received..: 07/16/09

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #...: LGLMF1AK		MS Lot-Sample #: A9G160259-022	
	102	(80 - 120)	MCAWW 300.0A	07/18/09	9201027
		Dilution Factor: 1			
Sulfate		Work Order #...: LGLMF1AL		MS Lot-Sample #: A9G160259-022	
	96	(80 - 120)	MCAWW 300.0A	07/18/09	9201028
		Dilution Factor: 1			

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WATER
Date Sampled...: 07/13/09 15:20 Date Received..: 07/16/09

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride			Work Order #...: LGLMF1AK			MS Lot-Sample #: A9G160259-022		
	ND	50.0	50.9	mg/L	102	MCAWW 300.0A	07/18/09	9201027
			Dilution Factor: 1					
Sulfate			Work Order #...: LGLMF1AL			MS Lot-Sample #: A9G160259-022		
	ND	50.0	48.0	mg/L	96	MCAWW 300.0A	07/18/09	9201028
			Dilution Factor: 1					

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WG
Date Sampled...: 07/16/09 10:05 Date Received..: 07/17/09

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity		WO#: LGMNK1AK-MS/LGMNK1AL-MSD				MS Lot-Sample #: A9G170133-003	
	93	(10 - 160)			MCAWW 310.1	07/17/09	9201061
	93	(10 - 160)	0.28	(0-24)	MCAWW 310.1	07/17/09	9201061
		Dilution Factor: 1					

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: A9G170133 Matrix.....: WG
Date Sampled...: 07/16/09 10:05 Date Received..: 07/17/09

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity			WO#: LGMNK1AK-MS/LGMNK1AL-MSD				MS Lot-Sample #: A9G170133-003		
	29	500	500	mg/L	93		MCAWW 310.1	07/17/09	9201061
	29	500	490	mg/L	93	0.28	MCAWW 310.1	07/17/09	9201061
			Dilution Factor: 1						

NOTE(S):

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

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END OF REPORT

Appendix B
Historic Groundwater, Surface Water, and Sediment 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	Chloro-ethane	Chloroform	Chloro-methane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethyl-benzene	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)	NA	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	NA	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	<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	<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	<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	<10	<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	<10	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	<10	<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	<10	<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	<10	<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	<10	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	<10	<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	<10	<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	0.24 J	<10	<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	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
	08/30/06	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
	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	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	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	1.0 U	2.0 U	1.0 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	<0.5	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	<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	<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	<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	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	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

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	Chloro-ethane	Chloroform	Chloro-methane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethyl-benzene	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)	NA	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	NA	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 UJ	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
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	0.20 J	38	<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 UJ	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

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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	Chloro-ethane	Chloroform	Chloro-methane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethyl-benzene	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)	NA	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	NA	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-6	03/23/93	NR	<1.3 J	NR	<0.5	<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	<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	<10	19	-	<10	5.0 J	<10	<10
	02/18/99	<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	3.7 B	<1.0	20	-	<1.0	4.6	<2.0	<1.0
	01/06/00	1.4 J	0.19 J,B	0.58 J	<1.0	<1.0	<2.0	<1.0	0.17 J	<1.0	<1.0	0.28 J	5.1	<1.0	<10	0.26 J,B	<1.0	21	-	<1.0	4.6	<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	2.2	<1.0	<10	<1.0	<1.0	14	-	<1.0	2.6	<2.0	<1.0
	03/15/01	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.9	<1.0	<10	<1.0	<1.0	19	-	<1.0	3.9	<2.0	<1.0
	08/29/01	<10	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	6.7	<1.0	<10	<1.0	<1.0	12	-	<1.0	2.3	<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	4.7	<1.0	<10	1.1 U	<1.0	12	-	<1.0	2.9	<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	7.8	<1.0	<10	<1.0	<1.0	15	-	<1.0	3.9	<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	21	<1.0	<10	0.34 J	<1.0	28	-	<1.0	6.8	<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	21	<1.0	<10	<1.0	<1.0	32	-	<1.0	6.3	<2.0	<1.0
	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	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	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	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	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	1.0 U	19	1.0 U	10 U	1.0 UJ	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	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	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
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	<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	<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	<10
	02/18/99	<10	0.32 J	0.17 J	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<10	<10	0.32 J	<1.0	0.17 J	-	<1.0	<1.0	<2.0	<1.0
	01/06/00	<10	0.49 J	<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	<10	0.35 J,B	<1.0	<1.0	-	0.097 J	<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	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	03/15/01	<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	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<2.0	<1.0
	08/29/01	<10	0.20 J	<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
	04/24/02	10 U	0.20 J	<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 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	<10	<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	<10	<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	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	<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	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	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 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	1.0 U	2.0 U	1.0 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

