FINAL
REMEDIAL INVESTIGATION/ FEASIBILITY STUDY
FORMER SPEEDY'S CLEANERS
SITE #828128

WORK ASSIGNMENT NO. D004434-3

Prepared for:

New York State Department of Environmental Conservation
Albany, New York

Prepared by:

MACTEC Engineering & Consulting, P.C.
Portland, Maine

Project Number: 3612082109

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

3DMe™	3-D Microemulsion™
ASP	Analytical Services Protocols
bgs	below ground surface
cis-1,2-DCE	cis-1,2-dichloroethene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
DNAPL	dense nonaqueous phase liquid
DO	dissolved oxygen
DUSR	Data Usability Summary Report
°F	degrees Fahrenheit
FS	Feasibility Study
ft	feet/foot
GAC	granular activated carbon
HRC™	Hydrogen Release Compound™
ID	inside diameter
K	hydraulic conductivity
Labella	Labella Associates, P.C.
MACTEC	MACTEC Engineering and Consulting
mg/Kg	milligram(s) per kilogram

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

msl	mean sea level
MNA	monitored natural attenuation
NPW	net present worth
NYCRR	New York Codes, Rules, and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OBG	O'Brien and Gere Engineers, Inc.
OM&M	Operation, Maintenance and Monitoring
OMB	Office of Management and Budget
PCBs	polychlorinated biphenyls
PCE	tetrachloroethene
PID	photoionization detector
ppm	parts per million
PRAP	Post Remedial Action Plan
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control
QEA	Qualitative Exposure Assessment
RAOs	Remedial Action Objectives
Report	RI/FS Report
RG	remediation goal
RI	Remedial Investigation
SCGs	standards, criteria and guidance values
SCO	Soil Cleanup Objectives

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

Site	the Former Speedy's Cleaners site
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
TAL	target analyte list
TCE	trichloroethene
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
µg/m^3	microgram(s) per cubic meter
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WA	Work Assignment

1.0 INTRODUCTION

This Remedial Investigation/Feasibility Study (RI/FS) was conducted by MACTEC Engineering and Consulting, P.C. (MACTEC) in response to Work Assignment (WA) No. D004434-3 from the New York State Department of Environmental Conservation (NYSDEC) for the Former Speedy's Cleaners site (Site) in the Town of Brighton, Monroe County, New York (Figure 1.1). The Site is listed as a Class 2 Inactive hazardous waste disposal site (Site No. 8-28-128) in the Registry of Inactive Hazardous Waste Disposal Sites in New York State (NYS). This study was conducted in accordance with the NYSDEC requirements in WA No. D004434-3 dated July 15, 2008, and with the July 2005 Remedial Investigation/Remedial Design Superfund Standby Contract between MACTEC and the NYSDEC.

The RI/FS for the Site has been conducted in accordance with the WA, as well as with applicable portions of the following documents:

- NYSDEC Draft DER-10 "Technical Guidance for Site Investigation and Remediation" (NYSDEC, 2002)
- 6 New York Codes, Rules and Regulations (NYCRR) Part 375 "Environmental Remediation Programs"
- United States Environmental Protection Agency (USEPA) "Guidance for Conducting Remedial Investigations and Feasibility Studies under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)" (USEPA, 1988)

Previous investigations conducted at and in the vicinity of the Site identified the presence of tetrachloroethene (PCE) and its breakdown products (e.g., trichloroethene [TCE], cis-1,2-dichloroethene [cis-1,2-DCE], vinyl chloride) in groundwater at concentrations above the NYS groundwater standards. PCE and TCE are listed hazardous wastes under 6 NYCRR Part 371 (NYS, 1999). Based on existing data, the NYSDEC concluded that the Site constitutes a potential significant threat to public health and the environment as defined in 6 NYCRR 375 (NYSDEC, 2006). Existing data reviewed was not sufficient to determine the nature and extent of contamination, if the Site is the source of the chlorinated solvent groundwater contamination, or if the detected groundwater contamination is originating from the Carriage Cleaners Site (Site No. 828120) located approximately 300 feet west of the Site; therefore the RI field program was performed.

The objectives of the RI field program were to identify a source area, if possible, and to determine the nature and distribution of contamination associated with the Site, as well as to determine if contaminants detected in site media originated from the Site or are associated with the release of PCE at the Carriage Cleaners property. The investigation was conducted to delineate the distribution of potential groundwater and soil contamination and to assess the threat to human health and the environment from the Site. The FS developed remedial objectives and evaluated potential remedial alternatives from an engineering, environmental, public health, and economic perspective.

1.1 REPORT ORGANIZATION

The RI/FS report (Report) is structured in general in accordance with the NYSDEC Technical and Administrative Guidance Memorandum 4025 (NYSDEC, 1989) and the USEPA RI guidance (USEPA, 1988). The RI/FS includes Sections 1.0 to 13.0, and associated appendices. The RI portions of the Report consist of Sections 1.0 to 7.0, outlined below.

Section 1.0:	Presents the purpose of the RI/FS Report and summarizes the site history and previous site investigations.
Section 2.0:	Presents the specific scope of work for the remedial investigation.
Section 3.0:	Summarizes the physical characteristics of the site and surrounding area, including results of physical characteristics as determined during the RI field program.
Section 4.0:	Presents results of the analytical data and the nature and distribution of contamination.
Section 5.0:	Presents a discussion of the fate and transport of site contaminants.
Section 6.0:	Presents the Qualitative Exposure Assessment (QEA).
Section 7.0:	Presents the RI Summary and Conclusions.

The FS portions of the Report consist of Sections 8.0 to 13.0, outlined below.

Section 8.0:	Presents the development of Remedial Action Objectives (RAOs), the general response actions, and the extent of contamination requiring remediation.
Section 9.0:	Presents the identification and screening of applicable remedial technologies.
Section 10.0:	Combines the retained remedial technologies into remedial alternatives for the site.

Section 11.0:	Presents a detailed analysis of each of the remedial alternatives. The detailed analysis is intended to provide decision-makers with the relevant information with which to aid in selection of a site remedy.
Section 12.0:	Evaluates the relative performance of each alternative using the same criteria by which the detailed analysis of each alternative was conducted. The purpose of the comparative analysis is to identify the advantages and disadvantages of each alternative relative to one another to aid in selecting a remedy for the Site.
Section 13.0	References.

Field data sheets and supporting information are included in the appendices attached to this Report.

1.2 PURPOSE OF REPORT

The purpose of this Report is to present findings of the RI field program, and develop and evaluate RAOs and remedial alternatives which address the RAOs.

1.3 SITE BACKGROUND

On August 13, 2008, MACTEC personnel visited the Site and surrounding area with representatives of the NYSDEC, New York State Department of Health (NYSDOH), Monroe County Department of Health, and the site owner. Information pertaining to the history of site operations and past releases of contamination were reviewed to help prepare the Work Plan for the RI field investigation, as well as to help prepare this RI/FS report. Observations noted during the site reconnaissance, information collected, and other information provided in the WA are summarized below.

1.3.1 Site Description

The Site is located at 2150 Monroe Avenue in a mixed residential/commercial area in the Town of Brighton, Monroe County (Figure 1.1). It is identified in the Town of Brighton as Parcel ID Number 137.14-2-9. The site property is 0.15 acre upon which is located an approximately 3,000 square foot, two story brick and block construction building with a partial basement, and a paved parking lot.

The site building currently houses a beauty salon on the first floor and a photography studio on the second floor. The property is bordered immediately to the northwest by a multi-tenant residential building; to the northeast by a parking lot and residential community; to the southeast by Hampshire Drive; and to the southwest by Monroe Avenue. Multi-unit and single residences are also located west across Monroe Avenue. The Site and surrounding community is serviced by public drinking water and sewer.

1.3.2 Site History

The Site was reportedly first developed in the 1940's (Labella Associates, P.C. [Labella], 1999). The review of the R.L. Polk & Co. Rochester Suburban City Directories indicated that the Site was used as: George and Bill's Super Grocery from 1950 to 1952 (City Directories prior to 1950 were not reviewed); Speedy's Cleaners from 1953 to 1981; and Lasser's Home Products Starting in 1982. An inspection of the Former Speedy's Cleaners completed on June 29, 1977 by the Monroe County Health Department documented the use of approximately 550 gallons of PCE per year (NYSDEC, 2008). A Phase I Investigation conducted in 1999 for the Site by Labella indicated that the first floor of the Site building was still being used as Lasser's Home Products, and that the second floor was used as a photography studio and office (Labella, 1999). According to Monroe County property deeds, the current owner purchased the property in 1999.

1.3.3 Previous Field Investigations

As provided in the NYSDEC Work Authorization letter to MACTEC (NYSDEC, 2008) and other input from the NYSDEC, several investigative activities have been conducted at and in the vicinity of the Site. The Former Speedy's Cleaners site was identified during the petroleum spill activities at the nearby Newcomb Oil/Former CITGO Gasoline Station site (Spill # 0306131) and the RI activities at the Carriage Cleaners site (Site # 828120), located approximately 450 feet and 350 feet west-northwest of the Site, respectively (Figure 1.2). The investigation at the Former CITGO Gasoline Station was completed because of petroleum contamination in groundwater and the investigation at the Carriage Cleaners site was completed because of PCE contamination detected in groundwater.

According to documentation in the O’Brien and Gere Engineers, Inc. (OBG) Carriage Cleaners RI Report (OBG, 2007), three investigations have been conducted to date in the vicinity of the Site, including:

1. Haley and Aldrich investigation of the Former CITGO station – Haley and Aldrich was contracted by Newcomb Oil to investigate and address potential impacted environmental media associated with the Newcomb Oil/Former CITGO Station located at 2087 Monroe Avenue. As part of the investigation, Haley and Aldrich installed monitoring wells HA-101 to HA-123 and extraction wells HA-124 to HA-126.
2. Labella – Labella completed a Phase II Environmental Site Assessment of the Carriage Cleaners site in 2004; including the completion of 27 Geoprobe® soil borings and the installation of five direct push monitoring wells (MW-1 to MW-5).
3. OBG – OBG completed RI and FS activities at the Carriage Cleaners Site in 2007. Investigations included the installation of 10 monitoring wells; MW-203S to MW-209S screened at the first encountered water, and MW-104I, MW-111I, and MW-202I, screened in intermediate bedrock. A total of 29 monitoring wells were sampled, and hydraulic conductivity (K) testing was conducted at 19 wells. In addition, thirty direct push soil borings were completed, fifteen of which were located on the Former Speedy’s Cleaners property. Soil vapor and indoor air/sub-slab vapor sampling were also conducted.

In addition, Empire Geo-Services, under contract with the NYSDEC, installed groundwater monitoring wells MW-201 and MW-202 near the Former Speedy’s Cleaners site, and collected groundwater samples from these wells in July 2004 (Empire Geo-Services, 2004).

During these investigations PCE was detected in soil vapor, groundwater, and soil samples collected directly adjacent to the Former Speedy's Cleaners property. The investigation activities showed that groundwater flow beneath the Site was to the north/northeast. The Site is located down- and cross-gradient to the Carriage Cleaners site (OBG, 2007). The Carriage Cleaners RI report summarized that although the Former Speedy's Cleaners site is near the Carriage Cleaners site, the groundwater flow direction and the presence and distribution of PCE suggests that the Former Speedy's Cleaners site is a separate source for PCE contamination and is contributing to off-site groundwater and soil vapor contamination (OBG, 2007).

Investigation activities completed during the Carriage Cleaners RI on the Former Speedy’s Cleaners property included the advancement of 15 shallow soil borings, collection of vapor intrusion samples, and installation of one (1) groundwater monitoring well. Additionally, monitoring wells were installed downgradient of the Former Speedy’s Cleaners site. Twelve (12) soil samples were collected from the vadose zone at the Site during the shallow soil boring program. PCE was detected in each of the soil samples at concentrations ranging from a lab estimate of 0.64 micrograms per kilogram (µg/Kg) along the front (west) of the property to 4,800 µg/Kg near the back (east) of the property. Historic groundwater quality data along with the groundwater flow data suggest that a source for PCE exists at the Former Speedy's Cleaners Site (OBG, 2007). Locations of the shallow soil borings are included on Figure 1.3 and locations of the monitoring wells are included on Figure 1.4. In addition, select figures from the OBG Carriage Cleaners RI Report showing: 1) Site soil sampling locations and PCE concentrations, 2) well locations and PCE and its breakdown product concentrations in groundwater samples, and 3) groundwater elevations, as well as 4) summary text, tables and figures presenting the soil vapor intrusion data are included in Appendix A. Additionally, vapor intrusion sampling results at the site building detected PCE at 250 and 280 micrograms per cubic meter (µg/m^3) in two sub-slab soil vapor samples and PCE at 340 and 150 µg/m^3 in basement and first floor indoor air samples, respectively (NYSDEC Environmental Site Remediation Database). Based on the VI sampling results the NYSDOH recommended that a sub-slab depressurization system (SSDS) be installed at the Site based on PCE concentrations detected in the site sub-slab samples and indoor air samples. The property owner installed this SSDS system in March 2007.

