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July 27, 2007
Project No. 104-0012

Ms. Maria Jon
U.S. Environmental Protection Agency
Emergency and Remedial Response Division
Eastern New York Section
290 Broadway
New York, New York 10007

June 2007 Sampling Report
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Dear Ms. Jon:

Please find enclosed three copies of the *June 2007 Sampling Report, Carroll and Dubies Superfund Site, Town of Deerpark, Orange County, New York*. The report summarizes the methods and findings of the 2007 annual sampling program for Operable Unit 2. Groundwater, surface water, and sediment were sampled during this program.

Additional discussion and figures in the report address the questions and comments from U.S. EPA that were informally submitted to Cardinal Resources LLC in an email in April 2007. Some of the major comments were:

- Are concentration trends stabilizing in OW-2 and OW-6?
- Is Gold Creek surface water continuing to be sampled, and if so, what are the benzene results?
- What does the benzene plume of SGV and MCL exceedances look like on a map, and how has it changed over time?

These, among other questions, are addressed in Section 4.0 and in additional Figures 5, 8, and 9. Conditions at the site continue to support U.S. EPA's conclusions in the 2006 five-year review that the Site is protective of human health and the environment. Our plan for 2008 is a sampling round similar to the 2007 program, to include groundwater, surface water, and sediment.

Do not hesitate to call (412.374.0989) or email (bjones@cardinalres.com) if you have questions about this report.

Sincerely,

CARDINAL RESOURCES LLC

Barbara H. Jones

Barbara H. Jones
Principal

cc: Carroll & Dubies PRP Group
Joshua Cook - NYSDEC
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June 2007 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 June 2007 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 incorporates the recommendations of the *November 2006 Sampling Report* (Cardinal Resources, 2007). The June 2007 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 OU1 Remedy

The goals of the OU1 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 OU2 Remedy

The goals of the ongoing OU2 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, seven 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, 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. Tetra-chloroethene and trichloroethene 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).

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 3.0.

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 a Solinst® electronic water-level meter and recorded in the field logbook to the 1/100th of a foot.

2.2 Equipment

Dedicated low-flow bladder pumps were used to purge and sample all of the 2007 monitoring well network, with the exception of wells OW-13R, OW-18, 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
- Rinsing with hexane
- Final rinse 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 multiparameter unit equipped with a flow-through cell and a Lamotte Turbidity Meter Model 2020, 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% 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 Severn Trent Laboratories (STL), 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 and SED-2/SW-2 (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 OU2 monitoring period at SW-1, the down-stream sample, and SW-2, the upstream sample (Figure 2).

Samples were collected for VOCs in accordance with the *Field Sampling and Analysis Plan Addendum* (Shield Environmental Associates, Inc., 1998), using a disposable container provided by the laboratory to collect and transfer the sample water at each location to the VOC sample vials. The sample bottles were labeled appropriately, placed in a cooler with ice, and sent to a 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 at the sediment/water interface.

The sampling approach was designed to collect samples with relatively lower moisture content. First, a decontaminated 8-inch diameter polyvinyl chloride (PVC) pipe, approximately 2 feet in length, was driven into the sediments to about 1 foot below the sediment surface. A decontaminated hand pump was then used to draw off water from the surface of the sediments, and the upper layer of muck and debris was scraped from the surface. The samples were collected using a stainless-steel scoop. The stainless-steel scoop, pump, and PVC pipe were decontaminated between sediment sampling locations.

This technique has been demonstrated to increase the solids content of the sediment samples, compared to previous sampling events. Higher solids concentrations improve the analytical reporting limits.

4.0 Groundwater Results

This section describes the results of the June 2007 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 one-half foot lower than observed in the summer of 2006 (August); the direction of groundwater flow and gradient were about the same. The groundwater flow direction on site is toward the southeast in the direction of 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

Detected groundwater VOC analytes from the June 2007 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, graphs, and discussion, the qualifier J with a reported concentration means an estimated result, with the analyte positively identified but the numerical value an approximate concentration. The qualifier U means that the analyte was not detected above the reported quantitation limit.

A variety of MNA field and laboratory parameters were analyzed in groundwater (Table 4). These parameters are general indicators of geochemical conditions conducive to degradation of chlorinated and other VOCs. Patterns of MNA indicators by area were discussed in detail in the *Supporting Documentation for Five-Year Review*

(Cardinal Resources, March 2005), along with an evaluation of how those patterns may relate to contaminant distribution within the groundwater plume.

Ten VOCs were detected in various wells during this sampling event, of which five exceeded regulatory limits. The VOCs that exceeded regulatory limits are benzene, chlorobenzene, 1,2-dichloroethene (total), tetrachloroethene, and trichloroethene (Table 5). The VOC that most frequently exceeded regulatory limits was benzene (in 7 wells), followed by 1,2-dichloroethene (3 wells), and tetrachloroethene, chlorobenzene, and trichloroethene (in 2 wells each). Regulatory exceedances of VOCs in groundwater are plotted in Figure 3.

VOC concentrations in monitoring wells in June 2007 are within the ranges seen in 2006, with concentrations lower or the same as the results of the previous sampling round (August or November 2006, depending on the well) in almost all cases. In the remainder of this section, specific groundwater trends and conditions are discussed in greater detail, including:

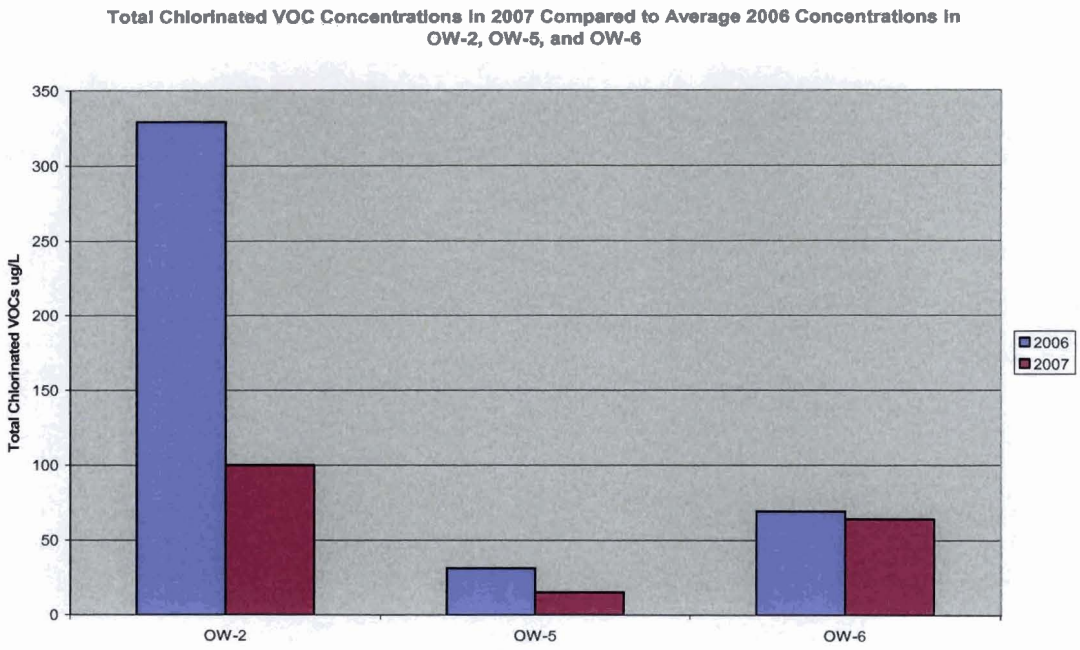
- Concentration trends for chlorinated VOCs
- Concentration trends for benzene
- Achievement of regulatory limits in monitoring wells
- MNA trends

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, but are detectable in other locations, including OW-13/OW-13R. Groundwater at OW-5 and OW-13/OW-13R is generally higher in methane and total organic carbon (TOC), has lower DO and redox (is more reduced), and is more amenable to reductive dechlorination. In these locations, chlorinated VOCs in general show a downward trend over time (Figure 4). Note that for OW-5 the decline in primary chlorinated VOCs, tetrachloroethene, and trichloroethene, has been slow, but relatively smooth; patterns for 1,2-dichloroethene, a degradation product, have been downward but more variable.

In OW-2 and OW-6, a downward trend in total chlorinated VOC concentrations has not been apparent. However, the 2006 to 2007 results show that chlorinated VOCs in these wells have stabilized (Figure 5). The three chlorinated VOCs exceeding criteria in OW-2 (1,2-dichloroethene [total], trichloroethene, and tetrachloroethene) were the

lowest ever reported in June 2007. In OW-6, the June 2007 results for 1,2-dichloroethene (total) and tetrachloroethene were lower than the 2006 average results (19 micrograms per liter [ug/L] compared to 21 ug/L average for 1,2-dichloroethene; 36 ug/L compared to 40 ug/L average for tetrachloroethene). The June 2007 result for trichloroethene in OW-6 was close to the 2006 average, but slightly higher (9.0 ug/L compared to 8.0 ug/L average). The graph below illustrates that the total chlorinated VOC concentrations (sum of 1,2-dichloroethene, tetrachloroethene, and trichloroethene) in all three wells for June 2007 were lower, compared to the average 2006 concentrations.