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	Chloro-ethane	Chloroform	Chloro-methane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethyl-benzene	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)	NA	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	NA	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
OW-10R	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
	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 UJ	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
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 UJ	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	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	0.64 J/0.63 J	1.6 J/1.6 J	1.0 U/1.0 U
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	<10	<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	<10	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	<10	<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	<10	<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	<10	<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	<10	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	<10	<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	<10	<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	<10	<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

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	Chloro-ethane	Chloroform	Chloro-methane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethyl-benzene	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)	NA	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	NA	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
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	<10	<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	<10	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	<10	<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	<10	<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	<10	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	<10	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	<10	<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	<10	<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	<10	<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
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	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	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	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	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	Chloro-ethane	Chloroform	Chloro-methane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethyl-benzene	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)	NA	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	NA	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
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
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	<1.0	<1.0	0.11 J	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.26 J	<1.0	<10	<1.0	<1.0	<1.0	-	<1.0	<1.0	0.89 J	<1.0
	01/04/00	<10	3.8 B	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	0.11 J	<1.0	<1.0	<1.0	<1.0	<10	0.10 J,B	<1.0	<1.0	-	0.055 J	<1.0	0.46 J	<1.0
	06/07/00	<10	5.4	<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	0.54 J	<1.0
	03/13/01	10 UJ	4.5	<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	0.70 J	<1.0
	08/30/01	10 U	3.2	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	0.38 J	<1.0	<1.0	-	<1.0	<1.0	0.25 J	<1.0
	04/25/02	<10	2.4	<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 U	<1.0	<1.0	-	<1.0	<1.0	0.33 J	<1.0
	09/18/02	<10	2.5	<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	0.39 J	<1.0
	04/09/03	<10	3.7	<1.0	<1.0	<1.0	<2.0	<1.0	5.5	<1.0	<1.0	<1.0	<1.0	<1.0	<10	0.51 J	<1.0	<1.0	-	<1.0	<1.0	0.88 J	<1.0
	04/24/04	<10	2.9	<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	0.56 J	<1.0
	02/16/06	10 U	3.0	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	0.52 J	1.0 U
	08/29/06	10 U	2.4	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	0.27 J	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	0.83 J	1.0 U
	06/13/07	10 U	2.1	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	1.0 U	1.0 U	1.0 U	1.0 U	0.67 J	1.0 U
	07/23/08	10 U	1.8	1.0 U	1.0 U	1.0 U	<2.0	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	0.74 J	1.0 U
	07/15/09	10 U	2.1	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	1.0 U	0.80 J	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	Chloro-ethane	Chloroform	Chloro-methane	1,1-DCA	1,2-DCA	1,1-DCE	1,2-DCE (total)	Ethyl-benzene	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)	NA	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	NA	NA	5	7	70	700	NA	5	NA	5	100	1,000	5	2	10,000
Well ID	Date																						
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	<25	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	<12	0.23 J,B	<1.2	<1.2	-	0.58 J	0.073 J	1.5 J	1.7
	06/07/00	<10	11	<1.0	<1.0	5.8	<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	<1.0	1.4
	03/13/01	10 UJ	12	<1.0	<1.0	8.2	<2.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.70 J	<1.0	<10	<1.0	<1.0	<1.0	-	0.56 J	<1.0	0.76 J	1.9
	08/30/01	10 U	3.4	<1.0	<1.0	4.6	<2.0	0.34 J	<2.0	<1.0	<1.0	<1.0	0.36 J	<1.0	<10	0.36 J	<1.0	<1.0	-	0.45 J	<1.0	<2.0	1.7
	04/25/02	<10	4.2	<1.0	<1.0	3.7	<2.0	<1.0	<2.0	<1.0	0.29 J	<1.0	<1.0	<1.0	<10	1.2 U	<1.0	<1.0	-	1.0 U	<1.0	0.39 J	2.7 U
	09/18/02	<10	2.9	<1.0	<1.0	4.2	<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	1.8
	04/09/03	<10	8.7	<1.0	<1.0	8.5	0.66 J	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	0.40 J,B	<1.0	<1.0	-	<1.0	<1.0	0.56 J	1.6
	04/24/04	10 U	4.2	<1.0	<1.0	5.9	0.24 J	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0	-	0.23 J	<1.0	0.32 J	1.1
	02/16/06	10 U	7.5	1.0 U	1.0 U	11	0.31 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.59 J	1.0 U	<10	0.59 J	1.0 U	1.0 U	-	0.26 J	1.0 U	0.29 J	1.0
	08/31/06	10 U	2.8	1.0 U	1.0 U	5.3	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	0.24 J	1.0 U	0.41 J	1.1
	06/14/07	10 U	3.5	1.0 U	1.0 U	4.8	0.26 J	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.50 J	1.0 U	10 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.21 J	1.0 U	0.37 J	0.76 J
	07/23/08	10 U	1.9	1.0 U	1.0 U	4.6	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	0.17 J	1.0 U	0.32 J	0.66 J
	07/15/09	10 U	5.1	1.0 U	1.0 U	7.8	0.34 J	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	1.0 U	1.0 U	0.19 J	1.0 U	0.35 J	1.0 U
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
OW-25	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	-	0.17 J	1.0 U	1.0 U	1.0 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