Based on the results of groundwater, soil, and vapor intrusion sampling, the Former Speedy's Cleaners site was listed as a Class 2 site in the NYS Registry for Inactive hazardous Waste Disposal Sites in July 2007.

2.0 SCOPE OF WORK

To evaluate the threat to human health and the environment, and to collect data for future evaluation of remedial alternatives for the Site, the RI field program was conducted. These activities were conducted to support the evaluation of soil and groundwater conditions at and in the vicinity of the Site. Specifically, data was collected to:

- characterize the distribution of soil contamination present at the Site
- characterize the vertical and areal distribution of groundwater contamination
- evaluate whether potential contamination present at the Site is contributing to the known off-site PCE groundwater plume
- evaluate migration pathways, and actual or potential receptors
- evaluate potential remedial alternatives for the Site

2.1 TASK 2 – REMEDIAL INVESTIGATION

The following subsections describe the RI fieldwork. The RI fieldwork was conducted in accordance with the specifications presented in the Quality Assurance Program Plan (MACTEC, 2007) and the Site specific Quality Assurance Project Plan. Off-site laboratory analyses was performed by Columbia Analytical Services, a NYSDOH approved laboratory. Off-site laboratory analysis complied with the NYSDEC Analytical Services Protocols (ASP) (NYSDEC, 2000).

2.1.1 Field Program Sampling Activities

The field program included the following sampling activities:

- seven borings completed through the basement floor and soil samples collected from below the basement concrete slab for volatile organic compound (VOC) analysis
- 18 Geoprobe® borings completed outside the building, with a soil sample collected from 16 of the borings for VOC analysis; two (total) water samples collected for VOC analysis
- a soil sample collected from three of the Geoprobe® borings for semivolatile organic compound (SVOC), Target Analyte List (TAL) metals (plus cyanide), pesticides, and polychlorinated biphenyls (PCB) analyses

- four overburden/bedrock interface wells (MW-206 and MW-210 through MW-212) installed; MW-206 is paired with existing overburden well MW-206S
- groundwater samples collected from three of the Former Speedy's Cleaners RI wells for VOC, SVOC, TAL metal, pesticide and PCB analyses
- groundwater samples collected from 21 existing wells for VOC analyses
- groundwater samples collected from 10 Former Speedy's Cleaners RI and existing wells for monitored natural attenuation (MNA) parameters
- three background soil samples collected for TAL metals analysis

In addition, the NYSDEC collected a second round of groundwater samples from 12 wells (Former Speedy's Cleaners RI and existing wells) in July 2009.

Geoprobe® Soil Sampling

Field investigation activities included the completion of Geoprobe® borings, and the collection and analysis of soil samples. The purpose of the Geoprobe® activities was to provide soil data for comparison to Soil Cleanup Objectives and to assist the NYSDEC in evaluating significant threat to public health and the environment as defined by 6 NYCRR Part 375 (NYSDEC, 2006). Soil sample analyses were used to assess whether hazardous waste constituents were present in site soils, and, if possible, confirm additional sources of chlorinated solvents. Geoprobe® sampling field data records are included in Appendix B. Pertinent data records documenting site explorations related to the Carriage Cleaners site are also included in Appendix B.

The Geoprobe® operates by pushing and/or hammering rods and probe tips into the subsurface for sample collection. Samples were collected continuously from the ground surface until refusal (presumed bedrock) using two or four foot long, 1 ½ -inch diameter hollow acrylic sleeves. Samples sleeves were then brought to the surface for soil characterization and possible laboratory analysis. Four soil borings (DP-1 to DP-4) were advanced beneath the building's basement slab, and eighteen soil borings (DP-5 to DP-22) were completed outside of the Former Speedy's Cleaners building. Based on review of analytical results of the soil samples, an additional three borings (DP-23 to DP-25) were completed beneath the main floor of the Site building. Boring locations are shown on Figure 2.1. The exterior borings were completed using a subcontracted Geoprobe® while the interior samples were completed by coring a three-inch diameter hole through the buildings concrete slab and then using a core sampling slide hammer to collect soil samples down to the water table (approximately eight feet below ground surface [bgs]). Continuous sampling of each boring was done to identify the geology of the subsurface. Photoionization detector (PID) headspace readings were used to screen soil samples for the presence of VOCs as each soil sample was removed from the split-spoon.

One sample each (plus quality control samples) was collected from 19 of the 22 soil borings for analysis by an Environmental Laboratory Accreditation Program certified laboratory. The sample depth for laboratory analysis was based on field screening data (e.g., the highest PID reading per boring). The soil samples were analyzed for VOCs via USEPA Method 8260. In addition three samples were collected from the same interval as the VOC sample (based on field observations) from borings DP-4, DP-5, and DP-7, and analyzed for metals via USEPA method 6010B, SVOCs via USEPA method 8270, pesticides via USEPA method 8081 and PCBs via USEPA 8082.

In addition to soil sampling, one groundwater sample each was collected from borings DP-12 and DP-17.

In addition to the Geoprobe® soil samples, three surface soil samples (SS-001 to SS-003) were collected for background metals analysis via USEPA method 6010B. Locations are shown on Figure 2.2.

MACTEC worked closely with the NYSDEC, the site owner, and utility companies to obtain access to the soil boring locations. Locations were based on field conditions and additional observations of the site building. Locations were chosen to further characterize soil in the vicinity of potential source areas, as well as characterize general site conditions at specific locations below the site building.

Groundwater Monitoring Well Installation

To determine groundwater flow characteristics and the quality of groundwater upgradient and downgradient of the Site, as well as at the Site, and to better define the extent of groundwater contamination, four overburden/bedrock groundwater monitoring wells, MW-206, MW-210, MW-211, and MW-212, were installed. Groundwater analytical data and permanent data monitoring points assist in determining the distribution of potential chlorinated solvent contamination in the vicinity of the Site, and to allow for long-term monitoring. Hydraulic testing of the wells was conducted to calculate the groundwater hydraulic conductivity (K) values for the overburden/shallow bedrock.

The groundwater monitoring wells were installed approximately 10-feet into bedrock, with two of the wells installed using tri-cone drilling techniques and two of the wells installed in the vicinity of the Site building using HQ coring techniques. The Former Speedy's Cleaners RI monitoring well locations are shown on Figures 1.4 and 2.2. The wells consist of a two-inch inside diameter (ID) Schedule 40 Polyvinyl Chloride (PVC) casing and a ten foot long two-inch ID PVC well screen, with the screen extending across the overburden/bedrock interface. Well screens have 0.010-inch wide machine slots with #0 sand pack to 2 feet above the screen, a two foot bentonite seal above the sand pack, and a bentonite grout backfill to the ground surface. The wells were completed with a locking cap and a six-inch flush mount cover. Well logs are provided in Appendix B.

Following installation, the newly installed monitoring wells were developed using pump and surge techniques. Well development records are provided in Appendix B.

Groundwater Sampling

One round of groundwater samples was collected from 36 Former Speedy's Cleaners RI and existing monitoring wells. This included samples from two wells (OW-1 and EW-1) installed at Carriage Cleaners by MACTEC in December 2008. Groundwater analytical data was used to assess the distribution of potential contamination in the vicinity of the Site, and to allow monitoring of that contamination. Thirty four of the groundwater samples were collected during the week of January 19th, 2009. Two wells could not be located because of large snow banks and thus were sampled on February 2, 2009 (MW-201) and March 12, 2009 (MW-3). Water levels were recorded prior to commencing groundwater sampling. A second round of water levels was collected on March 11, 2009. Monitoring wells were sampled using low-flow sampling procedures. Field measurements were recorded on field data records included in Appendix B.

Groundwater samples were analyzed for VOCs by USEPA Method 8260. Samples collected from three of the Former Speedy's Cleaners RI monitoring wells (MW-202, MW-206, and MW-212) were analyzed for total TAL metals by USEPA Methods 6010B/7470, SVOCs by USEPA Method

8270, and pesticides and PCBs by USEPA Methods 8081/8082. In addition, nine wells (HA-114, HA-119, MW-201, MW-201I, MW-203S, MW-205S, MW-206, MW-211, and MW-212) were sampled for MNA parameters, including, total organic carbon by USEPA Method 415.1, nitrate by NYSDEC ASP Method 352.1, nitrite by NYSDEC ASP Method 354.1, sulfate by NYSDEC ASP Method 375.4, sulfide by NYSDEC ASP Method 376.2, methane/ethane/ethene by American Society for Testing and Materials Method D-1945, carbon dioxide by Hach Method, alkalinity by USEPA Method 310.1, chloride by USEPA Method 325.3, and iron and manganese by USEPA Method 6010B (the laboratory mistakenly ran total metals for the MNA samples, with the exception of MW-201 and MW-211).

Upon completion of the groundwater sampling, hydraulic conductivity tests were performed on the four Former Speedy's Cleaners RI monitoring wells to characterize shallow overburden and bedrock hydraulic characteristics. The hydraulic conductivity tests consisted of slug tests, using a solid mass of PVC (the slug) and a data logger. For the well with the screens installed across the water table (MW-212), two rising head tests were conducted. For wells with screens installed below the water table (MW-206, MW-210, and MW-211), two rising and two falling head tests were conducted at each well. Hydraulic conductivity test data were analyzed by the methods of Hvorslev (1951) and Bouwer and Rice (1976). Hydraulic conductivity data is included in Appendix C.

In addition to the sampling by MACTEC, the NYSDEC collected a second set of groundwater samples from 12 wells (DEC-Well, EW-1, HA-114, MW-1, MW-6, MW-201, MW-202, MW-206, MW-206S, MW-210, MW-211, MW-212) in July 2009. Samples were analyzed for VOCs by USEPA Method 8260.

Site Survey and Base Map

MACTEC's survey subcontractor completed a survey of the Former Speedy's Cleaners RI wells, as well as the exterior Geoprobe® sampling locations. Horizontal locations were tied to the NYS Plane Coordinate System using North American Datum of 1983.

Vertical elevations of groundwater monitoring wells were tied to mean sea level (msl), using North American Vertical Datum of 1988, and measured to an accuracy of 0.01 foot. Horizontal well measurements were to an accuracy of 0.1 foot. A table of surveyed points is included in Appendix D. Pertinent survey data records documenting site explorations related to the Carriage Cleaners site are included in Appendix D.

3.0 SITE PHYSICAL SETTING

The physical characteristics of the site study area are discussed in this section. Information collected during both Task 1 preparation of the RI Work Plan and Task 2 RI Field Investigation are summarized below.

3.1 TOPOGRAPHY

The Site is located approximately 485 feet above msl and the topography is fairly level. The land surface slopes slightly downward to the east for approximately one mile, before dropping steeply downward toward Allen Creek, which flows northeast towards the Irondequoit Creek (elevation of approximately 250 feet above msl three miles northeast of the Site). A small line of southwest-northeast trending hills with an elevation of approximately 650-700 feet above msl are located approximately 1.1 miles northwest of the Site. Irondequoit Bay is located approximately four miles from the Site, and Lake Ontario is approximately 8 miles north of the Site. Figure 1.1 shows the general topography of the surrounding area.

3.2 CLIMATE

The climate of the area is characterized by moderately warm summers and cold winters. Mean monthly temperatures range from 24 degrees Fahrenheit (°F) in January to 70°F in July. Average annual precipitation is 32 inches. Average annual snowfall is 90 inches per year (National Climatic Data Center, 1999).

3.3 GEOLOGY

Overburden in the vicinity of the Site consists of brown, loose, silt and fine sand overlying glacial till, which consists of loose to dense, fine and medium sand with some silt and gravel (OBG, 2007). Based on OBG and MACTEC boring logs, depth to rock at the Site varies from approximately nine to 15 feet bgs. Bedrock encountered by OBG consisted of a medium dark gray dolomite of the Lockport Dolomite group. OBG indicated that the shale present in the rock cores may indicate that the bedrock below the Site is part of the transition zone between the Lockport Dolomite and underlying Rochester Shale. The OBG RI report also indicated, based on well drilling logs, that there was an apparent five foot deep trough in the bedrock surface just north of the Site that potentially continued below the northeastern portion of the Site. Based on borings completed at the Site for MW-211 and MW-212, this trough was determined not to extend below the Site building. The bedrock surface elevation contours completed by OBG were modified based on additional information collected during this investigation and interpreted bedrock contours are plotted on Figure 3.1.