Monitoring wells OW-24 and OW-25 were installed in February 2006 to evaluate groundwater conditions east and south of OW-2, OW-5, and OW-6 (Figure 2). 1,2-Dichloroethene, trichloroethene, and tetrachloroethene, the three chlorinated VOCs in OW-2, OW-5, and OW-6, were not detected in OW-24 or OW-25 in four quarters of sampling in 2006. OW-25 was sampled in June 2007, and continues to be nondetectable for these constituents. These results show that VOC impacts are localized in the vicinity of OW-2 and OW-6, and have not affected OW-25.

4.4 Benzene Concentration Trends

As was reviewed 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 OW-10R, OW-13 (replaced in February 2006 with OW-13R), and OW-22, with relatively lower concentrations in MW-4, OW-18, OW-19, and OW-21. Benzene was below the Federal Maximum Contaminant Level (MCL) of 5 ug/L in June 2007 in OW-10R, OW-18, OW-19, OW-21, and OW-22, 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 June 2007, MW-4 (7.1 ug/L) and OW-13R (11 ug/L).

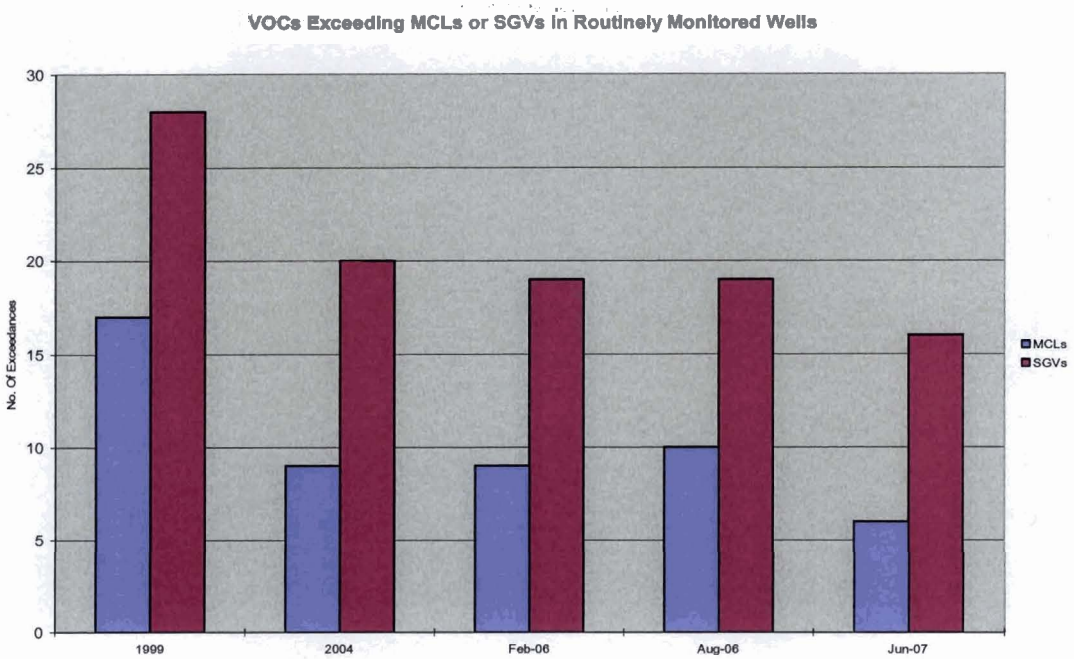
Benzene continues to exhibit an overall downward trend in individual wells with the highest concentrations, OW-10R, OW-13/OW-13R, and OW-22, as illustrated in Figure 6. There has also been a flattening and mass decline of the benzene plume along the groundwater flow path, as illustrated in Figure 7. 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 1.2 ug/L in June 2007.

Benzene slightly exceeded the state SGV of 1 ug/L in OW-18 (1.2 ug/L) and OW-19 (2.1 ug/L) in 2007, but was not detected downgradient in Gold Creek surface water or sediment (Section 5.0). The extent of benzene in groundwater in June 2007 is depicted in Figure 8. In 1999, the 5 ug/L MCL was exceeded at OW-19, and the benzene concentration in OW-19 was 1,900 ug/L (Figure 9). Clearly, the benzene concentration in groundwater has substantially declined. On the western margin of the plume, benzene did not exceed the MCL or SGV in OW-15 when sampled in 2006. The closed City of Port Jervis landfill lies to the west of OW-22 and OW-19. During the remedial investigation, it was determined that it was not safe or practical to install monitoring wells west of OW-22 and OW-19 and into the landfill. Considering the declining benzene concentrations, low concentrations within the plume, and the low likelihood of use of groundwater underlying the landfill, continued monitoring in OW-22 and OW-19 is a sufficiently protective approach.

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 OU1 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 2007 are shown in this table and graph for comparison purposes so that the same wells are compared each time. In June 2007, there were 16 SGV exceedances and 6 MCL exceedances, the lowest ever. The overall trend since 1999 indicates that there has been improvement in groundwater quality relative to MCLs and SGVs:



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 detail in the *Supporting Documentation for Five-Year Review*, along with an evaluation of how those patterns may relate to contaminant distribution within the groundwater plume. The patterns seen in June 2007 are consistent with the observations presented previously:

- Methane concentrations greater than 50 ug/L are generally observed in monitoring wells to the south and west, coincident with wells in the area where benzene predominates.
- Relatively high TOC, 2 mg/L or greater, is typically found in the same area as elevated methane concentrations.
- Relatively lower DO and lower redox potential indicating reduced conditions are found within the same area.

OW-2 and OW-6 are to the north and east, outside of the area with elevated methane, TOC, and reduced conditions, which may inhibit reductive dechlorination of VOCs in these wells. In OW-5, further to the west and south, geochemical conditions are more favorable and reduction of chlorinated VOCs has been observed.

5.0 Gold Creek Sampling Results

Refer to Section 3.0 for a description of the methods for surface water and sediment sample collection along the creek. Table 6 provides the results for VOCs detected in surface water and sediment samples collected from two locations along Gold Creek (Figure 2). Refer to Appendix B for historical surface water and sediment data.

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 OU2 monitoring program.

5.1 Surface Water Results

Surface water samples were nondetectable for VOCs. Historic SW-1 and SW-2 samples occasionally indicated low, estimated concentrations of VOCs below New York State surface water standards (Appendix B, Table B-2).

5.2 Sediment Results

VOCs were detected in each of the two sediment samples collected, with the results estimated values qualified with J (Table 6). The detected VOCs were acetone, 2-butanone, toluene, and carbon disulfide. Acetone, 2-butanone, and carbon disulfide are often common laboratory artifacts, although were not reported in the associated laboratory blanks. The findings are comparable to what was observed previously in SED-1 and SED-2 (Appendix B).

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. That is, there are occasional low detections of VOCs in surface water and sediment. Detections have occurred in locations upstream and downstream of the former lagoons. The results also show that there is no apparent relationship between upgradient groundwater conditions and the surface water quality of Gold Creek.

The regulatory literature was reviewed in the February 2006 sampling report (Cardinal Resources, April 2006) for guidance criteria for VOCs in sediments and surface water related to ecological effects. The available ecological criteria for VOCs in these media

are limited. None of the criteria identified were exceeded by the detected VOCs in February 2006. In this round of sampling, even fewer VOCs were detected. Toluene is the one VOC detected in SED-2 (upstream) for which sediment criteria were identified. Reported at a concentration of 5.5 J micrograms per kilogram (ug/kg), it was much lower than the applicable criteria:

Constituent	Maximum Detected Concentration, ug/kg	Human Health Bioaccumulation Criterion, ug/kg	Benthic Aquatic Life Acute Toxicity Criterion, ug/kg[(1)]	Benthic Aquatic Life Chronic Toxicity, ug/kg[(1)]
Toluene	5.5 J	-	7,050	1,470

From New York State Technical Guidance for Screening Contaminated Sediments, 1999 update.

[(1)]Using organic carbon normalized criteria in guidance document and an assumed carbon content for sediment of 3%, which is a conservative default value. Organic carbon in sediment is typically reported to be in the range of 3% to 10%.

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, also called data validation, 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.

6.2 Results of Data Review

Refer to Appendix C for Tier II data review summary tables (volatile organic analysis [VOA]), dissolved gases, and general chemistry) for the sample delivery groups (SDG), 7F 13303 and 7F 15202. The hand-marked, qualified Form Is are provided in Appendix A with the laboratory reports. Results in Tables 3, 6, 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 analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

The data packages were complete and appropriately organized, and all relevant supporting information was provided. Holding times were met for all analyses.

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); two field blanks; and three trip blanks. A field blank was collected for two of the three sampling days, and a trip blank was included with each sample cooler.

6.2.2 Data Qualifications

Blanks

For SDG 7F 15202, low concentrations of acetone and methylene chloride below the 10x blank action levels in field samples were qualified as U at the reporting limit, due to the presence of these common laboratory contaminants in trip and method blanks. The qualified samples were OW-18, OW-19, and OW-22. For SDG 7 13303, acetone and methylene chloride results in SW-1, SW-1 Dup, and SW-2 were also qualified as U, due to detections in the method blank.

Initial Calibration

In SDG 7F 13303, methylene chloride nondetects were qualified as UJ because the Relative Standard Deviation (RSD) was greater than 30%. The acetone result for SED-2 (SDG 7F 15202) was qualified as J because the RSD for this VOC was greater than 30%.

Field Duplicates

Acetone in SED-1 (SDG 7F 13303) was qualified as J due to the relative percent difference with the duplicate exceeding QC limits.