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-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-1 (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
SW-1 / Duplicate	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
SW-2 (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
	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

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	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
	09/17/02	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	1.0 U / 1.0 U	1.0 U / 1.0 U	2.0 U / 2.0 U	NA
	04/08/03	**1.3 J** / **2.0 J**	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

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 (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
SED-1 / Duplicate	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
SED-2 (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
	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
SED-2 / Duplicate	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	17 J / 9.3 J	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

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.
NA = Not analyzed
J = Estimated result; result is less than method reporting limit
TB = Detected in trip blank
FB = Detected in field blank
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.

Appendix C
Data Quality Review - Checklists

Tier II
VOA Organic Data Review Summary

SDG No./Matrix:	A9G170133 - Water (Low) MW-4, FB-3, OW-2, OW-18, OW-25 Pump Rinse TB-3	**Completion Date**:	08/14/09
Project No.:	Carroll & Dubies - 104-0012	**Reviewer**:	Barbara Jones
Laboratory:	TestAmerica, North Canton, OH		

Review Criteria	Data Qualified Yes / No	Comments / Samples Qualified
1. Data completeness	No	Complete data package provided electronically in searchable format. Package was reviewed on screen with selected pages printed for detailed review. Summary package was printed.
2. Preservation/holding time	No	All samples were analyzed within the required holding times and were correctly preserved.
3. GC/MS tuning	No	Form V shows that instrument tuning was correctly performed and documented.
4. Calibration:		
4A - Initial	No	Six-point initial calibration (UX16) for period 11/02/09 to 07/16/09 (low water). RSDs <30% and RRF <0.05, therefore no qualifications.
4B - Continuing	No	Continuing calibration performed on 07/23/09. Two compounds exceeded %D limit of 25%, 1,2-dibromo-3-chloropropane and vinyl acetate, but these are not reported VOAs and therefore no qualifications.
5. Blanks:		
5A - Laboratory blanks	No	Method blank (Form IV): Methylene chloride detected at 0.39 ug/L J; no data qualified because no detections in other samples.
5B - Trip blanks	NA	Trip blank: Acetone detected at 2.6 ug/L J. No results qualified because acetone not reported in any of the sample.
5C - Equipment rinsates	NA	Pump rinse: No detections.
5D - Field blank		No detections.
6. Surrogate recovery	NA	Form II - All surrogate recoveries within QC limits.
7. Lab-fortified blank		Form III - Check sample and duplicate; all recoveries and RPDs within limits.
8. Matrix spike/matrix spike duplicates	No	Form III - Lab MS and MSD; recoveries and RPDs within limits.
9. Field duplicates	NA	No field duplicates for this SDG.
10. Internal standards performance	No	Form VIII - Internal standards met QC limits.
11. Compound quantitation and reporting	No	MW-4 was spot-checked and okay.
12. Tentatively identified compounds	NA	Not required for this program.