3.4 SURFACE WATER HYDROLOGY

The Site consists primarily of impermeable surfaces (asphalt pavement or building), and surface water at the Site is expected to flow to local storm sewers. Water that does not flow into the sewers may infiltrate into unpaved areas in the vicinity of the Site, or it may flow toward Allen Creek, located approximately 800 feet north/northeast of the Site. Allen Creek eventually flows into Irondequoit Bay and then Lake Ontario.

3.5 GROUNDWATER HYDROLOGY

Groundwater at the Site was measured as being between approximately five to eight feet bgs. Groundwater elevations across the Site varied between approximately 478 to 481 feet above msl during two different groundwater level measurement events. Groundwater elevation data is presented on Table 3.1. The groundwater table in the vicinity of the Site is present in either overburden or weathered/fractured bedrock, depending on the water level and the bedrock elevation. Shallow groundwater flow is interpreted to flow east-northeast towards the Irondequoit Creek drainage basin. Interpreted groundwater surface elevation contours for the overburden/bedrock interface zone are presented on Figure 3.2. OBG interpreted groundwater elevations measured in HA-115 as signifying a potential groundwater high with divergent flows. Due to this location also being an apparent bedrock high MACTEC has continued to portray it as a groundwater high, although it is possible that there are few interconnected fractures at this location, and if so, this feature may be more of a groundwater mound than is currently presented on Figure 3.2. The OBG groundwater elevation contour figure for July 2005 is presented in Appendix A. As shown on Figure 3.2, shallow groundwater flow at the Carriage Cleaners site is also to the northeast. Based on the local groundwater flow patterns, the Former Speedy's Cleaners site is not directly hydraulically downgradient of the Carriage Cleaner's site. Deeper groundwater flow may follow other local or regional flow patterns, or be influenced by bedrock fracture patterns.

The majority of the existing groundwater monitoring wells at and in the vicinity of the Site are constructed with screens straddling the overburden (till) and upper shallow weathered (highly fractured) bedrock. Hydraulic conductivity testing of this zone as measured by OBG yielded K values ranging from 2 feet per day (ft/day) to 230 ft/day, with a geometric mean of approximately 8.86 ft/day (OBG, 2007). The K values in the four wells installed by MACTEC ranged from 5.5 to 21.4 ft/day. These K values are considered bulk averages because they average conductivities across both the fractured rock and the deep overburden. Two wells (MW-202I and MW-104I), referred to as intermediate wells by OBG, are also constructed within the more competent deeper bedrock (a third deeper bedrock well [MW-111I] appears to be hydraulically connected to the shallow fractured bedrock zone and exhibits similar K values to this shallow zone). Hydraulic conductivity estimates by OBG in the two intermediate wells were 28.3 ft/day and 12.8 ft/day.

The hydraulic gradient calculated by MACTEC from March 2009 data was 0.008 ft/ft, which is consistent with OBG calculated gradients. Based on the gradient, the geometric mean K value of 8.86 ft/day and an effective porosity of 0.05, OBG estimated the horizontal groundwater seepage velocity in the overburden/bedrock interface zone to be approximately 1.4 ft/day, or 511 ft/year. Because well screens are set across the overburden/bedrock interface and due to the uncertainty of whether the majority of the flow is occurring in the overburden or bedrock, the actual porosity of the most conductive zone could vary from an effective porosity of 0.05 (bedrock fractures) to 0.2 (medium- to fine-grained soils). Based on the geometric mean of the K values for the four wells installed in the vicinity of the Site by MACTEC (10.3 ft/day), the hydraulic gradient of 0.008 ft/ft, and the range of potential effective porosities from 0.05 to 0.2, the horizontal groundwater seepage velocity is estimated to range from approximately 0.4 ft/day to 1.7 ft/day, or approximately 150 ft/year to 600 ft/year. Groundwater hydraulic data is presented on Table 3.2.

3.6 GROUNDWATER USE

The Former Speedy's Cleaners site and the surrounding residential and commercial properties rely on public water supplied by Monroe County Water Authority. There are no known drinking water wells located within the area potentially affected by the groundwater contaminant plume attributed to the Site.

4.0 NATURE AND DISTRIBUTION OF CONTAMINATION

This section presents the results of the field investigation. The subsections below describe the results of laboratory analyses for soil and groundwater samples collected during RI field activities. To determine whether the laboratory data met the project specific criteria for data quality and data use, a Data Usability Summary Report (DUSR) was prepared in accordance with the "Guidance for the Development of Data Usability Reports" (NYSDEC, 1997). The DUSR is included as Appendix E. Complete analytical data is also presented in Appendix E. The data presented in this Report meets the data quality objectives.

4.1 SOIL SAMPLING

Background and site soil sample results are presented in the following subsections.

4.1.1 Background Soil Analytical Results

Surface soil samples were collected from locations in the general site area considered to be representative of background conditions. The surface soil sample locations (SS-001 through SS-003) are shown on Figure 2.2. Background surface soil samples were collected from approximately 0.5 feet to one foot bgs. Analytical results from these soil samples were used to establish site background values for metals concentrations in soils. Analytical results for the background soil samples are presented on Table 4.1.

4.1.2 Site Soils Analytical Results

Soil samples were collected and analyzed from Geoprobe® borings completed during field activities. VOC analytical results are presented in Table 4.2 and boring locations and PCE results are presented on Figure 4.1. SVOC, pesticide, PCB, and metals analytical results are presented in Table 4.1.

In total, 26 subsurface soil samples (plus duplicates) from 22 borings were submitted to the laboratory for VOC analysis. PCE was detected in soil samples collected from each boring location, with concentrations ranging from 0.0015 milligrams per kilogram (mg/Kg) to 830 mg/Kg. Most of the soil samples were collected below or near the water table and the majority of the relatively low PCE detections may be the result of groundwater contamination, not an indication of source material that has migrated down from the surface. PCE was detected at concentrations greater than the Soil Cleanup Objective (SCO) for unrestricted use (1.3 mg/Kg) in soil samples collected from seven of the borings. The two highest detections were collected at or below the water table near the site building and are discussed in Section 4.2 below.

Low concentrations of TCE (likely the result of the degradation of PCE) and fuel related VOCs were detected in soil samples at concentrations below the SCOs for unrestricted use (see Table 4.2 for complete results).

Zinc was the only metal detected above its SCO, but the concentration was below concentrations detected in two of the three background samples.

Three pesticides were detected in the sample from boring DP-5, which was located on the adjacent property to the north of the Site. Dieldrin, with a detection of 0.016 mg/Kg was the only pesticide detected above its SCO for unrestricted use of 0.005 mg/Kg.

PCBs and SVOCs were not detected in the soil samples.

4.2 SOURCE AREAS

The location of the source areas (areas around DP-17 and DP-13) and the presence of PCE in soil at other locations of the site, suggest that disposal may have occurred where the site building was expanded and where an exterior storage shed was historically located.

The highest concentration of PCE detected in soil was 830 mg/Kg, collected from approximately nine feet bgs adjacent to the southeast side of the Site building at boring DP-17 (same location as MW-212; See Figure 4.1). This sample was collected below the groundwater table (water table measured between 6.5 and 7.9 feet bgs). PID readings at DP-17 were below detection limits between zero and six feet bgs, with a detection of 3.9 parts per million (ppm) at six feet bgs, and a maximum of 1900 ppm detected at nine feet bgs. Based on the PID readings occurring below, or near the water table, it is inferred that the contamination detected at DP-17 likely migrated in groundwater from below or immediately adjacent to the site building. The PCE source area is assumed to be from leakage to the ground below the Site building or potentially adjacent to or below the former storage shed, or possible disposal outside the back door. Based on a 1968 building permit (Town of Brighton, 1968a), this storage shed was reportedly located over the southeastern section of the basement and removed in 1968 for the first of two building additions (Town of Brighton, 1968b) (approximate location of shed shown on Figure 1.3).

The second highest PCE detection in soil, 35 mg/Kg, was from a sample collected from approximately six feet bgs in boring DP-13, located adjacent to the northeast side of the Site building. This sample location is likely above the water table, but may be within the capillary fringe zone. The source of PCE at this location could be the result of contaminants migrating through the overburden from surface spills, although PID readings above background were not noted in overlying soils at this sample location. In addition, although contamination may have migrated to this location in groundwater, groundwater was noted in a nearby well to be present at approximately 6.8 feet bgs which is potentially below this detection. It is possible that this contamination represents the edge of a source area that historically existed below the northeast portion of the Site building. This contaminated soil source area may have been excavated for the completion of the addition which includes a full basement to approximately seven feet below grade (date of the addition is not known; although one 1968 building permit was identified, it is possible that two separate additions were completed at the site). Although this is a possibility, PCE detections in the two soil samples collected below the full basement (1.5 D mg/Kg and 0.018 mg/Kg) were lower than the PCE detection in DP-13 (35 mk/kg).

Although concentrations of PCE detected below the Site building were only slightly above the SCOs for the protection of groundwater, a number of the detections were in samples collected above the water table. In addition, PID readings were noted above background at several locations above the water table. The PID readings and PCE detections are likely the result of PCE that migrated through soils from surface leaks. The bulk of the PCE contamination may have continued to migrate to groundwater, or been volatilized from soil over time. Based on analytical results and PID readings from this RI investigation, as well as from the OBG investigation at the Site, the volume of soil with the potential to contain chlorinated solvents at concentrations above the SCO for the protection of groundwater is estimated to be 790 cubic yards. This estimate assumed that soil contamination was approximately 10 feet thick (ground surface to bedrock) in areas with PID readings above background recorded above the water table, and approximately three feet thick in areas where soil contamination was noted below the water table, but PID readings were not noted above background above the water table. Contaminated soil volume calculations are included in Appendix F.

4.3 GROUNDWATER ANALYTICAL RESULTS

During the RI, groundwater samples were collected from 36 monitoring wells during a January/March 2009 sampling event and from 12 wells during a July 2009 sampling event. Analytical results for VOCs are presented on Table 4.3, and PCE and total chlorinated VOC results are shown on Figure 4.2. Analytical Results for SVOCs, pesticides, PCBs, and metals are presented in Table 4.4. Analytical results are compared to the Technical and Operational Guidance Series 1.1.1 - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (NYSDEC, 1998). Natural attenuation parameters are presented in Table 4.5.

January/March 2009. PCE was detected in groundwater samples collected from 23 of the 36 wells, exceeding the NYS Class GA standard for PCE of 5 micrograms per liter (µg/L) in samples collected from 19 of the 23 wells where it was detected. Groundwater samples from ten of the wells where PCE was detected at concentrations above its standard, including the highest detection of PCE of 13,000 D µg/L (MW-6), were from wells upgradient of the Site and likely the result of activities at the Carriage Cleaners site. The second highest detection of PCE in the samples collected from the monitoring wells, 7,600 µg/L, was collected from MW-212, located adjacent to the Former Speedy's Cleaners building. Concentrations of PCE decrease from the high of 13,000 µg/L detected in the groundwater sample from MW-6 at the Carriage Cleaners Site to 230 µg/L in the groundwater sample collected from MW-210, located approximately 180 feet up and slightly cross-gradient from MW-212 and to 18 µg/L detected in the groundwater sample from MW-206, located approximately 100 feet upgradient of MW-212. Concentrations of PCE in groundwater decrease downgradient of MW-212 to 31 µg/L in the groundwater sample collected from MW-204S, located approximately 750 feet east of MW-212. The downgradient PCE plume appears to be fairly narrow, with concentrations of PCE below the detection limit of 1 µg/L in groundwater samples from MW-205S and HA-119, located approximately 400 feet and 450 feet downgradient of MW-212, respectively, and on either side of the anticipated groundwater flow path from MW-212 to MW-204S.

TCE, a degradation product of PCE, was detected in groundwater samples from 20 of the 36 wells, exceeding the Class GA standard of 5 µg/L in groundwater samples from 12 of the 20 wells where it was detected. Eight of these exceedances, including the highest TCE detection of 350 µg/L, were from groundwater samples collected from wells upgradient of the Site and likely the result of contamination originating from the Carriage Cleaners site. The second highest detected concentration of TCE, 170 µg/L, was in a groundwater sample from MW-212, located adjacent to the Former Speedy's Cleaners building. Concentrations of TCE detected in groundwater also decrease between Carriage Cleaners and the former Speedy's Cleaners (81 µg/L in the sample from MW-210 and 4.5 µg/L in the sample from MW-206).