Internal Standards Performance

In SDG 7F 15202, low internal standard recoveries below QC criteria (but greater than 20%) resulted in J and UJ qualifications for some VOCs in OW-19, SED-1 Dup, and SED-2.

6.2.3 Data Quality and Usability

Although there were some qualifications as estimated 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 2007 annual monitoring program for the Carroll and Dubies site continues as part of the OU2 remedy. The findings are:

- Chlorinated VOC and benzene concentrations were in most cases the same as or lower in June 2007, compared to the previous sampling round.
- Chlorinated VOCs were not detected in OW-25, east and southeast of OW-2, OW-5, and OW-6.
- VOCs were nondetectable in surface water, and present in low, estimated concentrations in upstream and downstream sediment samples in Gold Creek.

These results support the U.S. EPA's conclusions in the Protectiveness Statement contained in its 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."*

The next round of sampling (for groundwater, surface water, and sediment) is scheduled for June or July 2008, to include the following:

- MW-1
- MW-4
- OW-2
- OW-5
- OW-6
- OW-8
- OW-10R
- OW-13R
- OW-18
- OW-19
- OW-21
- OW-22
- OW-25
- SED-1 and SED-2
- SW-1 and SW-2

8.0 References

Cardinal Resources LLC, January 2007, *November 2006 Sampling Report, Carroll and Dubies Superfund Site, Town of Deerpark, Orange County, New York.*

Cardinal Resources LLC, November 2006, *August 2006 Sampling Report, Carroll and Dubies Superfund Site, Town of Deerpark, Orange County, New York.*

Cardinal Resources LLC, July 2006, *May 2006 Sampling Report, Carroll and Dubies Superfund Site, Town of Deerpark, Orange County, New York.*

Cardinal Resources LLC, April 2006, *February 2006 Sampling Report, Carroll and Dubies Superfund Site, Town of Deerpark, Orange County, New York.*

Cardinal Resources, Inc., August 2005, *Supplemental Sampling Work Plan, Carroll and Dubies Superfund Site,* Prepared for Kolmar Laboratories, Inc. and Wickhen Products, Inc.

Cardinal Resources, Inc., March 2005, *Supporting Documentation for Five-Year Review, Carroll and Dubies Superfund Site,* Prepared for Kolmar Laboratories, Inc. and Wickhen Products, Inc.

Tables

Table 1
Groundwater Field Stabilization Parameters
June 2007
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	06/13/07	11.78	0.32	107.1	173	6.15	0
MW-4	06/13/07	12.82	0.34	-79.1	558	6.46	0.55
OW-2	06/13/07	13.38	2.24	195.9	110	5.41	0
OW-5	06/12/07	13.64	0.44	41.0	323	6.34	1.00
OW-6	06/12/07	20.23	5.97	104.2	113	5.92	1.10
OW-8	06/12/07	14.27	0.56	-23.4	115	6.47	9.00
OW-10R	06/13/07	11.63	0.24	4.2	300	6.13	0.20
OW-13R	06/12/07	11.68	0.42	-67.8	471	6.78	12
OW-18	06/14/07	11.25	0.27	-58.8	414	6.35	112.0
OW-19	06/14/07	12.20	0.24	-42.0	332	6.38	5.20
OW-21	06/13/07	13.35	3.80	-33.9	346	6.27	0.25
OW-22	06/14/07	12.80	0.78	-53.3	445	6.18	0.12
OW-25	06/12/07	11.22	8.59	104.3	88	6.43	55.0

Notes:
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]
June 12, 2007
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	35.20	434.19
MW-4	470.13	35.3 - 50.3	39.33	430.80
OW-2	472.33	30.0 - 47.0	41.35	430.98
OW-3	472.70	30.0 - 46.5	42.12	430.58
OW-4	473.33	26.5 - 27.5	36.08	437.25
OW-5	459.85	25.5 - 45.5	28.92	430.93
OW-6	464.40	31.4 - 51.4	33.44	430.96
OW-8	464.63	34.6 - 54.6	33.57	431.06
OW-9	472.91	25.3 - 35.3	30.95	441.96
OW-10R	469.27	29.0 - 39.0	31.61	437.66
OW-13R	457.69	25.0 - 35.0	27.02	430.67
OW-15	472.05	22.0 - 32.0	12.77	459.28
OW-16	453.90	18.0 - 28.0	23.41	430.49
OW-17	447.18	11.0 - 21.0	16.70	430.48
OW-18	444.57	11.0 - 21.0	14.19	430.38
OW-19	438.69	5.0 - 15.0	8.62	430.07
OW-21	467.46	37.1 - 47.1	37.05	430.41
OW-22	467.10	38.0 - 48.0	36.71	430.39
OW-23	444.73	29.0 - 39.0	14.41	430.32
OW-24	446.77	14.4 - 24.4	16.44	430.33
OW-25	452.47	20.0 - 30.0	21.81	430.66
SW-1[4]	432.01	-	3.91	428.10
SW-2[4]	432.01	-	1.5	430.51
SW-3[4]	437.44	-	5.86	431.58

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)
June 2007
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Compound	NYSDEC SGV	U.S. EPA MCL	MW-1 06/13/07	MW-4 06/13/07	OW-2 06/13/07	OW-5 06/12/07	OW-6 06/12/07	OW-8 06/12/07	OW-10R 06/13/07	OW-13R 06/12/07	OW-13R DUP 06/12/07
Benzene	1 (S)	5	1.0 U	7.1	2.0 U	1.0 U	1.0 U	1.0 U	4.7	11	11
Chlorobenzene	5 (S)*	100	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U
Chloroethane	5 (S)*	NE	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	0.94 J	2.0 U	2.0 U
1,2-Dichloroethene (total)	5 (S)*	70	1.0 U	1.0 U	36	8.7	19	1.0 U	0.47 J	0.42	0.40 J
Ethylbenzene	5 (S)*	700	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	0.25 J	1.0 U	1.0 U
Methylene Chloride	5 (S)*	NE	1.0 UJ	1.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Tetrachloroethene	5 (S)*	5	1.0 U	0.26 J	52	4.0	36	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	5 (S)*	1,000	1.0 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
Trichloroethene	5 (S)*	5	1.0 U	1.0 U	12	1.9	9.0	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	2 (S)	2	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	0.89 J	0.86	0.84 J
Xylenes (total)	5 (S)*	10,000	1.0 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

Compound	NYSDEC SGV	U.S. EPA MCL	OW-18 06/14/07	OW-19 06/14/07	OW-21 06/13/07	OW-22 06/14/07	OW-25 06/12/07
Benzene	1 (S)	5	1.2	2.1	2.1	3.5	1.0 U
Chlorobenzene	5 (S)*	100	6.5	8.8 J	1.0 U	4.8	1.0 U
Chloroethane	5 (S)*	NE	0.46 J	1.3 J	2.0 U	0.26 J	2.0 U
1,2-Dichloroethene (total)	5 (S)*	70	1.0 U	0.73 J	1.0 U	0.50 J	1.0 U
Ethylbenzene	5 (S)*	700	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	5 (S)*	NE	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
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	0.21 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	0.87 J	0.67 J	0.37 J	2.0 U
Xylenes (total)	5 (S)*	10,000	1.0 U	1.0 U	1.0 U	0.76 J	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

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

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

* = 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

Methylene chloride was reported by the laboratory in samples OW-18, OW-19, and OW-22; however, the results were qualified during the data validation process as not detectable at the reporting levels due to the presence of those compounds in the associated method and trip blank.

Table 4
Natural Attenuation Parameters
June 2007
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	06/13/07	110	2.9	0.32	0.50 U	0.50 U	0.0	0.50 U	0.40	107.1	11.3	1.0 U	1
MW-4	06/13/07	180	86.3	0.34	0.50 U	0.50 U	3.0	480	0.10 U	-79.1	58.6	1.0 U	3
OW-2	06/13/07	36	2.8	2.24	0.50 U	0.50 U	0.0	0.50 U	2.9	195.9	21.0	1.0 U	1U
OW-5	06/12/07	110	25.8	0.44	0.50 U	0.50 U	0.0	0.64	2.2	41.0	61.8	1.0 U	1
OW-6	06/12/07	38	1.1	5.97	0.50 U	0.50 U	0.0	0.50 U	0.66	104.2	22.9	1.0 U	1 U
OW-8	06/12/07	56	2.0	0.56	0.50 U	0.50 U	3.5	1.9	0.10 U	-23.4	13.9	1.0 U	1 U
OW-10R	06/13/07	200	1.0 U	0.24	0.50 U	0.50 U	3.5	1,000	0.10 U	4.2	15.7	1.0 U	2
OW-13R	06/12/07	350	3.8	0.42	0.25 J	0.50 U	0.0	480	0.10 U	-67.8	22.4	1.0 U	3
OW-18	06/14/07	270	2.7	0.27	0.50 U	0.50 U	3.0	600	0.10 U	-58.8	6.5	1.0 U	7
OW-19	06/14/07	190	3.9	0.24	0.50 U	0.50 U	3.5	520	0.10 U	-42.0	12.9	1.0 U	6
OW-21	06/13/07	210	3.4	3.80	0.50 U	0.50 U	3.4	47	0.10 U	-33.9	26.2	1.0 U	2
OW-22	06/14/07	260	7.7	0.78	0.50 U	0.50 U	4.0	870	0.10 U	-53.3	11.4	1.0 U	7
OW-25	06/12/07	49	1.0 U	8.59	0.50 U	0.50 U	0.0	0.50 U	0.19	104.3	11.7	1.0 U	3