Tier II
RSK Method Dissolved Gases

SDG No./Matrix:	A9G170133 - Groundwater MW-4, OW-2, OW-18, OW-25	**Completion Date**:	08/14/09
Project No.:	Carroll & Dubies - 104-0012	**Reviewer**:	Barbara Jones
Laboratory:	TestAmerica, North Canton, OH		

Review Criteria	Data Qualified Yes / No	Comments / Samples Qualified
1. Data completeness	No	Electronic package included sample data, standard data, raw QC data, and miscellaneous (sequence table, etc.). Summary data package printed.
2. Preservation/holding time	No	All samples properly preserved and analyzed in less than 14 days.
3. GC/MS tuning	NA	GC method.
4. Calibration:		
4A - Initial	No	7-Level initial calibration from 06/07/09. RSD <30%. The laboratory reported that due to a problem with the regulator on the gas cylinder for the gas standard for initial calibration verification, a second (verification) standard was not available. However, the primary source standard was available and was used. This is a deviation from standard methods but does not affect the quality of the data.
4B - Continuing	No	Continuing calibration - July 09. RRF and %D within QC limits.
5. Blanks:		
5A - Laboratory blanks	No	Method blank (Form III) for all samples.
5B - Trip blanks	NA	Trip blank not analyzed for dissolved gases.
5C - Equipment rinsates	NA	Pump rinsate not analyzed for dissolved gases.
6. Surrogate recovery	NA	Not applicable for this method.
7. Lab-fortified blank	No	Form III - One check sample, with recoveries within QC limits.
8. Matrix spike/matrix spike duplicates	No	Form III - One MS/MSD pair, with recoveries and RPDs within limits.
9. Field duplicates	NA	No field duplicates for this SDG.
10. Internal standards performance	NA	Not applicable for this method.
11. Compound quantitation and reporting	No	Appears consistent with calculations for standards. Local compound variable referenced in formula.
12. Tentatively identified compounds	NA	Not required for this program.

Tier II
Inorganic Data Review Summary

SDG No./Matrix:	A9G170133 - Groundwater MW-4, OW-2, OW-18, OW-25	**Completion Date**:	08/17/09
Project No.:	Carroll & Dubies - 104-0012	**Reviewer**:	Barbara Jones
Laboratory:	TestAmerica, North Canton, OH		

Review Criteria	Data Qualified Yes / No	Comments / Samples Qualified
1. Data completeness	No	Electronic data package included sample data and supportive raw data. Summary package printed.
2. Preservation/holding time	No	All samples analyzed within the required holding times shown below.
3. Calibration	No	Initial and continuing calibration documentation provided for all parameters.
4. Blanks:		
4A - Laboratory	No	Method blank (1) for all parameters; all ND.
4B - Equipment rinsates	NA	Pump rinsate was not analyzed for inorganics.
5. Interference check sample	NA	No interference check samples for these parameters.
6. Laboratory control sample	No	Duplicate lab control samples analyzed for all parameters, and all results were within QC limits.
7. Laboratory duplicate sample	No	LCS/LCS duplicates met QC limits.
8. Field duplicate sample	NA	No field duplicate analyzed for this SDG.
9. Matrix spike sample analysis	No	For chloride MS/MSD, the sample amount was greater than 4x the spike amount, therefore the recoveries and RPDs were not calculated; results were flagged by the laboratory. Data was not qualified because LCS results and method blanks were within limits. For sulfate, recoveries were high (outside QC limits). Data was not qualified because LCS and method blank results were within QC limits.
10. ICP serial dilution	NA	Not applicable for these parameters.
11. Sample quantitation and reporting	No	Titration report for sulfide reviewed to confirm nondetection in all samples.