Other chlorinated solvents, including the breakdown products of PCE and TCE of cis-1,2-DCE and vinyl chloride are also present in groundwater at concentrations above their respective Class GA standard. As shown on Figure 4.2, seven (7) off-site monitoring wells (MW-201, MW-202, MW-203S, MW-204S, MW-205S, HA-118, and HA-119) were sampled and results indicate that the chlorinated solvent groundwater contamination of PCE and its breakdown products extends off-site in an east-northeast direction approximately 1,000 feet. Cis-1,2-DCE and vinyl chloride were detected in groundwater samples collected from downgradient monitoring wells at concentrations above the PCE groundwater concentrations suggesting breakdown of the PCE contamination. Specifically, cis-1,2-DCE was detected at a maximum downgradient concentration of 190 ppb in groundwater from MW-203S and vinyl chloride was detected at a maximum downgradient concentration of 56 ppb in groundwater from HA-119.

July 2009. Results for the 12 groundwater samples (plus one duplicate) collected by the NYSDEC in July 2009 are presented in Table 4.6. Concentrations of PCE detected in groundwater were similar to those detected in January (generally within an order of magnitude), with the exception of MW-6 on the Carriage Cleaners property (29,000 µg/L) and MW-212 on the Former Speedy's Cleaners property (22,000 µg/L), which were both higher in July. Laboratory provided Form I's are included in Appendix G.

5.0 CONTAMINANT FATE AND TRANSPORT

This section presents an assessment of contaminant movement and disposition within the environment.

5.1 CONCEPTUAL SITE MODEL

The Conceptual Site Model takes into consideration sources of contamination, migration pathways, exposure pathways, and potential receptors. Contaminated media associated with the Site include soil, groundwater, soil gas, and indoor air. The conceptual model for the Site is presented in Table 5.1.

Soil contamination at the Site is present beneath the floor of the building and below the paved parking lot southeast and northeast of the Site building. Therefore, people who may access the property would not be exposed to contaminants in soil by incidentally ingesting the soil or by dermal contact with the soil. However, workers who excavate soil for underground utility repair or maintenance or for construction activities could contact the soil by these exposure pathways as well as by dust and vapor inhalation pathways.

Workers within the Former Speedy's Cleaners building, as well as the surrounding residential and commercial properties located within the groundwater plume path, use public water. Therefore, there is no direct exposure to groundwater associated with the Site through domestic or other uses.

The soil vapor intrusion pathway from contaminated soil and/or groundwater has previously been evaluated. At locations where it was determined that there was a potential for direct exposure to contaminated indoor air resulting from contaminated subslab soil vapor, SSDSs have been installed. Therefore there is no anticipated direct exposure to contaminated indoor air.

5.2 CONTAMINANT PERSISTANCE

VOC contaminants of concern detected at concentrations greater than their associated NYS groundwater and soil standards, criteria and guidance values (SCGs) values include PCE, TCE, cis-

1,2-DCE and vinyl chloride. These contaminants, classified as halogenated hydrocarbons, are present in groundwater and soils on Site. The processes that likely control the fate of VOCs at the Site include volatilization, dissolution, and biodegradation. These processes are briefly discussed below.

Volatilization. The fate of VOCs in surface soils and shallow groundwater is likely volatilization, as VOCs partition rapidly to the atmosphere, and neither biodegradation nor hydrolysis (a photolytic decomposition due to exposure to sunlight) occurs at a rapid rate. (Agency for Toxic Substances and Disease Registry, 1997)

Dissolution. Dissolution of VOCs from site sources to groundwater is a significant transport mechanism for VOCs at the Site. Factors affecting dissolution of VOCs are likely: (1) water table elevation in comparison to source areas; (2) flow rate (residence time) of the groundwater in the contaminated material; (3) solubility of the compound; (4) amount of recharge through VOCs in the unsaturated zone; and (5) the degree of partitioning to soils and sediments.

Biodegradation. Biodegradation reactions can reduce the total mass of VOCs in groundwater. Naturally occurring bacteria in soil are capable of degrading VOCs. The microorganisms require oxygen to aerobically biodegrade VOCs and the concentration of dissolved oxygen is an indicator of the potential for aerobic biologic activity in groundwater. Aerobic biodegradation is particularly effective for aromatic hydrocarbons, such as benzene and toluene, and may be effective in mineralizing chlorinated solvent daughter products such as 1,2-DCE and vinyl chloride.

Under aerobic conditions, parent compounds PCE and TCE (may be a parent compound or a daughter product of PCE) are relatively stable and persistent in the environment. Under suitable anaerobic conditions, however, PCE and TCE may undergo biologic transformation as the dominant fate process. It has been shown that biodegradation of PCE and TCE in groundwater increases with the organic content of the soil.

The complete anaerobic biologic transformation pathway for PCE is:
PCE→TCE→1, 2-DCE→vinyl chloride→ethane→carbon dioxide and water.

Degradation pathways may not be complete, however, depending on the presence of suitable conditions to complete the process.

Persistence of VOCs in Site Media

Chlorinated solvents, the primary contaminants of concern at the Site, are fairly persistent in the environment. Because the Site was no longer used for dry cleaning after approximately 1981, it is anticipated that spills of PCE to the environment occurred prior to this time.

Although it is likely that the primary source of contamination, PCE used in the dry cleaning process, was released to the environment over 28 years ago, concentrations were detected in soil during the RI investigation as high as 830 mg/Kg. Based on the solubility (150 milligrams per liter), Henry's Constant (0.754) and organic carbon partition coefficient (364 milligrams per gram) of PCE and the detected concentrations in soil and groundwater, the presence of PCE as a dense non-aqueous phase liquid (DNAPL) is possible at the site (calculations included in Appendix F). The highest concentration of PCE detected was from a soil sample collected from 8 to 10 ft. bgs, below the water table. Soils at the Site exhibit a high silt content and the majority of the remaining mass of PCE may have diffused into the soil silt matrix. As stated above, the primary mechanisms of concentration reduction of VOCs are typically through volatilization into soil gas (for unsaturated soil or water table surface concentrations), and dispersion and diffusion in groundwater, as well as through biological degradation. If the mass of PCE is bound up within the soil matrix (i.e., adsorbed to the soils), then dispersion through advection will be less of a factor in concentration reduction.

To assess contaminant persistence in groundwater, groundwater samples have been collected during four sampling events between 2005 and 2009. Although contaminant concentrations were lower in the samples collected in 2009 than those collected in 2005, this may be a result of many factors including low flow sampling versus bailer sampling, and groundwater levels (winter versus summer months). The data does consistently show that groundwater concentrations decrease rapidly with distance downgradient from the Site.

Evaluation of Biological Degradation/Natural Attenuation of VOCs at the Site

Natural attenuation refers to naturally occurring processes, including physical, chemical, and biological processes that reduce contaminant concentrations. Specific to biological processes, the presence of certain microorganisms are capable of degrading chlorinated solvents. Anaerobic conditions occur under reducing conditions and with little to no dissolved oxygen (DO). Aerobic conditions occur under oxygenated conditions or with high levels of DO.

Natural Attenuation Screening Protocol questionnaires were filled out for nine of the groundwater monitoring wells. Groundwater from each monitoring well location received a score based on concentrations of certain analytes detected and field parameters (i.e., determining if breakdown of chlorinated solvents are occurring and if groundwater chemistry is favorable to biodegradation) measured. Scores of 0-5 indicate that there is inadequate evidence for anaerobic biodegradation of chlorinated organic compounds. Scores of 6-14 indicate that there is limited evidence for anaerobic biodegradation of chlorinated organic compounds. Scores of 15-20 indicate that there is adequate evidence for anaerobic biodegradation of chlorinated organic compounds, and scores over 20 indicate that there is strong evidence for anaerobic biodegradation of chlorinated organic compounds. Natural Attenuation Screening Protocol forms are presented in Appendix H; groundwater chemistry and a summary of the natural attenuation scores are presented in Table 4.5.

The scores for the groundwater samples reviewed ranged from 8 to 14, indicating that there is limited evidence for anaerobic biodegradation of chlorinated organic compounds at these well locations. Although the breakdown products of PCE are present in groundwater, it cannot be said with certainty that anaerobic biodegradation is the cause of this breakdown. Although groundwater parameters measured at several of the wells appeared to be beneficial for anaerobic biodegradation, other locations had high dissolved oxygen, high reduction-oxidation, and/or relatively little benzene, toluene, ethylbenzene, xylene (used as a carbon source), indicating less favorable conditions for biological degradation.

5.3 CONTAMINANT MIGRATION

Contaminants assumed to have been spilled at the Site likely migrated down through the soils to groundwater through gravity. Although VOCs can readily leach from soil with infiltration of precipitation and migrate to groundwater, the Site is primarily covered with buildings and asphalt, so infiltration of precipitation is currently anticipated to be minimal. Historically, contaminant leaching may have been more of a factor assuming the smaller size of the site building and the possibility that the parking area was gravel and not paved. In addition, if underground wastewater lines had leaks, this could enable leaching of contaminants (as well as acting as a potential original source of contamination).

Once dissolved in groundwater, solvents can migrate with groundwater flow. Groundwater at and in the vicinity of the Site is located at approximately six to eight feet bgs. Localized groundwater flow from the Site property is interpreted to be to the east/northeast. Although chlorinated solvents are present in groundwater upgradient of the Site, the result of spills at the Carriage Cleaners site (based on data collected during the RI), a source of chlorinated solvents (PCE and its degradation products TCE, cis-1,2-DCE, and vinyl chloride) is also present at the Former Speedy's Cleaners site and migrates in an easterly direction. PCE concentrations appear to diminish from a high of 7,600 μg/L and 22,000 μg/L at MW-212 to 31 μg/L at MW-204S. Although chlorinated solvents were also detected in groundwater samples collected north of the Site, these are considered to be related to PCE releases at the Carriage Cleaners site.

Although shallow groundwater can discharge to surface water, there are no nearby surface water bodies. In addition, concentrations of PCE in groundwater decrease from a high of 7,600 µg/L and 22,000 µg/L at the Site at MW-212 to 31 µg/L approximately 750 feet downgradient of the Site at MW-204S. Due to the distance to the nearest downgradient surface water (approximately 0.9 miles) and the known rate of attenuation of solvent contamination with distance from the site, migration of groundwater contamination to surface water is not anticipated to be a complete migration pathway.

Chlorinated solvents detected in soil and groundwater can partition from both soil and groundwater to soil vapor and then migrate through the soil column. Detections of VOCs in soil vapor samples collected previously indicate that VOCs are partitioning from soil and/or groundwater to soil vapor at the Site. Soil vapor can be drawn into buildings through seams and cracks in foundations and floor slabs, as well as through utility penetrations. Based on data collected, an SSDS was installed at the Site property to mitigate the potential for vapor intrusion. Soil vapor and indoor air samples collected previously by the NYSDEC did not indicate the potential for soil vapor intrusion of chlorinated solvents to indoor air at residential locations down gradient of the Site at concentrations of concern. Other mitigation systems have been installed at residential locations north and west of the Site as a result of the chlorinated solvent spill at the Carriage Cleaners site and the fuel spill at the Newcomb Oil/Former CITGO Gasoline Station site.

6.0 QUALITATIVE EXPOSURE ASSESSMENT

This section presents a qualitative assessment of the risks posed to human health and the environment.

6.1 PUBLIC HEALTH EVALUATION

This section provides a QEA for the Former Speedy's Cleaners Site. The QEA is performed in accordance with NYSDEC Technical Guidance (NYSDEC, 2002), which indicates that the QEA should evaluate the populations of humans that may potentially be present at and in the vicinity of the Site, the mechanisms or exposure pathways by which the population may be potentially exposed to contamination associated with the Site, and the significance of exposure that may occur through the potential exposure pathways. This process involves three steps:

1. characterization of the exposure setting in terms of physical characteristics, current and future uses of the Site, and the populations that may be potentially exposed to Site-related contamination under the current and future land uses
2. identification of potential exposure pathways and exposure points to which the populations may be exposed
3. screening of potentially complete exposure pathways to identify the pathways and Site-related constituents of greatest concern from a health risk perspective

Exposure Pathway Evaluation and Qualitative Risk Analysis. Potentially complete exposure pathways were identified for direct contact with soil (for construction or utility workers), and inhalation of vapors that may migrate from groundwater to air within commercial or residential buildings. The significance of exposure pathways associated with these media is evaluated in this subsection through comparison of analytical data with standard and guidance concentrations published by the NYS and NYSDOH and/or background concentrations.