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

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, 2006, and 2007
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	
				MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV	MCL	SGV
MW-4	Benzene	5	1	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
	Trichloroethene (TCE)	5	5	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
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
OW-6	Tetrachloroethene (PCE)	5	5	X	X	X	X	X	X	X	X	X	X
	Trichloroethene (TCE)	5	5			X	X	X	X	X	X	X	X
	1,2-Dichloroethene (1,2-DCE)	70	5		X		X		X		X		X
OW-10(R)*	Benzene	5	1	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
	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
	Chlorobenzene	100	5				X		X		X		X
	Xylenes (total)	10,000	5						X				
OW-19	Benzene	5	1	X	X		X		X		X		X
	Chlorobenzene	100	5		X		X		X		X		X
	Chloroethane	NA	5		X								
	Vinyl chloride	2	2	X	X			X	X	X	X		
OW-21	Benzene	5	1	X	X		X		X		X		X
OW-22	Benzene	5	1	X	X		X	X	X		X		X
	Chlorobenzene	100	5		X		X		X		X		
	Vinyl chloride	2	2	X	X								
Total				17	28	9	20	9	19	10	19	6	16

Notes:

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

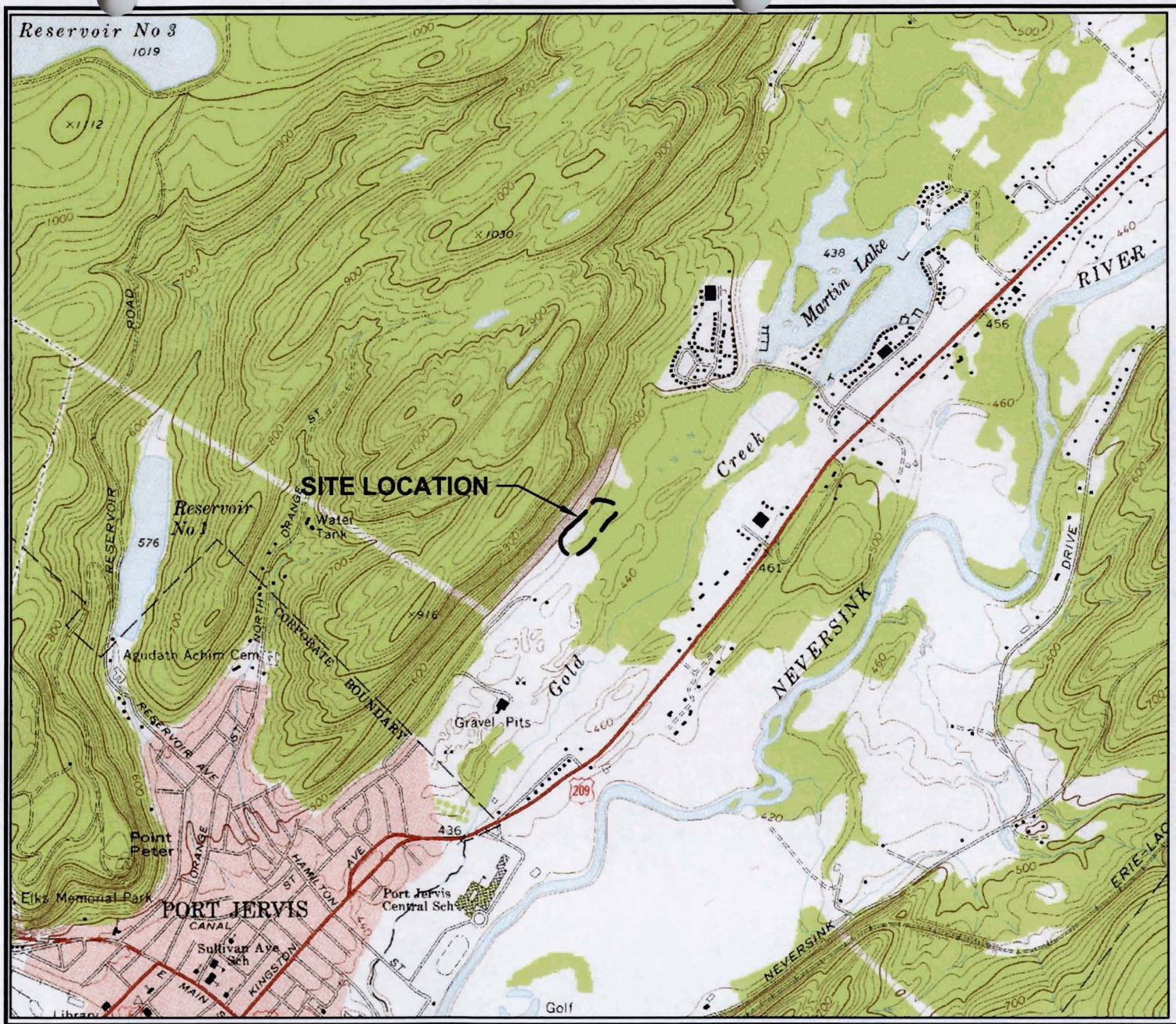
**OW-13R was installed in February 2006 to replace OW-13.

Table 6
June 2007
Detected Volatile Organic Compounds
Surface Water and Sediment Sampling Locations in Gold Creek
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York

Location	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/L**	**ug/L**	**ug/kg**	**ug/L**
Acetone	60 J	18 J	10 UJ	10 UJ	76 J	10 U
Carbon Disulfide	0 62 J	0 76 J	1.0 U	1.0 U	1 2 J	1.0 U
2-Butanone	18 J	6 9 J	10 U	10 U	18 J	10 U
Methylene Chloride	12 U	12 U	1.0 U	1.0 U	15 U	1.0 U
Toluene	12 U	12 UJ	1.0 U	1.0 U	5 5 J	1.0 U

Notes:
J = Estimated result; less than the reporting limit.
U = The analyte was analyzed for but not detected above the quantitation limit.
Blue = Detected constituents
Acetone and methylene chloride were reported by the laboratory 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 those compounds in an associated method or 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

FIGURE 1

SITE LOCATION MAP

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0	ECM						

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

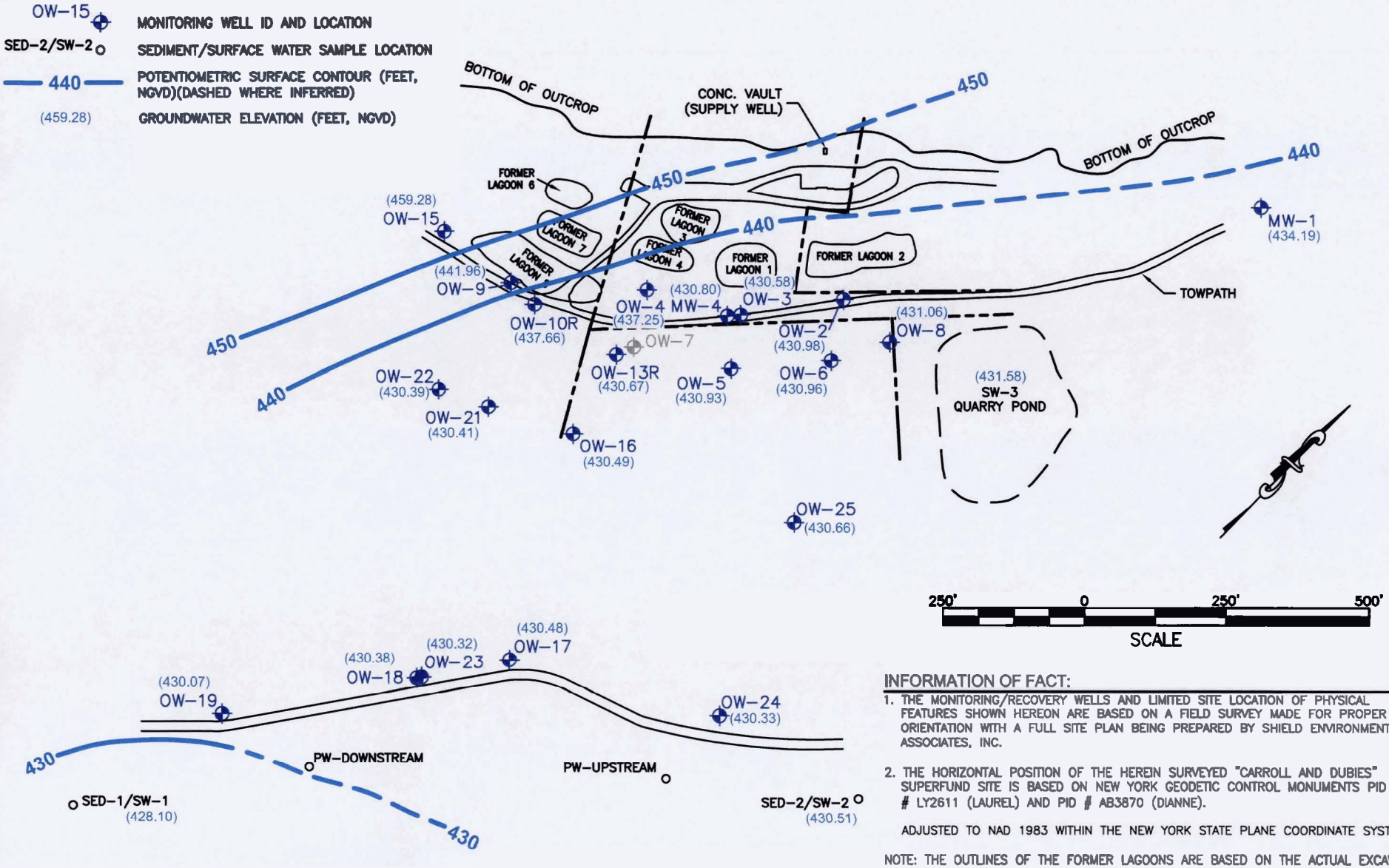
LEGEND:

OW–15 MONITORING WELL ID AND LOCATION

SED–2/SW–2 SEDIMENT/SURFACE WATER SAMPLE LOCATION

440 POTENTIOMETRIC SURFACE CONTOUR (FEET, NGVD)(DASHED WHERE INFERRED)

(459.28) GROUNDWATER ELEVATION (FEET, NGVD)



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 DUBIES" 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

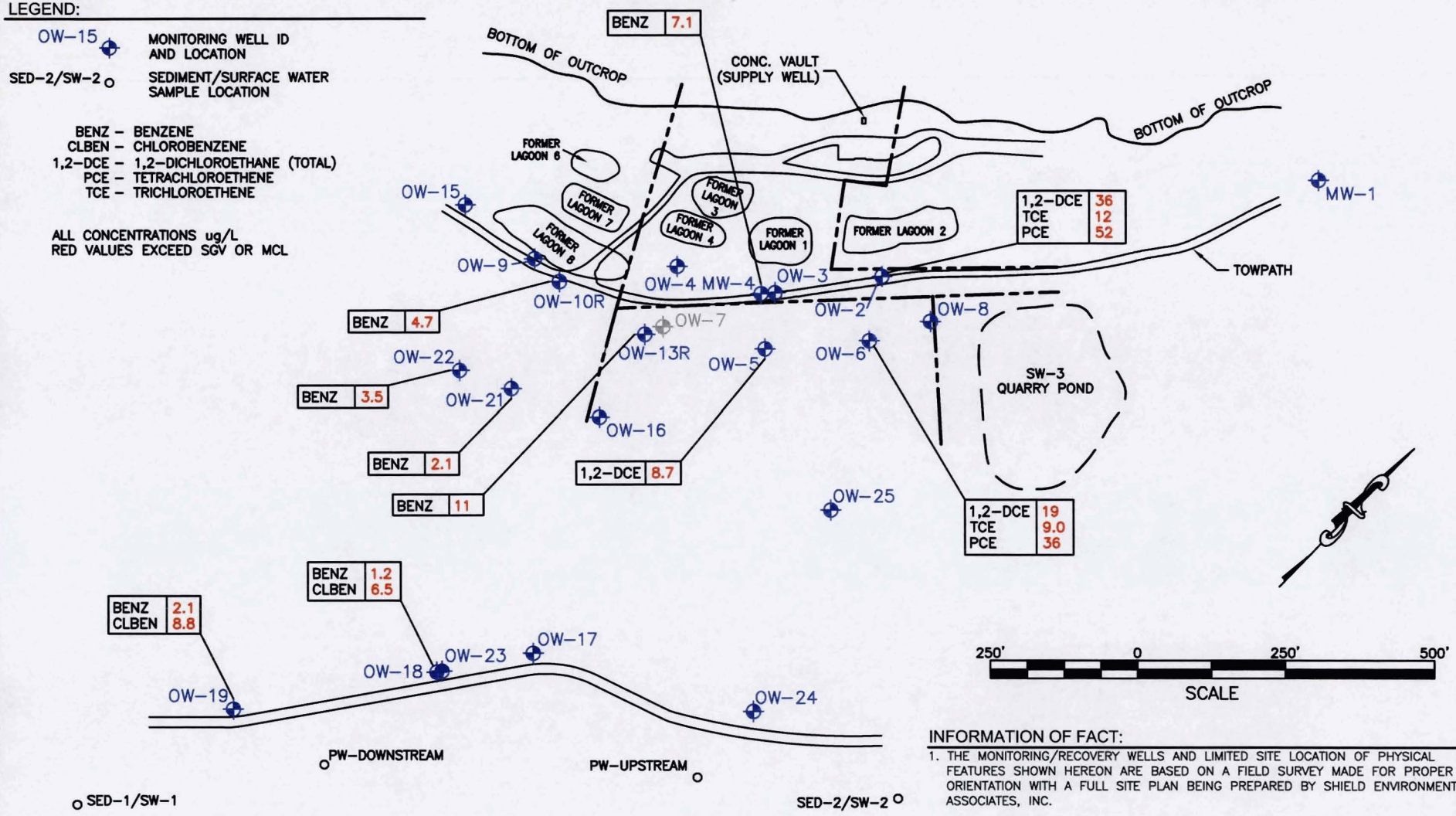
CARROLL AND DUBIES SUPERFUND SITE
TOWN OF DEERPARK, ORANGE COUNTY, NEW YORK
104-0012

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0	ECM						

FIGURE 2

GROUNDWATER CONTOUR MAP
JUNE 2007

CADD FILE	9385	SCALE	AS NOTED	CURRENT DATE:	06–26–2007
DRAWING NO.	104-0012-0300-02 Jun07			REVISION	0



INFORMATION OF FACT:

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2. THE HORIZONTAL POSITION OF THE HEREIN SURVEYED "CARROLL AND DUBIES" 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

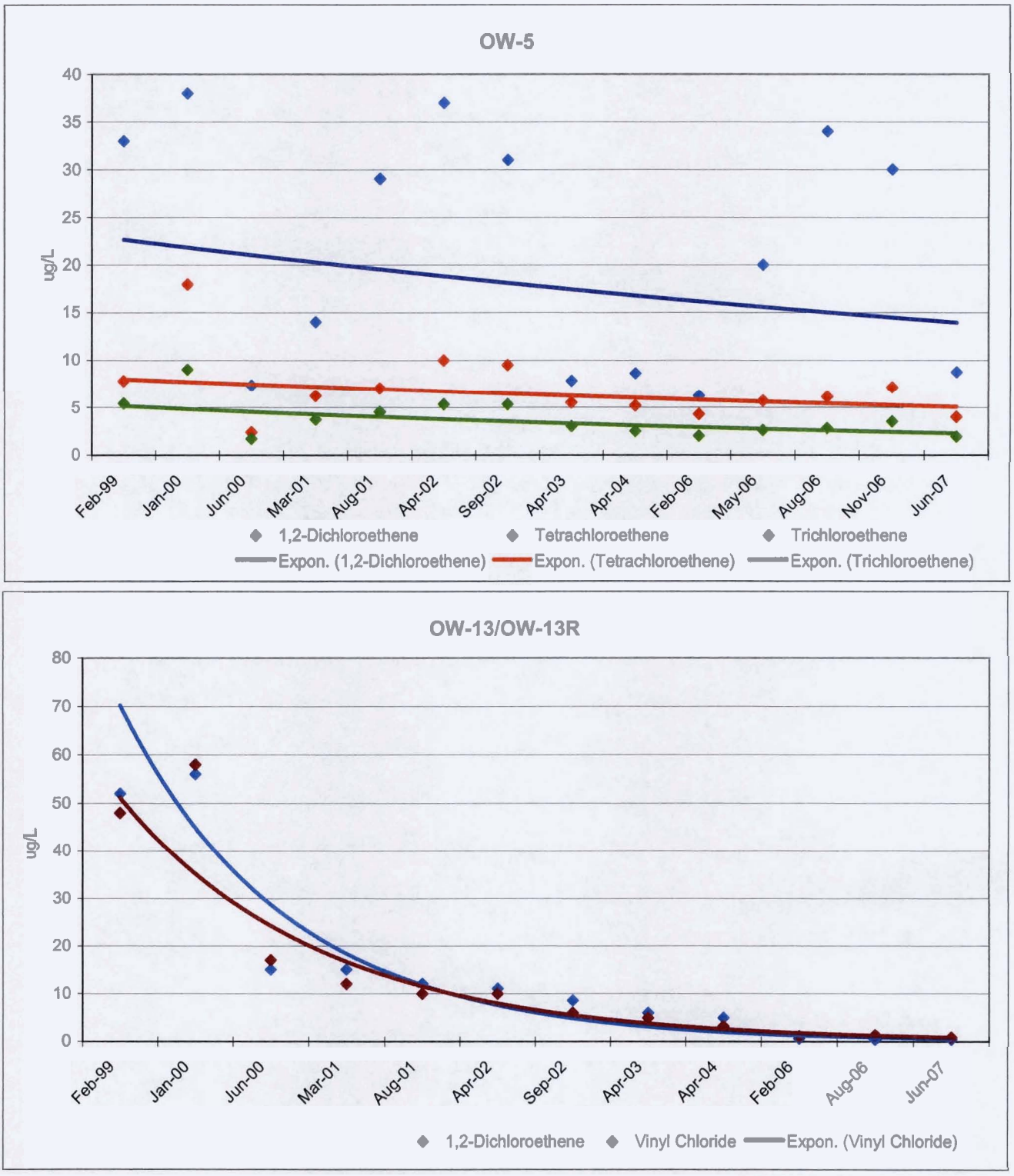
CARROLL AND DUBIES SUPERFUND SITE
TOWN OF DEERPARK, ORANGE COUNTY, NEW YORK
104-0012