Inorganics Analyzed:	Holding Times:
- Chloride	28 days
- Nitrate	48 hours
- Sulfate	28 days
- Total Alkalinity	14 days
- Total Organic Carbon	28 days
- Total Sulfide	7 days

Tier II
VOA Organic Data Review Summary

SDG No./Matrix: A9G150158
Groundwater, Surface Water, Sediment

G150158:	**G160126**:
Two Batches:	
OW-5	OW-22
OW-6	OW-21
OW-13R	FB-2
OW-8	OW-10R
MW-1	SW-1
OW-21 MS/MSD	SW-Dup
SW-2 MS/MSD	SED-1
SED-2 MS/MSD	SED-Dup
Dup-1	SW-2
FB-1	SED-2
TB-1	OW-19
	TB-2

Completion Date: 08/18/09

Project No.: Carroll & Dubies - 104-0012 **Reviewer**: Barbara Jones

Laboratory: TestAmerica, North Canton, OH

Review Criteria	Data Qualified Yes / No	Comments / Samples Qualified
1. Data completeness	No	Complete package provided electronically. Summary package printed, then selected pages from full package as needed.
2. Preservation/holding time	No	All samples analyzed within less than 14-day holding time.
2A - Other		Detected VOCs in sediment samples not otherwise qualified are qualified as J for estimated because of moisture content greater than 50%.
3. GC/MS tuning	No	Form V shows that instrument tuning was correctly performed and documented.
4. Calibration:		
4A - Initial	No	Initial calibration raw data provided for 2 instruments, UX8 and UX16. Initial calibration checklists for both instruments provided in data package document compliance with QC requirements. Some deviation of RRF and RSDs allow for problem compounds if evaluated. No qualification.
4B - Continuing	No	Continuing calibration for UX8 on 7/20 and 7/22. Continuing calibration for UX16 on 7/17, 7/20 (2 times), and 7/21. Spot check of RRF and %D (17 July UX16) found some %D deviation for non-reported compounds, but no qualifications.

Tier II
VOA Organic Data Review Summary
(Continued)

Review Criteria	Data Qualified Yes / No	Comments / Samples Qualified
5. Blanks:		
5A - Laboratory blanks	Yes	Form IV - Five method blanks, 3 are ND. Hexanone (J) detected in one method blank but no data qualifications because hexanone is ND in the associated samples. In 5th method blank, methylene chloride and acetone detected, and results for associated SED-Dup qualified as 21U; 300, respectively.
5B - Trip blanks	Yes	Acetone detected in TB-1 and TB-2. Acetone not detected in samples associated with TB-1. In SW-1 and SW-Dup associated with TB-2, acetone was detected, but was subsequently qualified as not detected above the reporting limit (I0U).
5C - Field blanks	No	Field blanks FB-1 and FB-2 are ND.
6. Surrogate recovery	No	Form IIs indicate that all surrogate recoveries were within the QC limits and no qualifications are required.
7. Laboratory control sample	No	Form III for lab control samples - 5 pairs of lab control samples with duplicates were analyzed, and all were within QC limits.
8. Matrix spike/matrix spike duplicates	No	Groundwater (OW-21), surface water (SW-2), and sediment (SED-2) MS/MSD analyses were performed (Form III). Surface water and groundwater spike recoveries and RPDs were within QC limits. Spike recovery was high for SED-2 (RPD okay). Results were already J-qualified because of high moisture, and no additional qualifier was added based on MS/MSD results.
9. Field duplicates	No	Duplicate analyses were performed for OW-13R, SW-12, and SED-1. OW-13R/Dup okay, RPD <30%. SW-1 RPD exceeded 30%, but not qualified because 1 detection was already J-qualified by lab (less than reporting limit). SED-1/SED-1 Dup RPD exceeded 50%; however, results were already J-qualified so no additional qualification was required.
10. Internal standards performance	Yes	Form VIII - 5 sets of IS analyses performed; 4 were within QC limits, but 1 was out for SED-2 (1 compound, low). All results for SED-2 qualified as J (if detected) and UJ (if not detected).
11. Compound quantitation and reporting	No	Spot-checked for OW-6 and OW-13R; okay.
12. Tentatively identified compounds	NA	TIC analysis not required for this program.
13. Moisture content, solids	Yes	Sediment samples contained >50% moisture but less than 90% moisture. Positive results not otherwise qualified were qualified as J.