Soil

A comparison of analytical soil data to NYSDEC guideline values and background values indicates that PCE was detected in several soil samples on the site property at concentrations greater than SCOs. Concentrations in excess of SCOs were detected generally in subsurface soil. Only construction or utility workers would potentially be exposed to subsurface soil if excavation activities were to occur, and under those circumstances exposures would be of a short duration (e.g., 1 week to 1 month). The principal exposure pathways to the VOCs detected in soil would be via incidental soil ingestion, dermal contact, and inhalation of vapor. There are no planned construction or excavation activities at this time.

Groundwater

There are no direct exposures to groundwater associated with the Site under current or foreseeable land uses. However, a comparison of groundwater analytical data to NYS drinking water standards provides information concerning constituents that would be of concern from a health risk perspective if the groundwater was used as potable water under existing conditions. A review of the analytical data indicates that chlorinated solvents (e.g., PCE and breakdown products), as well as fuel related VOCs were detected at concentrations that exceed drinking water standards. The fuel related VOCs, as well as the chlorinated solvents detected in groundwater west and north of the Site are associated with sources other than the Former Speedy's Cleaners site (i.e., Carriage Cleaners and the Former CITGO Station). Chlorinated solvents detected in groundwater at, and east of the Site, are related primarily to the Former Speedy's Cleaners site.

As discussed previously, groundwater that has been affected by releases from the Site is not being used as a source of water due to the availability of public water supply and, consequently, there are no direct contact exposures to Site contaminants in groundwater. Therefore, although contaminant concentrations in groundwater exceed drinking water standards, the drinking water/direct groundwater contact pathway is not an exposure pathway of concern from a health risk perspective under the existing and foreseeable land use conditions.

Soil Vapor/Indoor Air

As discussed previously, chlorinated VOCs present in soil and groundwater have the potential to partition to soil vapor. Due to the potential lower pressure inside buildings during the heating season, chlorinated VOCs present in soil vapor have the potential to migrate to indoor air via gaps in building foundation (e.g., floor drains, cracks, sumps, etc.). Although not evaluated during this

RI, soil vapor to indoor air pathway was previously evaluated by the NYSDEC during the 2005/2006 heating season.

Based on this evaluation, an SSDS was installed at the Site as part of an Interim Remedial Measure in March 2007. Although it was determined that chlorinated VOCs were present at low concentrations in soil vapor east of the Site, none of the residences evaluated were recommended for mitigation systems. This indicates that the potential migration pathway from soil vapor to indoor air east of the Site is not a complete exposure pathway. Therefore, the soil vapor to indoor air pathway is not an exposure pathway of concern from a health risk perspective under the existing and foreseeable land use conditions.

7.0 RI SUMMARY AND CONCLUSIONS

This Section presents a summary of and conclusions from the RI.

7.1 RI SUMMARY

The Site is located at 2150 Monroe Avenue in a mixed residential/commercial area in the Town of Brighton, Monroe County. The site property is 0.15 acres in size and contains an approximately 3,000 square foot, two story brick and block construction building with a partial basement, and a paved parking lot. The site building currently houses a salon and photography studio. The property is surrounded primarily by multi-unit and single unit residential property. The Carriage Cleaners site, an active dry cleaner, and the Newcomb Oil/Former CITGO Gasoline Station site are located approximately 350 feet and 450 feet west-northwest of the Site, respectively.

The Site was reportedly first developed in the 1940's, and operated as a dry cleaning business (Speedy's Cleaners) from approximately 1953 to 1981. An inspection of the Former Speedy's Cleaners completed on June 29, 1977 by the Monroe County Health Department documented the use of approximately 550 gallons of PCE per year (NYSDEC, 2008). The Site came to the attention of the NYSDEC during the investigation of the Carriage Cleaners and Former CITGO gasoline station, when high concentrations of chlorinated solvents were detected in groundwater in the vicinity of the Former Speedy's Cleaners site.

Historic and RI soil samples collected at the Site indicate the presence of PCE at concentrations above the SCOs for unrestricted use. The maximum concentration detected (830 mg/Kg compared to the SCO for unrestricted use for PCE of 1.3 mg/Kg) indicates that PCE may be present as a DNAPL in site soils. The majority of the PCE detections in exceedance of SCOs, and the highest concentrations, were detected at, or below the water table (located between six and eight feet bgs at the Site). Contamination may have migrated slightly on-site to its present location in groundwater, and may not be the result of surface spills at that specific location. Although a release mechanism and entry point of the PCE was not identified (e.g. surface spill location or leaking pipe), the release is assumed to have occurred into soil below the Site building or immediately adjacent to the Site building. Residual contamination in the vadose zone below the building at concentrations of one to two mg/Kg indicate that these samples may be in the vicinity of the entry point, and it is possible that vadose zone contamination may have diminished through volatilization and downward transport through surface recharge over the anticipated 30 plus years since the original leak/spill occurred.

As stated above, chlorinated solvents (primarily PCE) have migrated from soil to groundwater. Groundwater at the Site is present in the overburden/weathered bedrock interface. Groundwater at the Site is interpreted to flow primarily to the east/northeast. Based on the geometric mean of the K values for the four wells installed in the vicinity of the Site by MACTEC (10.3 ft/day), the hydraulic gradient of 0.008 ft/ft, and the range of potential effective porosities from 0.05 to 0.2, the horizontal groundwater seepage velocity was estimated to range from approximately 0.4 ft/day to 1.7 ft/day, or approximately 150 ft/year to 600 ft/year.

PCE and its breakdown products TCE and cis-1,2-DCE were detected at concentrations of 7,600 µg/L, 170 µg/L, and 130 µg/L, respectively, in groundwater samples from monitoring well MW-212, located adjacent to the Site building. Although the Carriage Cleaners site is a known source of these same chlorinated solvents in groundwater which may be contributing to Site groundwater contamination, the Former Speedy's Cleaners site is interpreted to be a separate source of PCE. This is based on 1) the lower concentrations of PCE in groundwater samples immediately upgradient of the Site than in the groundwater sample from MW-212, 2) the anticipated primary flow path of groundwater from Carriage Cleaners Site slightly north of the Former Speedy's Cleaners building, and 3) the detection of PCE at concentrations above the SCO for the protection of groundwater at several locations at the Site.

PCE concentrations appear to diminish from a high of 7,600 µg/L at MW-212 to 31 µg/L at MW-204S, located approximately 750 feet east of MW-212, based on data from January 2009. Although the breakdown products of PCE are present in groundwater and concentrations of chlorinated solvents decrease with distance from the Site, evaluation of groundwater parameters does not suggest with any certainty that anaerobic biodegradation is the cause of this breakdown.

7.2 RI CONCLUSIONS

Data collected to date at and in the vicinity of the Site indicate that chlorinated solvents were released to the Site soils and that this contamination has migrated to groundwater. Contaminated groundwater is migrating off-site to the east-northeast at concentrations above groundwater standards protective of public health.

Potential receptors include Site workers that might come in contact with contaminated subsurface soils or groundwater. Although an SSDS was installed at the Site building to mitigate potential exposure to contaminated soil vapor at the Site, the vapor intrusion to indoor air path was determined during previous investigations not to be a complete receptor pathway of concern for the off-site residences over the downgradient portion of the groundwater plume.

Although soil and groundwater data indicate that chlorinated solvents (primarily PCE) were spilled/disposed of at the Site, the precise timing, release mechanism, and entry point of contamination was not identified during this investigation. It is likely that this entry point was below or immediately adjacent to the site building. In addition, although PCE was detected in one of the furthest downgradient wells, MW-204S, at a concentration above its standard (detection of 31 µg/L compared to a standard of 5 µg/L), the downgradient plume has been fairly well defined down to the groundwater standard and additional monitoring points are not deemed necessary. Because the groundwater is not used for drinking water downgradient of the Site and the soil vapor intrusion pathway was determined not to be complete, downgradient groundwater contamination is not deemed a human health risk.

8.0 DEVELOPMENT OF REMEDIAL ACTION OBJECTIVES, GENERAL RESPONSE ACTIONS, AND CONTAMINATION REQUIRING REMEDIATION

RAOs form the basis for identifying remedial technologies and developing remedial alternatives. This section identifies RAOs for the contaminated site media, general response actions to address these RAOs, and the extent of contamination requiring remedial action.

Site-specific remedial objectives for the impacted media were developed with consideration for the frequency of contaminant detection; background concentrations; the chemical and toxicological properties of the contaminant of concern (COC); existing or potential exposure pathways; and the present or projected site use.

8.1 IDENTIFICATION OF REMEDIAL ACTION OBJECTIVES

RAOs consist of medium-specific or operable unit-specific goals for protecting human health and the environment (USEPA, 1988). RAOs specify the COCs, exposure pathway(s) and receptor(s), and acceptable contaminant levels or range of levels for each exposure route. Site-specific COCs were determined by comparison of contaminant levels to Chemical-Specific SCG values, but did not consider site-specific exposure pathways.

RAOs presented in the following subsections were developed for the specific media and receptors identified in the QEA. Acceptable contaminant levels or range of levels for each media are referred to as remediation goals (RGs). The RGs developed for the Site consider both the identified COCs and the potential exposure pathways and receptors. The Chemical-Specific SCGs generally provide both exposure pathway- and receptor-specific criteria, and were used in the development of site-specific RGs in Subsection 8.2.3 below.

8.1.1 Remedial Action Objectives for Soil

The QEA concluded that site subsurface soil represents a potential direct exposure pathway for construction or utility workers conducting excavation activities beneath or near the site building. The RI identified residual soil contamination in soils in the vicinity of and beneath the site building which may also contribute to continued groundwater or soil vapor contamination. Therefore, the following RAOs were identified for site soil:

- protect future on-site workers from unacceptable risk resulting from exposure to VOCs in site soils beneath and adjacent to the building
- prevent VOC contaminants in excess of SCOs for Protection of Groundwater Quality from leaching to groundwater from site soil
- address VOC contaminants in excess of Recommended SCOs to increase protection of on-site and off-site receptors from exposure to soil vapor contamination exceeding NYSDOH Guidance values

8.1.2 Remedial Action Objectives for Groundwater

The QEA concluded that site groundwater represents a potential exposure pathway for human use as potable water, but as discussed previously, groundwater in the vicinity of the Site is not currently used for drinking water and therefore groundwater is not considered to be a direct exposure pathway under existing and foreseeable land use conditions. Groundwater contamination at the Site may contribute to soil vapor and indoor air contamination at the Site. Therefore, the following RAOs were identified for site groundwater:

- prevent future use of site groundwater with VOC contaminant concentrations in excess of the NYS drinking water standards
- address VOC contamination in excess of NYS drinking water standards to increase protection of on-site receptors from exposure to soil vapor contamination that could migrate into the building

8.1.3 Remedial Action Objectives for Indoor Air

As discussed in the QEA, an SSDS was installed at the Site to mitigate potential indoor air issues resulting from soil and groundwater contamination. It is assumed that this system will continue to operate during implementation of the chosen remedial alternative(s) and that no other mitigation systems will be required to address indoor air issues. Also, as previously discussed, there is no indication that any downgradient receptors have site-related indoor air impacts. Therefore, there are no RAOs directly related to indoor air or soil vapor at the site. However, it is likely that the chosen remedial alternatives for soil and groundwater at the site will decrease the potential for soil vapor intrusion of VOCs.

8.2 IDENTIFICATION OF GENERAL RESPONSE ACTIONS AND EXTENT OF CONTAMINATION REQUIRING REMEDIAL ACTION

General response actions describe those actions that will satisfy the RAOs (USEPA, 1988). General response actions may include treatment, containment, excavation, disposal, institutional actions, or a combination of these. Like RAOs, general response actions are medium-specific. The general response actions presented in the following subsections include those media identified as potential threats to human health and the environment from the Site and include:

1. VOC soil contamination (primarily PCE) beneath and adjacent to the Site building
2. Site-related VOC groundwater contamination (primarily PCE) on-site and off-site

Based upon the current understanding and characterization of the Site, no additional potential threats related to the Site than those listed above exist at the Site or in the near vicinity.

Site-specific RAOs were developed in Subsection 8.1 to address the contamination requiring remedial action for subsurface soil and groundwater. The following paragraphs present a discussion of general response actions for each of these media.

8.2.1 General Response Actions for Soil

The following general response actions would address the RAOs identified for soil:

- no action
- access restriction
- containment
- in-situ treatment
- removal/disposal off-site or on-site
- ex-situ treatment

These general response actions are appropriate for site-specific soil contamination requiring remediation. The applicability of each and description of various technologies are further discussed and screened in Section 9.0.