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0	ECM						

FIGURE 3
VOLATILE ORGANIC COMPOUND EXCEEDANCES IN GROUNDWATER
JUNE 2007

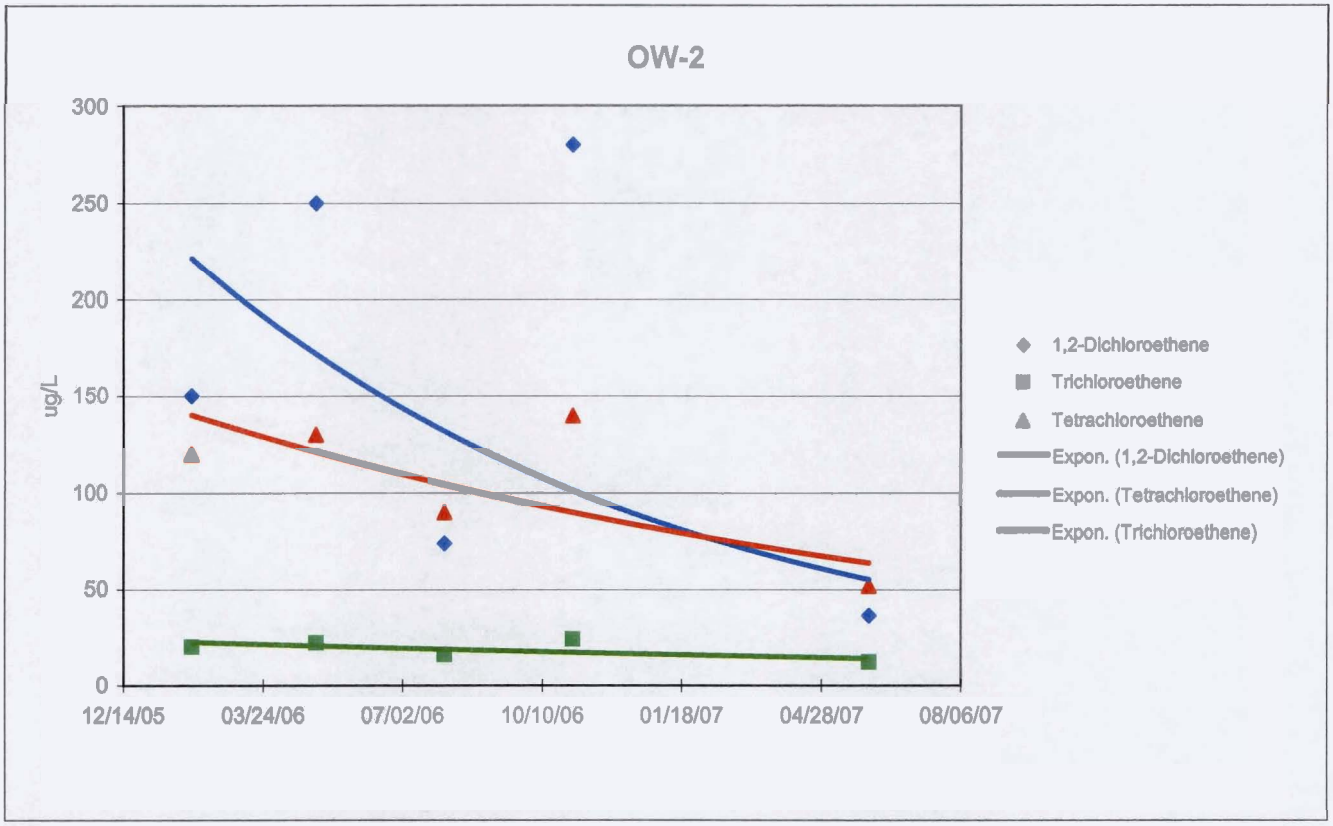
CADD FILE	9385	SCALE	AS NOTED	CURRENT DATE:	06–29–2007
DRAWING NO.	104-0012-0300-03 June07			REVISION	0

Figure 4
Chlorinated VOC Concentration Trends in OW-5 and OW-13/OW-13R
Pre-Excavation to June 2007



Note: OW-13R was not sampled during the May and November 2006 sampling rounds.