Tier II
RSK Method Dissolved Gases

SDG No./Matrix:	A9G150158 - Groundwater OW-5, OW-6, OW-13R, OW-8, Dup-1, MW-1, OW-22, OW-21, OW-10R, OW-19	**Completion Date**:	08/18/09
Project No.:	Carroll & Dubies - 104-0012	**Reviewer**:	Barbara Jones
Laboratory:	TestAmerica, North Canton, OH		

Review Criteria	Data Qualified Yes / No	Comments / Samples Qualified
1. Data completeness	No	Electronic package includes sample data, standard data, raw QC data, and miscellaneous. Summary data package printed.
2. Preservation/holding time	No	All samples analyzed in less than 14 days.
3. GC/MS tuning	NA	Not applicable to GC method.
4. Calibration:		
4A - Initial	No	7-Level initial calibration from 06/07/09. RSD <30%. The laboratory reported that due to a problem with the regulator on the gas cylinder for the gas standard for initial calibration verification, a second (verification) standard was not available. However, the primary source standard was available and was used. This is a deviation from standard methods but does not affect the quality of the data.
4B - Continuing	No	July 23 continuing calibration. RRF and %D within QC limits.
5. Blanks:		
5A - Laboratory blanks	No	Method blank ND for dissolved gases.
5B - Trip blanks	NA	Trip blanks not analyzed for dissolved gases.
5C - Field blanks	NA	Field blanks not analyzed for dissolved gases.
6. Surrogate recovery	NA	Not applicable for this method.
7. Laboratory control sample	No	Lab control sample within QC limits.
8. Matrix spike/matrix spike duplicates	No	MS/MSD recoveries and RPDs within limits except for methane in one sample slightly high. No qualifications because LCS and method blanks within limits.
9. Field duplicates	No	OW-13R and Dup-1 - less than 5% RPD.
10. Internal standards performance	NA	Not applicable for this method.
11. Compound quantitation and reporting	No	Consistent with standards; local compound variable not determined.
12. Tentatively identified compounds	NA	Not required for this program.

Tier II
Inorganic Data Review Summary

SDG No./Matrix:	A9G150158 - Groundwater and Sediment OW-5, OW-6, OW-13R, OW8-, Dup-1, MW-1, OW-22, OW-21, OW-10R, OW-19; SED-1, SED-2, and SED-Dup for % moisture only	**Completion Date**:	08/19/09
Project No.:	Carroll & Dubies - 104-0012	**Reviewer**:	Barbara Jones
Laboratory:	TestAmerica, North Canton, OH		

Review Criteria	Data Qualified Yes / No	Comments / Samples Qualified
1. Data completeness	No	Electronic data package included sample data and supportive raw data. Summary package printed.
2. Preservation/holding time	No	All samples analyzed within the required holding times shown below.
3. Calibration	No	Initial and continuing calibration documentation provided for all parameters.
4. Blanks:		
4A - Laboratory	No	Method blanks ND for all parameters.
4B - Equipment rinsates	NA	No equipment rinsate blanks analyzed for these parameters.
5. Interference check sample	NA	Not applicable for these parameters.
6. Laboratory control sample	No	Duplicate lab control samples for all parameters met QC limits.
7. Laboratory duplicate sample	No	LCS/LCS duplicates met QC limits.
8. Field duplicate sample	Yes	SED-1 and SED-Dup %D for moisture okay; OW-13R and duplicate results for TOC and total sulfide qualified as J for estimated because RPDs exceeded QC limits.
9. Matrix spike sample analysis	No	MS/MSDs met QC limits for all parameters.
10. ICP serial dilution	NA	Not applicable for these parameters.
11. Sample quantitation and reporting	No	Spot check confirmation - TOC for OW-13R okay.

Inorganics Analyzed:	Holding Times:
- Chloride	28 days
- Nitrate	48 hours
- Sulfate	28 days
- Total Alkalinity	14 days
- Total Organic Carbon	28 days
- Total Sulfide	7 days