8.2.2 General Response Actions for Groundwater

The following general response actions would address the RAOs identified for groundwater:

- no action
- institutional controls
- containment
- collection
- in-situ treatment
- on-site ex-situ treatment
- off-site treatment and/or disposal

These general response actions are appropriate for site-specific groundwater contamination requiring remediation. The applicability of each and description of various technologies are further discussed and screened in Section 9.0.

8.2.3 Contamination Requiring Remedial Action

This subsection identifies the extent of contaminated media (soil and groundwater) to which the RAOs and general response actions identified above, and the remedial alternatives to be developed in Section 9.0, will apply. Table 8.1 presents the sample locations, depth, maximum concentrations, and remediation goals for the Site contaminants detected above SCGs. The primary contaminants above SCGs are chlorinated VOCs.

Pursuant to 6 NYCRR Subpart 375-4.8(d)(2)(i), this FS Report evaluates a remedial alternative which would achieve the Unrestricted Use SCOs and provide unrestricted future use of the Site.

Figure 4.1 identifies soil samples on site that exceed Unrestricted Use SCOs. In addition, Figure F-1 presents the estimated area of soil contamination requiring remediation at the site. Figure 4.2 shows the approximate VOC plume in groundwater that is associated with the Former Speedy's Cleaners site. This plume includes both on-site and off-site groundwater contamination exceeding Class GA groundwater standards.

The remedial alternatives developed in Section 9.0 consider the distribution of the contaminants, both horizontally and vertically, and the distribution of contaminants by media.

9.0 IDENTIFICATION AND SCREENING OF TECHNOLOGIES

This section identifies and screens potential remedial technologies. Technologies are identified for the purpose of attaining the RAOs established in Subsection 8.1. Identified technologies correspond to the categories of general response actions described in Subsection 8.2.

Following identification, candidate technologies are screened based on their applicability to site- and contaminant-limiting characteristics. The purpose of the screening is to produce an inventory of suitable technologies that can be assembled into remedial alternatives capable of mitigating actual or potential risks at the Site. Potential technologies representing a range of general response actions (i.e., no further action, no further action with site management, containment, removal, treatment, and disposal) are considered. The result of technology screening is a list of potential remedial technologies that may be developed into candidate remedial alternatives.

9.1 TECHNOLOGY IDENTIFICATION

Remedial technologies and specific process options applicable to hazardous waste sites are identified in USEPA's Guidance for Conducting RI/FS (USEPA, 1988). This guidance was used to generate the list of applicable remedial technologies and associated process options identified for each general response action presented in Table 9.1. General response actions were developed for soil and for groundwater.

9.2 TECHNOLOGY SCREENING

The technology screening process reduces the number of potentially applicable technologies and process options by evaluating factors that may influence process-option effectiveness and implementability. This overall screening is consistent with guidance for conducting an FS under CERCLA (USEPA, 1988). Effectiveness and implementability are incorporated into two screening criteria: waste- and site-limiting characteristics. Waste-limiting characteristics consider the suitability of a technology based on contaminant types, individual compound properties (e.g., volatility, solubility, specific gravity, adsorption potential, and biodegradability), and interactions that may occur between mixtures of compounds. Site-limiting characteristics consider the effect of site-specific physical features on the implementability of a technology, such as site topography and geology, the location of buildings and underground utilities, available space, and proximity to sensitive operations. Technology screening serves a two-fold purpose of screening out technologies whose applicability is limited by site-specific waste or site considerations, while retaining as many potentially applicable technologies as possible.

Table 9.1 presents the technology-screening process. Technologies and process options judged ineffective or not implementable were eliminated from further consideration. The technologies retained following screening represent an inventory of technologies considered most suitable for remediation of soil and/or groundwater at the Site. Field and/or bench-scale treatability studies may be required prior to final technology selection to confirm the effectiveness of a given technology.

10.0 DEVELOPMENT AND PRELIMINARY SCREENING OF ALTERNATIVES

The retained technologies compiled into remedial alternatives in Table 10.1 are considered technically feasible and applicable to the waste types and physical conditions at the Site. These medium-specific technologies are assembled into potential remedial alternatives capable of achieving the RAOs for each of the contaminated media requiring remediation. Because soil and groundwater contamination are generally comingled at the site, and because the retained technologies may apply to both media, site-specific rather than medium-specific remedial alternatives were developed. Each of the Site-specific remedial alternatives developed in the following paragraphs incorporate technologies which address the two media requiring remediation at the Site. Due to the limited number of alternatives developed, and the similarity in their components, the screening of remedial alternatives was not performed; instead, all of the alternatives developed in this Section are retained for detailed analysis in Section 11.0.

10.1 ALTERNATIVE IDENTIFICATION

10.1.1 Alternative 1: No Further Action

Alternative 1 was developed as a baseline against which to compare other remedial alternatives. This alternative involves no further actions to protect human health or the environment and does not meet the RAOs because it lacks remedial measures that would reduce contamination at the Site. Although this alternative includes the continued operation of the SSDS installed as part of the IRM, no environmental monitoring would be conducted as part of this alternative.

10.1.2 Alternative 2: No Further Action with Site Management

Alternative 2 includes institutional controls in accordance with NYCRR Part 375 Restricted-Commercial Use to prevent exposure to contamination left in-place, but no further actions to reduce toxicity, mobility, or volume of contamination at the Site. Institutional controls would be implemented to restrict future use of the Site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to manage exposure to contamination remaining at a Site. Institutional controls would likely include implementation of land-use restrictions restricting subsurface activity, prohibiting installation of drinking water wells in the area of contamination, and restricting changes in zoning of the Site (e.g., change from commercial to residential use). Land-use restrictions would be implemented through legal instruments such as deeds and/or water well permitting processes.

In addition to institutional controls, long-term monitoring including groundwater monitoring would be completed to evaluate VOC concentrations over time and to assess continued effectiveness and protectiveness of this alternative.

The existing site building SSDS would continue to operate; however, associated costs are not captured herein since this would be conducted regardless of any future remedial alternative.

10.1.3 Alternative 3: Soil Vapor Extraction and Air Sparging

Alternative 3 includes the installation and operation of soil vapor extraction (SVE) wells to remove VOC contaminants from the soil vadose zone. In addition, the use of air sparge wells would effectively add air/oxygen to the contaminated saturated zones which would enhance volatilization of VOCs from the saturated zone to the vadose zone where the vapors would be collected by the SVE wells, treated and discharged to the atmosphere.

Implementation of this technology is assumed to be located downgradient of the on-site building since implementation of SVE and air sparging beneath the building would require access throughout a commercial area for installation, which is not feasible. Although the SVE wells are expected to have some influence beneath the building, the remedy would rely on the continued operation of the SSDS to ensure the safety of the workers inside the building. The SSDS would be inspected to ensure that it continues to operate appropriately given the changes in sub-surface pressures that would occur once the SVE and air sparging system is in place.

The alternative would require pre-design investigations to address data gaps regarding the distribution of contaminants in soil, groundwater and in soil vapor. A pilot test would then be conducted to identify the zone of influence of SVE wells and whether air sparge wells would result in groundwater mounding. Data gathered during pre-design investigations and the pilot test would be used to determine the final spacing for the SVE and air sparge wells as well as equipment needs.

Conveyance piping to and from the wells would be placed in trenches under the full scale implementation so as to minimize disturbance of the area for parking purposes. It is assumed that the treatment equipment would be housed in a separate building behind the on-site building.

This alternative would also include institutional controls, as described under Alternative 2, to prevent exposure to contamination that remains at the site until the remediation goals are achieved.

10.1.4 Alternative 4: In-Situ Enhanced Biodegradation

Alternative 4 includes in-situ enhanced biodegradation of VOC-contaminated soil and groundwater on-site. In-situ enhanced biodegradation is a technology used to enhance or support biological degradation of organic contaminants (including chlorinated VOCs) in soil and groundwater. The process involves the application of a biological amendment to the subsurface via injection wells, open excavations, or infiltration galleries. Bio-augmentation (addition of soil microbes) may also be required if the necessary soil microbes are not currently present on site, or if they do not have sufficient population. The method of injection and depth of injection is determined by location of the contamination and site-specific conditions, including groundwater flow characteristics and soil types. The amendment is either a compound that breaks down when in contact with groundwater, resulting in nutrients that can be utilized by soil microbes to breakdown organic contaminants (e.g., in groundwater, vegetable oil breaks down releasing hydrogen), or the nutrients themselves (e.g., injection or infusion of oxygen into the groundwater). Numerous patented amendments are commercially available; additionally, there are many commercially available commodity products with similar characteristics which may also be effective given the appropriate site conditions.

Implementation of this technology would include a pre-design investigation to evaluate the appropriate amendments and methods for enhanced biodegradation of site-related VOC contamination, and would include identifying whether soil microbes capable of biodegrading the COCs are present in the contaminated aquifer, or whether bio-augmentation would be necessary. Pre-design activities would include both field and laboratory studies and analysis.

Based on site conditions including the location of the site building and the velocity of groundwater flow at the site, it is assumed for the purpose of this FS that amendments would be injected upgradient of the site building (southwest side of building) and would migrate with groundwater beneath the building and to the other side to treat impacted groundwater and saturated soil in the area.

This alternative would also include institutional controls, as described under Alternative 2, to prevent exposure to contamination that remains at the site until the remediation goals are achieved.

10.1.5 Alternative 5: On-Site Excavation and In-Situ Enhanced Biodegradation

Full-scale implementation of Alternative 5 includes excavation and off-site disposal of PCE contaminated soil located in the two source areas adjacent to the northeast and southeast sides of the site building (DP-13 and DP-17 areas respectively), along with in-situ enhanced biodegradation and long-term groundwater monitoring. The soil from the source areas that would be excavated currently has the potential of being a continuing long-term source of on-site and off-site groundwater contamination. The soil from the localized area around DP-13 had high PCE concentration in vadose zone soil which biodegradation would not address. Under this alternative, the most highly impacted soil onsite, both above and below the water table (some of which currently exceeds restricted cleanup objectives for commercial properties) would be excavated and transported off-site for disposal or treatment and subsequent beneficial reuse (e.g., landfill daily cover). Pre-investigation activities would determine the actual size and depth of the excavation areas and whether any vadose zone soil in these areas could be stockpiled separately and re-used as backfill. Due to the proximity to the building, the excavations would require the use of trench boxes or other suitable excavation support. Dewatering would likely be required during excavating operations and the excavations would extend to the depth of bedrock. Clean fill (crushed stone) and asphalt would then be brought in to replace the excavated soil and re-establish the existing grades at the site. The estimated horizontal extent of the source excavation areas is shown in Appendix I.

In addition to the soil excavations, in-situ enhanced biodegradation would be implemented as a means to increase natural biodegradation of VOCs in soil and groundwater outside of the excavation area. The open excavations would be used as a delivery location of the enhanced biodegradation amendments, and monitoring would occur surrounding the excavation areas. In addition, injections of amendments would be occur upgradient of the site building as discussed in Alternative 4 to treat the impacted areas beneath the site building and the areas not impacted by the addition of amendments in the excavation. Long term on-site and off-site groundwater monitoring would also be implemented to evaluate the effectiveness and protectiveness of this alternative.

This alternative would also include institutional controls, as described under Alternative 2, to prevent exposure to contamination that remains at the site until the remediation goals are achieved.

10.1.6 Alternative 6: Source Area Excavation, On-Site and Off-Site In-Situ Enhanced Biodegradation, and Soil Vapor Extraction

Alternative 6 is being presented as the alternative that is most likely to result in pre-disposal or unrestricted use conditions. Alternative 6 includes most portions of alternative 5 (two source area excavations as well as on-site in-situ enhanced biodegradation), which is the most likely alternative to meet the remediation goals for saturated soil and groundwater on-site. Alternative 6 would also include SVE both beneath and downgradient (south/southeast) of the on-site building to treat the on-site vadose zone soils. Additionally, enhanced biodegradation injections would also occur downgradient of the site to address residual contaminant concentrations in off-site groundwater.

Similar to Alternative 3, the SVE system would require operation and maintenance and a long term on-site and off-site groundwater monitoring would be implemented to evaluate the effectiveness and protectiveness of the alternative.

11.0 DETAILED ANALYSIS OF ALTERNATIVES

This section presents the detailed analyses of remedial action alternatives for the Site. The detailed analysis is intended to provide decision-makers with the relevant information with which to aid in selection of a final site remedy. The detailed description of technologies or processes used for each alternative includes, where appropriate, a discussion of limitations, assumptions, and uncertainties for each component. The descriptions provide a conceptual design of each alternative and are intended to support alternatives-comparison and cost-estimation.

The detailed analysis of each alternative includes evaluation using the eight evaluation criteria identified in the following paragraphs.