Figure 5
Chlorinated VOC Concentration Trends in OW-2 and OW-6, 2006-2007



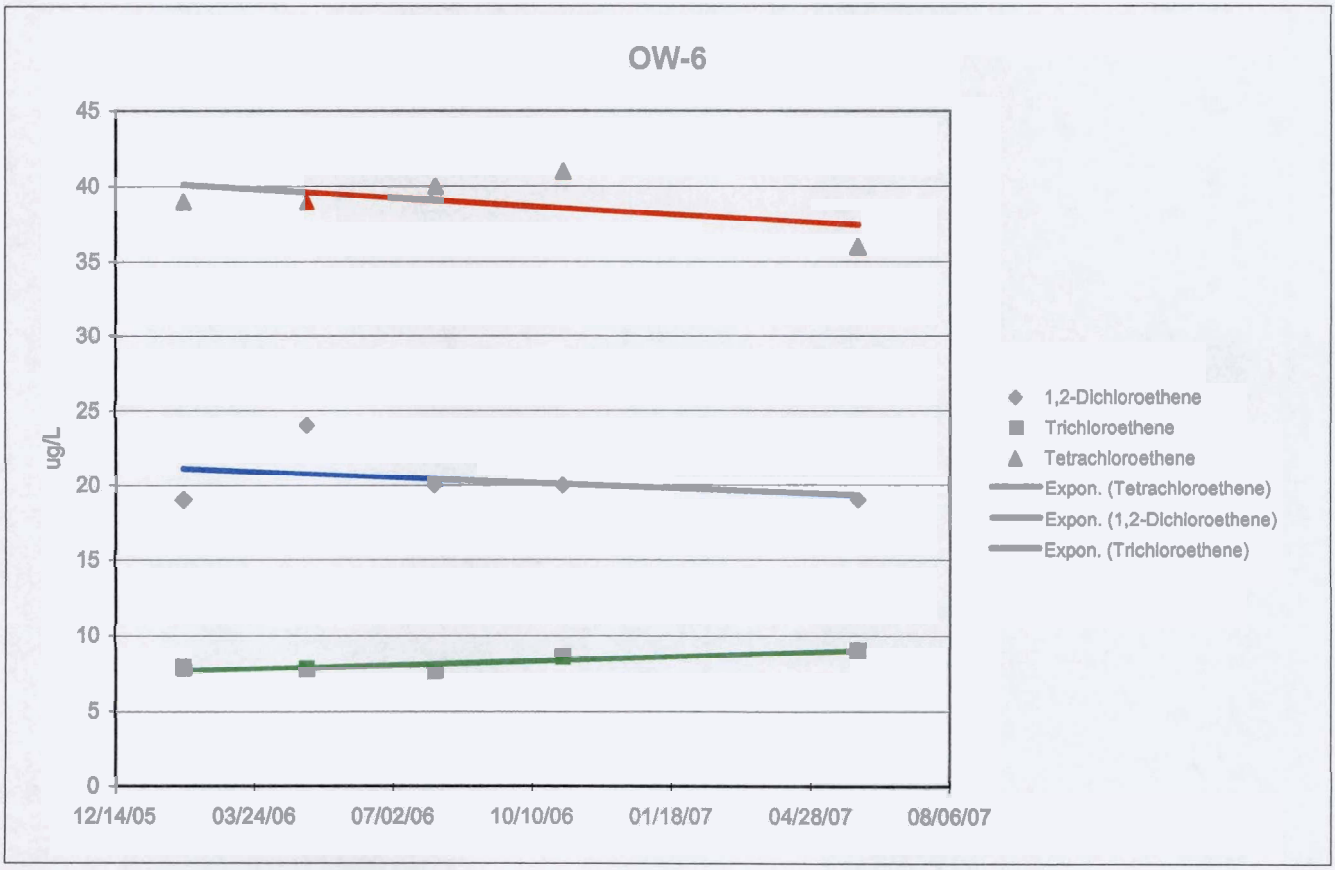
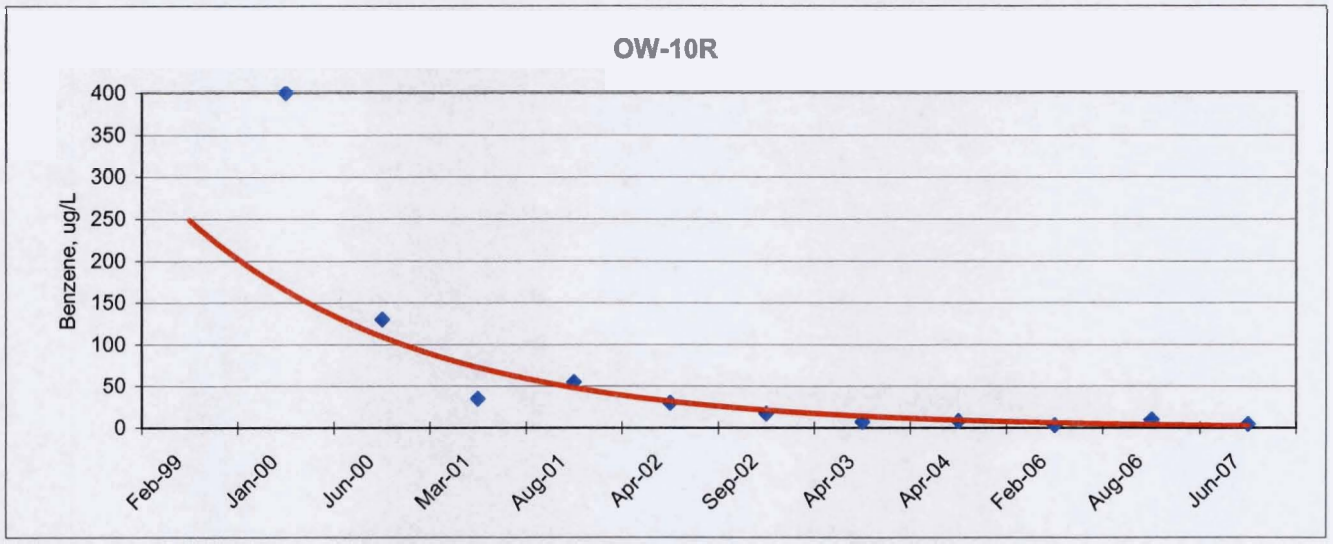
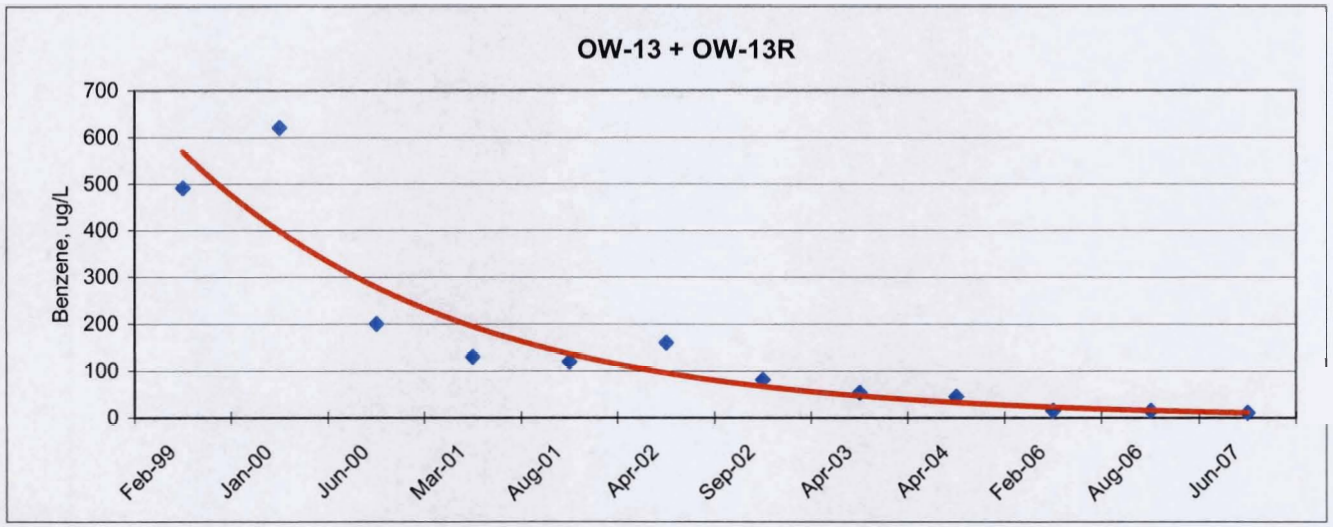
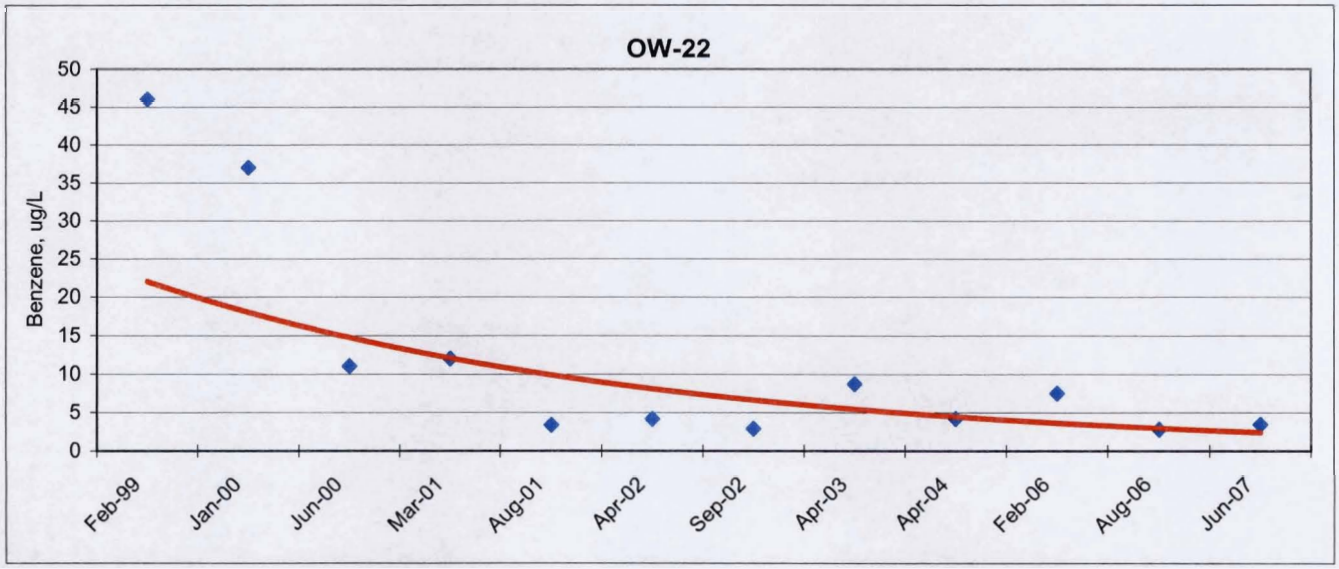


Figure 6
Benzene Concentration Trends in Selected Monitoring Wells
Pre-Excavation to June 2007