Compliance with NYS SCGs. How the alternative would comply with applicable or relevant and appropriate federal regulations and NYS SCGs. Chemical-specific and Location-specific SCGs were previously identified in this report. Additional Action-specific SCGs are identified in this section.

Overall Protection of Human Health and the Environment. How each alternative protects human health and the environment. This evaluation is based on a composite of factors assessed under other evaluation criteria, especially long- and short-term effectiveness and compliance with SCGs.

Short-term Impacts and Effectiveness. Impacts on the community, workers, and environment during the construction phase of each alternative until RAOs are met. Includes the time required to complete the remedial action.

Long-term Effectiveness and Permanence. Effectiveness of alternatives in protecting human health and the environment after RAOs are met. Includes an evaluation of the permanence of the alternative, the magnitude of residual risk, and the adequacy and reliability of controls required to manage wastes or residuals remaining at the Site.

Reduction of Toxicity, Mobility, and Volume. Reduction in toxicity, mobility, or volume of hazardous material through treatment. The irreversibility of the treatment process and the type and quantity of residuals remaining after treatment are also evaluated.

Implementability. Technical and administrative feasibility of implementing the alternative and the availability of required services and materials.

Cost-Effectiveness. Capital and Site Management costs, including Operation, Maintenance and Monitoring costs, will be estimated for the remedy and presented on a present worth (PW) basis.

Land Use. Evaluation of the current, intended and reasonably anticipated future use of the site and its surroundings, as it relates to an alternative or remedy, when unrestricted levels would not be achieved. The current and reasonably anticipated future land use of the Site is for commercial purposes.

11.1 COST ANALYSIS PROCEDURES

Estimated costs presented in this Report are intended to be within the target accuracy range of minus 30 to plus 50 percent of actual cost (USEPA, 1988). Costs are presented as a present worth and as a total cost for up to a 30-year period.

A summary of the costs for each alternative identifying capital and net present worth (NPW) costs are included in each alternative's cost description. Each cost estimate includes a present worth analysis to evaluate expenditures that occur over different time periods. The analysis discounts future costs to a NPW and allows the cost of remedial alternatives to be compared on an equal basis. NPW represents the amount of money that, if invested now and disbursed as needed, would be sufficient to cover costs associated with the remedial action over its planned life. A discount rate of 5 percent was used to prepare the cost estimates to be consistent with NYDEC's internal policies for Proposed Remedial Action Plans (PRAP).

Consistent with USEPA FS cost estimating guidance (USEPA, 2000), the remedial alternative cost estimates include costs for project management, remedial design, construction management, technical support, and scope contingency.

Project management includes planning and reporting, community relations support during construction or O&M, bid or contract administration, permitting (not already provided by the construction or O&M contractor), and legal services outside of institutional controls.

Remedial design applies to capital cost and includes services to design the remedial action. Activities that are part of remedial design include pre-design collection and analysis of field data, engineering survey for design, treatability study/pilot-scale testing, and the various design components such as design analysis, plans, specifications, cost estimate, and schedule.

Construction management applies to capital cost and includes services to manage construction or installation of the remedial action, except similar services provided as part of regular construction activities. Activities include review of submittals, design modifications, construction observation or oversight, engineering survey for construction, preparation of Operation and Maintenance (O&M) manual, documentation of quality control (QC)/quality assurance (QA), and record drawings.

Technical support during O&M includes services to monitor, evaluate, and report progress of remedial action. This includes oversight of O&M activities, update of O&M manual, and progress reporting and is generally between 10 percent and 20 percent of total annual O&M costs depending on complexity of the remedial action (USEPA, 2000).

Scope contingency represents project risks associated with the feasibility-level of design presented in this report. This type of contingency represents costs, unforeseeable at the time of estimate preparation, which are likely to become known as the remedial design proceeds. Scope contingency ranges from 10 to 25 percent, with higher values appropriate for alternatives with greater levels of cost growth potential (USEPA, 2000).

Project management, remedial design, and construction management costs presented in this Report are based upon the following matrix presented in the USEPA FS cost estimating guidance (USEPA, 2000).

Professional and Technical Costs as Percentage of Direct Costs					
Indirect Cost	< $100K (%)	$100K-$500K (%)	$500K-$2M (%)	$2M-$10M (%)	>$10M (%)
Project Management	10	8	6	5	5
Remedial Design	20	15	12	8	6
Construction Management	15	10	8	6	6

11.2 GENERAL ASSUMPTIONS

Details and assumptions pertaining to the cost estimates are included in each alternative's cost description. In addition to the alternative-specific assumptions, the following cost assumptions were applied, as applicable:

- Each remedial alternative presented herein assumes that the existing SSDS in the site building will continue to operate indefinitely. No operation or maintenance costs were included for the system.
- Long-term activities would be completed for no more than 30 years.
- Ten (10) percent of samples collected for long term monitoring would be collected in duplicate, or for QA/QC purposes, and analyzed off-site.
- Long term sampling would be conducted quarterly following the implementation of the chosen remedial alternative for years one and two, semi-annually for years three and four and every fifth quarter thereafter for no more than 30 years.

All remedial alternatives developed in Section 10.0 were retained for detailed analysis. The remedial alternatives include:

- Alternative 1: No Further Action
- Alternative 2: No Further Action with Site Management: Institutional Controls On-Site with Groundwater Monitoring On-Site and Downgradient
- Alternative 3: SVE and Air Sparging
- Alternative 4: In-Situ Enhance Biodegradation
- Alternative 5: On-site Excavation and In-Situ Enhanced Biodegradation
- Alternative 6: Source Area Excavation, On-Site and Off-Site In-Situ Enhanced Biodegradation, and Soil Vapor Extraction

The following subsections present a conceptual design and cost estimate for each of the alternatives and a discussion of each alternative relative to the first eight evaluation criteria from DER-10 (NYSDEC, 2002).

11.3 ALTERNATIVE 1: NO FURTHER ACTION

No further actions would be conducted as part of this alternative (alternative would include continued operation of the SSDS installed as part of the IRM). Alternative 1 was developed as a baseline against which to compare other remedial alternatives.

The following paragraphs present an assessment of Alternative 1 based upon the eight criteria identified above.

Compliance with New York State SCGs. Alternative 1 would not comply with NYS SCGs.

Overall Protection of Human Health and the Environment. Site-specific RAOs for protection of human health and the environment were developed for soil and groundwater. Alternative 1 would not provide additional protection of human health and the environment compared to present conditions.

Short-term Impacts and Effectiveness. No construction activities would be implemented for Alternative 1; therefore, no short-term impacts or effects on the community, workers, or the environment would occur.

Long-term Effectiveness and Permanence. The RAOs would not be met if Alternative 1 were implemented at the Site. This alternative would not provide long-term effectiveness.

Reduction of Toxicity, Mobility, and Volume. Because no processes would be used to treat waste or contaminated media at the Site, no reduction of toxicity, mobility, or volume of site contaminants would be achieved through treatment. Natural attenuation processes would be expected to result in the reduction of the toxicity, mobility, and volume of site contaminants over time.

Implementability. Although, no services or materials would be required to implement the No-Further Action Alternative, obtaining approval for Alternative 1 at the Site would be difficult.

Cost-Effectiveness. Because there are no actions under this alternative, there are no costs for implementing this Alternative. No remedial actions, institutional controls, or environmental monitoring would be conducted.

Land Use. The current and reasonably anticipated future land use of the Site is for commercial purposes. Because no actions would be taken as part of this alternative and there would be no restrictions to future use, this alternative would not be protective of potential commercial workers conducting subsurface work at the Site.

11.4 ALTERNATIVE 2: NO FURTHER ACTION WITH SITE MANAGEMENT

Alternative 2 for the Site consists of:

- institutional controls
- long-term groundwater monitoring
- annual institutional control inspections and reporting

Institutional Controls. Institutional controls would be implemented to restrict future use of the Site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to manage exposure to contamination remaining at the site. Institutional controls would likely include implementation of land-use restrictions prohibiting subsurface activity and installation of drinking water wells in the area of contamination, and would prohibit changes in zoning of the Site (e.g., change from commercial to residential use). Land-use restrictions would be implemented through legal instruments such as deeds and/or water well permitting processes. Further, fencing could be installed to encompass the entire property to prevent unauthorized access.

Long-term Monitoring. A long-term monitoring program would be implemented for the Site in accordance with a remedial action work plan. Long-term monitoring would include quarterly sampling and analysis of eight groundwater locations for, VOCs for the first two years. Following the first two years, monitoring would be decreased to semi-annually for years three and four, then every fifth quarter thereafter. Results of long-term monitoring would be incorporated into annual reports for the Site.

Annual Institutional Control Inspections and Reporting. Annual inspections would be conducted to ensure deed and land-use restrictions are being enforced. An annual report would be prepared documenting the inspection and the conditions observed.

11.4.1 Detailed Evaluation of Alternative 2

The following paragraphs present an assessment of Alternative 2 based upon the eight criteria identified above.

Compliance with New York State SCGs. This alternative would not meet Chemical-specific SCGs because it would not address soil contamination in excess of the 6 NYCRR Part 375 Remedial Program SCOs (NYSDEC, 2006) or groundwater in excess of Class GA groundwater standards. This alternative would not trigger any Location- or Action-specific SCGs.

Overall Protection of Human Health and the Environment. This remedial alternative would not protect public health and the environment through eliminating, reducing, or controlling existing or potential exposure pathways through removal, treatment, or engineering controls. This alternative would control potential human exposure pathways through implementation of institutional controls. This remedial alternative would not achieve the RAOs for soil and groundwater.

Short-term Impacts and Effectiveness. Implementation of land-use restrictions would not result in short-term impacts to human health or the environment.

Long-term Effectiveness and Permanence. This alternative would not include actions to address contaminated soils and groundwater at and in the vicinity of the Site. This remedy does not currently meet RAOs for soil and groundwater and, due to the Site-specific conditions (e.g., existing potential continuous source area), would not be expected to meet RAOs in the future.

Reduction of Toxicity, Mobility, and Volume. This alternative would not include actions to reduce the toxicity, mobility, or volume of hazardous material through treatment.

Implementability. No innovative technologies would be used as part of this alternative. Required services or materials required to implement this alternative are readily available. Coordination with state and local agencies would be required; however, implementation of land-use restrictions would not likely be difficult.

Cost-Effectiveness. The capital cost of this Alternative is $19,000. The NPW of this Alternative is $261,000. A summary of the costs associated with this alternative is presented in Table 11.1. Detailed cost analysis backup is provided in Appendix I.

Land Use. The current and reasonably anticipated future land use of the Site is for commercial purposes. Although this alternative would include institutional controls to prevent contact with contaminated soils, chlorinated solvent concentrations remaining at the site would not meet the SCOs for commercial use, and therefore this alternative would not be protective of potential commercial workers conducting subsurface work at the Site.

11.5 ALTERNATIVE 3: SOIL VAPOR EXTRACTION AND AIR SPARGING

Alternative 3 for the Site consists of:

- pre-design investigations
- SVE and Air Sparging pilot test
- construction of SVE and air sparging system;
- operation, maintenance, and monitoring of the treatment systems;
- long-term environmental monitoring;
- preparation of Annual Reports;

Pre-design investigation. It is assumed that if this alternative would be implemented, it would be implemented downgradient of the on-site building, thus relying on the existing SSDS to continue to extract VOCs from beneath the building foundation. A pre-design investigation of indoor air samples would be conducted to confirm that the existing SSDS is functioning appropriately; this would be conducted by collecting an indoor air sample with the SSDS in operation, and another sample after turning the SSDS off for several days. In addition, pre-design investigations will be conducted downgradient of the on-site building to fill data gaps in site-specific data for the final design of remedial actions. This investigation would include drilling up to five soil borings to a depth of 15 feet and sampling soil at up to two intervals. A groundwater sample would also be collected from each borehole as well as a soil vapor sample from the vadose zone. All samples would be tested for VOCs. The data collected from the pre-design investigation would be combined with existing data to delineate the areal and vertical extent of contamination. A pre-design investigation also would include a utility survey for existing below grade utilities. For FS costing purposes the treatment area includes locations downgradient of the on-site building where soil contamination in the vadose and saturated zones have been observed. This area is depicted in Appendix I.