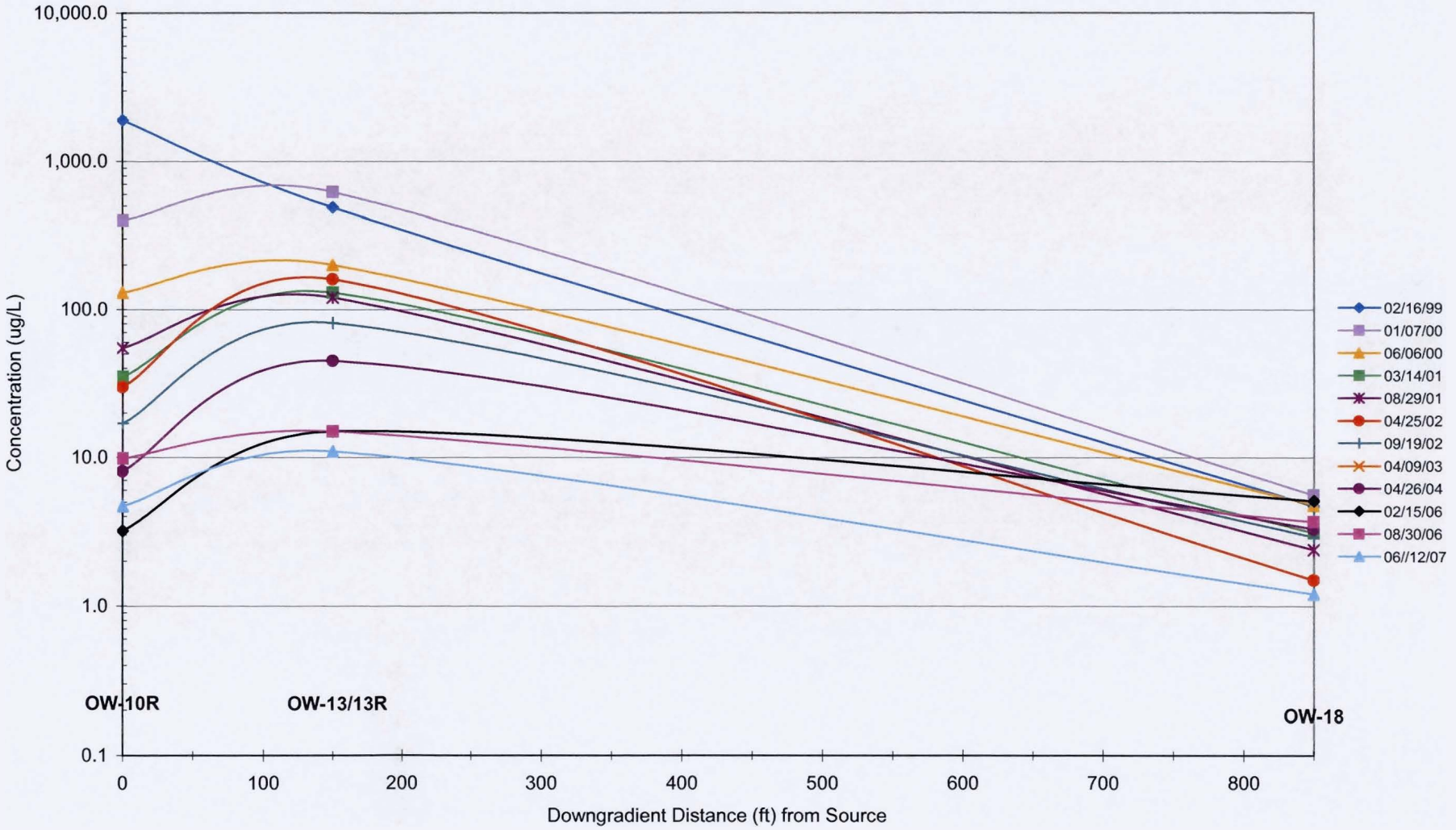




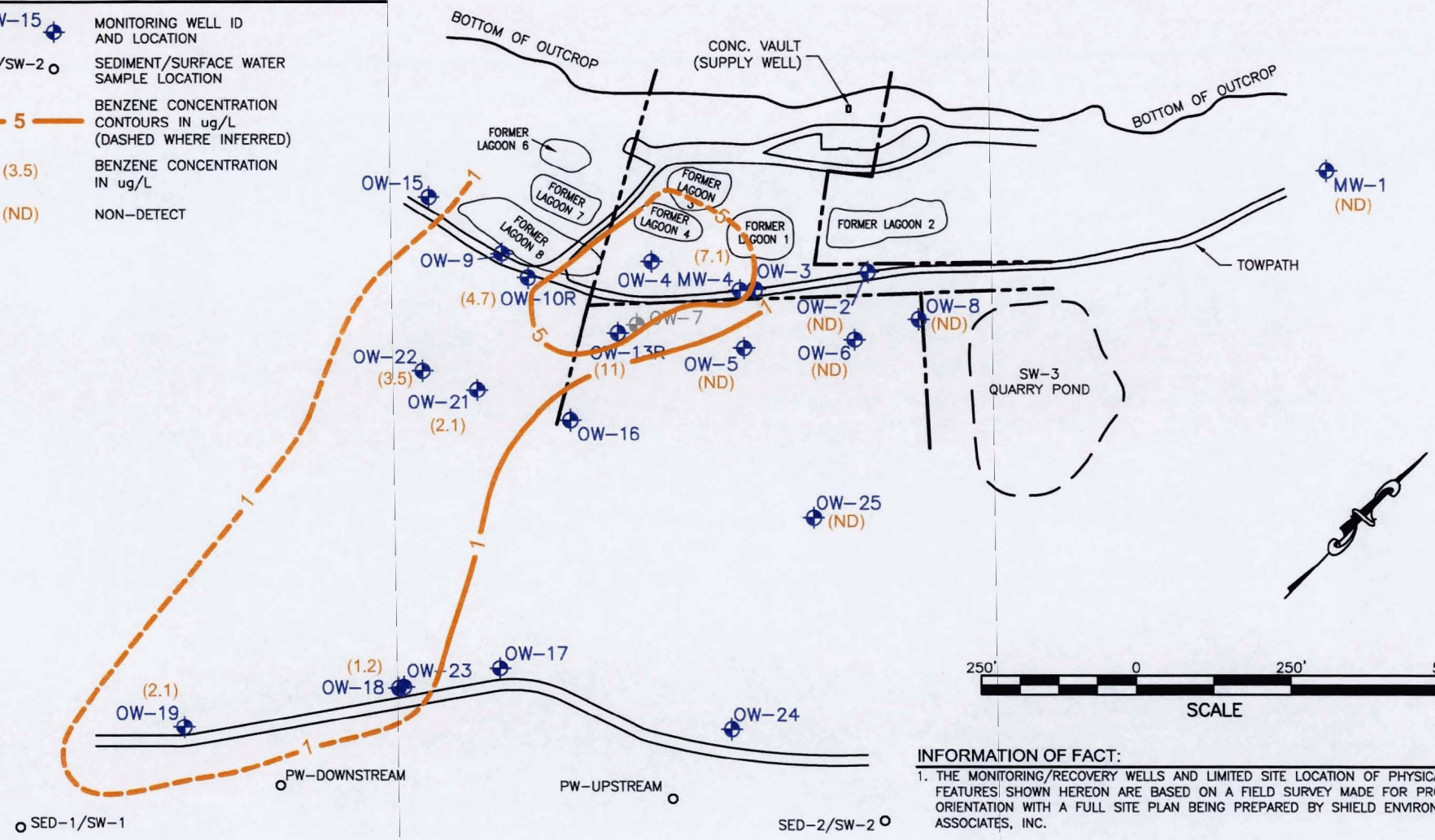


Note: OW-10R, OW-13R, and OW-22 were not sampled during the May and November 2006 samping rounds.

Figure 7
Benzene Concentration Trends Based on Distance from Source
Carroll and Dubies Superfund Site
Town of Deerpark, Orange County, New York



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



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 DUBIES" 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.

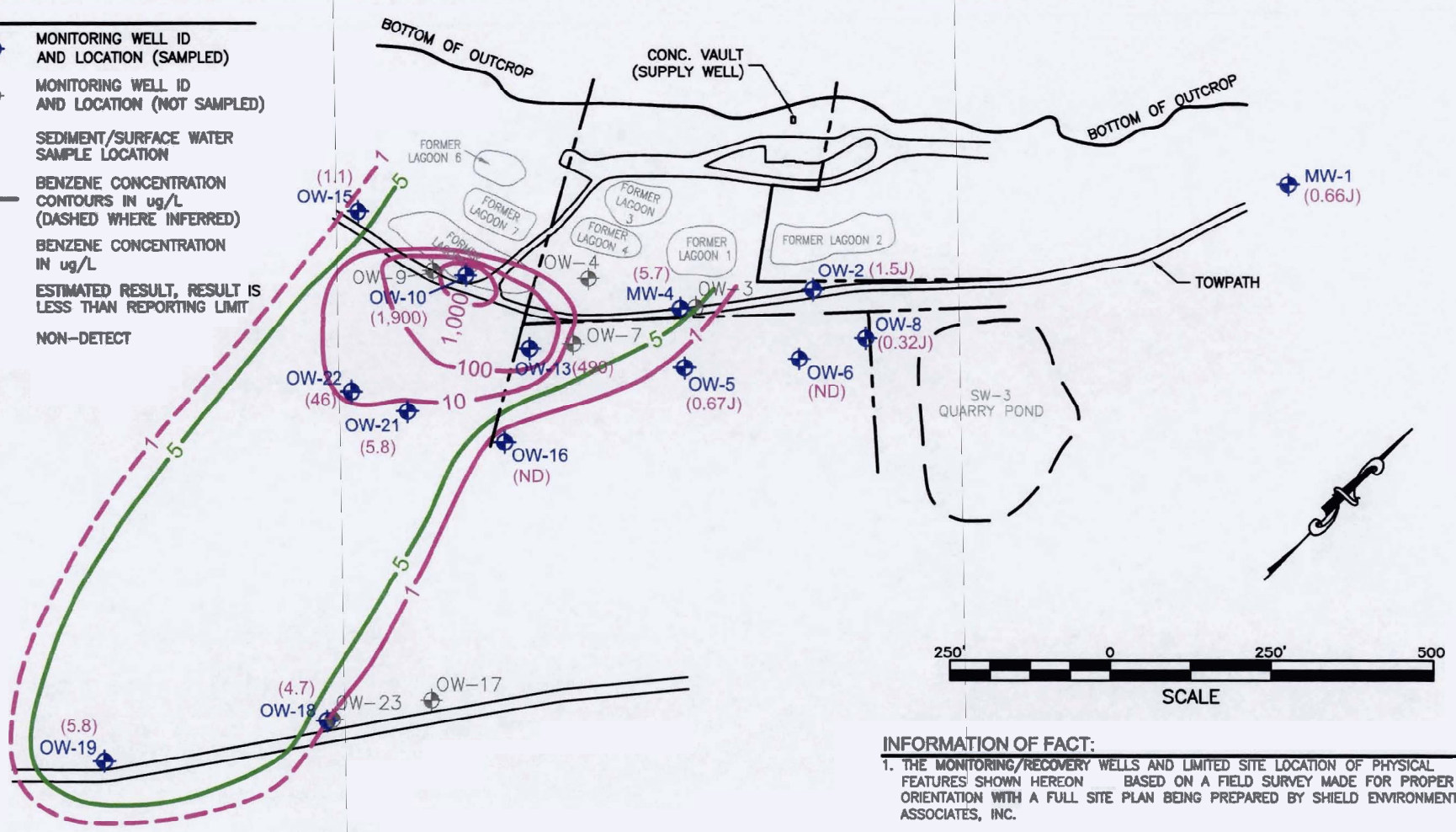
CARDINAL RESOURCES

CARROLL AND DUBIES SUPERFUND SITE
TOWN OF DEERPARK, ORANGE COUNTY, NEW YORK
105-0035

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0	ECM						

FIGURE 8
BENZENE CONCENTRATIONS IN GROUNDWATER
JUNE 2007

CADD FILE	9385	SCALE	AS NOTED	CURRENT DATE:	07–11–2007
DRAWING NO.	105-0035-0300-08			REVISION	0



NOTE:
MCL FOR BENZENE IS 5 ug/L; SGV IS 1 ug/L.

INFORMATION OF FACT:

1. THE MONITORING/RECOVERY WELLS AND LIMITED SITE LOCATION OF PHYSICAL FEATURES SHOWN HEREON 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 DUBIES" 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
105-0035

FIGURE 9
PRE-EXCAVATION
BENZENE CONCENTRATIONS IN GROUNDWATER
FEBRUARY 1999

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
1							
0	ECM						

CADD FILE 9385 SCALE AS NOTED CURRENT DATE: 07-11-2007
DRAWING NO. 105-0035-0300-09 REVISION 0