Pilot Scale Test. Implementation of SVE and Air Sparging typically employs a pilot test to determine the site-specific radius of influence of the injection and extraction rates. For purposes of cost estimation and alternative evaluation, it has been assumed that the pilot-scale system will consist of two vertical SVE wells, two vertical air sparge wells, and two vapor/vacuum monitoring wells. The conveyance piping for the SVE wells will run aboveground through a knock-out tank designed to remove liquids from the vapor stream and connect to the blower. Vapor from the blower will be piped to a vapor treatment system prior to discharge to the atmosphere. Liquid from the knock-out tank will be discharged to a liquid treatment system and eventually to the ground surface. Polyethylene tubing placed inside the SVE and vapor/vacuum monitoring wells will be used as a sample port for the collection of field readings (e.g., subsurface vacuum and PID readings). The system will also be monitored using sample ports located at the junctions of the header pipe with the vapor extraction wells. The two air sparge wells will be installed deeper than the SVE wells and will be connected to a separate blower or air compressor. Air will be injected into the air sparge wells and the SVE wells and vacuum monitoring wells will be monitored to measure the air sparge well's zone of influence. After testing the SVE and air sparge wells independently of each other, all four (4) will be operated simultaneously to measure the overall radius of influence of the combined system by collecting additional vacuum readings, and additional PID readings and vapor samples for VOC analysis will be collected to determine off-gas treatment needs for full scale operation. Monitoring groundwater elevations in the SVE wells and other surrounding groundwater monitoring wells will also be conducted while the air sparge well is in operation to determine if the addition of air to the air sparge well causes mounding of the groundwater table. Mounding could cause flooding in the on-site building's basement due to the already high groundwater table and could cause significant water to be pulled through the SVE system. This pilot test shall provide enough information to design the final spacing of the SVE wells and air sparge wells as well as their respective depths and associated treatment components.

Full Scale Implementation. SVE along with air sparging would be implemented to address soil and groundwater contamination downgradient of the on-site building. SVE involves the application of a vacuum to the soil to remove volatile contaminants from the soil vadose zone. Air sparging involves the addition of air into the saturated zone to increase volatilization of the contaminants whereby the vapors are then removed from the ground using the SVE wells. The addition of air into the groundwater also increases the potential for biodegradation of contaminants that are not volatilized. Typically, the volatilized contaminants are captured for treatment prior to discharge to the atmosphere. Depending on local and state air discharge regulations, treatment and/or permitting of the air effluent may be required. SVE and air sparging can be implemented using vertical or horizontal wells. Horizontal extraction wells can be installed either in trenches or using horizontal (directionally drilled) borings, depending on contaminant zone geometry, drill rig access, and other site-specific factors.

Site soils primarily consist of sand, silt and gravel, which results in a very heterogenous material. For purposes of FS costing, it is assumed that vertical extraction wells would be used; the final decision to employ vertical or horizontal extraction wells will be made during remedial design. Due to the high groundwater table and the possible mounding effects from the air sparge wells, it may be determined during the design phase that shallow, horizontal wells are more appropriate for SVE at the site. For FS costing purposes spacing between wells was assumed to be 20 feet, and a total of up to 12 wells would be installed, including the two installed as part of the pilot test (five close to the on-site building, and up to seven towards the edge of the impacted area). In addition, it is assumed that up to five air sparge wells would be installed between the two rows of SVE wells, including the one installed as part of the pilot test. Air sparge wells provide a mechanism to add air/oxygen into the subsurface (preferably below the contaminated zone), allowing the air to move up through the contaminated zone increasing vaporization of the contaminants as well as increasing aerobic biodegradation capabilities of the soil.

Costing and design of the SVE and air sparge components of this alternative is based upon the following assumptions, some assumptions were based on the USEPA's Guide for Corrective Action Plan Reviewers (USEPA, 1994):

- The radius of influence for the SVE and air sparge wells is assumed to be 10 feet.
- Based upon the assumed radius of influence, an estimated twelve (12) extraction wells would be required (two of which will have been installed during the pilot test);
- Ten air sparge wells are assumed to be sufficient to move contaminants from the saturated zone to the vadose zone (one of which will have been installed during the pilot test) without causing additional indoor air issues or soil vapor issues downgradient of the Site.
- The average vertical thickness of the treatment area is about 10 feet (5 feet of vadose zone soil, and 5 feet of saturated soil and impacted groundwater);
- Ten vapor/vacuum monitoring points would be installed between the SVE and air sparge wells to monitor radius of influence.
- The design well head vacuum is assumed to be 25 inches of water, based upon the shallow vadose zone, the design extraction flow rate of 35 to 55 cubic feet per minute per well.
- Based upon assumed flow and vacuum requirements, a vapor recovery system capable of extracting up to 1,000 SCFM is assumed;
- Extraction wells will be constructed using 4-inch diameter PVC with 40-slot PVC well screens
- Extraction wells will be constructed with sand pack extending to 1-foot above the screened interval, above which would be 1-foot of bentonite followed by a 1-foot cement-bentonite seal to ground surface. Based upon this assumption, there would be, on average, a five foot screened interval per well.
- Air sparge wells would be installed to a depth of 20 feet with a five foot screened interval between 15 and 20 feet deep (generally below the contaminated zone). Sand pack will extend 1-foot above the screened interval, above which would be 1-foot of bentonite followed by cement grout to the surface.
- Air would be introduced to the air sparge wells at a rate of approximately 10 cubic feet per minute each.
- Conveyance piping for both the SVE and air sparge wells would be installed within trenches, so as not to prevent future use of the site parking area. The estimated total length of piping is 335 linear feet.
- Trenches will be backfilled with gravel or pea stone around the conveyance piping, and then with clean excavated site-soil which will be compacted; asphalt will be placed at the surface.

The SVE wells would be manifolded prior to the blower. The piping will be sloped to the extraction wells to allow condensate from the system to flow into the extraction wells and drain through the perforations. Flow control valves, pressure indicators and sample ports will be located prior to the manifold and at each individual well.

After the manifold, flow would pass through a knockout tank designed to remove liquids from the incoming vapor stream prior to the blower. From the blower, the vapor stream would be piped to a vapor treatment system consisting of two vapor-phase granular activated carbon (GAC) units. Treated vapors would be discharged to the atmosphere. Influent, mid-point and effluent sample ports would be located along the vapor collection and treatment system to evaluate treatment and ensure that vapors discharged to the atmosphere are within permit limits.

Liquids in the knockout tank would periodically be pumped through the liquid treatment system, which would simply consist of two small (drum-size) liquid-phase GAC units. Water would then be sampled at the effluent end of the GAC unit and discharged to ground surface. Discharge to a storm drain may need to be evaluated based upon results of the pilot test.

The air sparge wells would be manifolded together to a single blower. Flow control valves and pressure indicators will be located at the manifold and at each individual well.

In addition, this alternative would also include institutional controls, as described under Alternative 2, to prevent exposure to contamination that remains at the site until the remediation goals are achieved.

Operation, Maintenance and Monitoring (OM&M). OM&M of the treatment systems would include weekly site visits. Weekly site visits would include routine and preventative maintenance, system measurements, and vapor sampling and analysis of system influent and effluent. Arrangements would also be made during the site visits to change out carbon as needed. It is assumed for the purpose of this FS that the remedial system will operate for 10 years. If there is a rebound in vapor or groundwater concentrations observed during continued monitoring following shut down of the system, the system operations will resume.

Long-term Monitoring. Long-term monitoring would be conducted to evaluate the effectiveness of the SVE and air sparging remedy. Monitoring would include groundwater sampling to evaluate the effectiveness of the on-site remediation. Results of the long-term monitoring and overall performance of the remedial alternative will be summarized in an annual report. Monitoring will be conducted on an approximate quarterly basis for years one and two following the start-up of the

SVE/air sparging system, on a semi-annual basis for years three and four, and every fifth quarter thereafter through year 30.

11.5.1 Detailed Evaluation of Alternative 3

Compliance with New York State SCGs. Alternative 3 would comply with Chemical-specific SCGs by use of SVE to reduce contaminant concentrations within the vadose and saturated zones located downgradient of the on-site building, thereby reducing the time necessary to meet SCGs. This alternative does not directly impact contaminants located under the building, however, the existing SSDS will continue to operate throughout the duration of the remedy.

Overall Protection of Human Health and the Environment. This alternative would protect public health and the environment by providing in-situ extraction of contaminated soil vapors and vapors from contaminated groundwater at the Former Speedy's Cleaners site to reduce levels of total VOCs. This alternative, however, does not directly impact contaminants located under the building, however, the SSDS will continue to operate throughout the duration of the remedy, to ensure the safety of building occupants/workers.

Short-term Impacts and Effectiveness. This alternative includes the installation of several SVE and air sparge wells in addition to trenching activities for the treatment system; therefore, there would be potential short-term adverse impacts and risks of the remedy upon site occupants. These risks would be addressed through coordination and communication with the property owner(s) and preparation and implementation of a construction health and safety plan. This alternative would decrease the level of contamination in the soil and groundwater on-site and would therefore reduce the continued migration of impacted groundwater off-site.

Long-term Effectiveness and Permanence. This alternative includes the removal of VOCs in soil and groundwater via SVE. Long-term effectiveness of this alternative would rely upon the radius of influence of the SVE wells and preferential pathways of soil vapors, raising uncertainties regarding the potential magnitude of mass reduction that could be achieved. Based on available soil data, there is one location on-site where VOC concentrations in soil are high enough to suggest a possible source of continuous groundwater contamination. This alternative may not be effective at reducing VOC concentrations of this magnitude in a timely manner, and rebound in the general area would likely occur once the treatment system has been turned off. Additionally, the influence that this system would have under the on-site building would be minimal and difficult to monitor, therefore, the impacted area beneath the building would rely on treatment via the existing SSDS, which may be required to run beyond the assumed duration of the treatment system and long-term monitoring.

Reduction of Toxicity, Mobility, and Volume. This alternative reduces the toxicity, mobility and volume of soil and groundwater contamination through vapor extraction, treatment and discharge to the atmosphere.

Implementability. The technologies used for implementation of a combined SVE and air sparging system are well developed and would not be difficult to implement. Special considerations would be employed to consider the proximity of the building with respect to the SVE wells as well as locations of underground utilities. A comprehensive utility survey would be conducted prior to the installation of injections wells, and wells that are within or near a suspected utility area would be pre-cleared either by hand or with vacuum excavation prior to well installation. Additionally, since the site is used regularly for commercial purposes, conveyance piping will be installed in trenches so as not to preclude use of the site for parking. Also, the property owner will be required to provide space for treatment equipment at the site. Services or materials required to implement this alternative are readily available.

Cost-Effectiveness. The capital cost of this Alternative is $559,000. The NPW of this Alternative is $1,640,000. A summary of the costs associated with this alternative is presented in Table 11.2. Detailed cost analysis backup is provided in Appendix I.

Land Use. The current and reasonably anticipated future land use of the Site is for commercial purposes. Because it is not clear whether SVE and air sparging will reduce the concentration of PCE at DP-17 to below the commercial use SCO, this alternative may not be protective of potential commercial workers conducting subsurface work at the Site.

11.6 ALTERNATIVE 4: IN-SITU ENHANCE BIODEGRADATION

Alternative 4 consists of the following components:

- pre-design investigations
- full-scale implementation of in-situ enhanced biodegradation
- long-term monitoring in the treatment areas and downgradient areas, and associated reporting
- periodic O&M activities, if needed

Pre-design Investigations. Pre-design investigations would be conducted to determine if dehalococcoides (the only known microorganisms capable of complete dechlorination of chloroethenes to non-toxic ethene) exist in groundwater, and would include a gene track analysis to determine if the dehalococcoides that are present contain the vinyl chloride reductase gene that is necessary to completely degrade chloroethenes through vinyl chloride. Pre-design investigations would also include injection testing to evaluate the ability to inject amendments into the subsurface. Up to 500 gallons of water will be injected, and observations will be made to record required time to inject and whether water short-circuits up the sides of the injection rods or to the surrounding ground surface. The injection test will help determine whether temporary injection points via Geoprobe® or permanent injection points via well installation are required.

As previously described there are several available organic substrates for enhanced biodegradation include, but are not limited to:

- sodium lactate
- propionate/butyrate
- methanol
- ethanol
- emulsified vegetable oil
- chitin
- Regenesis products: Hydrogen Release Compound™ (HRC^{TM}); and 3-D Microemulsion^{TM} (3DMe) ^{TM}
- molasses

The unit costs for these materials vary widely; however, the required quantities and delivery methods for implementation also vary widely and are best determined through site-specific laboratory and/or field studies. For purposes of the FS conceptual design; it has been assumed that in-situ enhanced biodegradation would be conducted using the Regenesis product 3DMe^{TM}. 3DMe^{TM} was chosen because it is less viscous than some of the other amendments, and therefore would travel best with groundwater flow, which is required since the injections will be conducted upgradient from the treatment area. The lower viscosity will also allow ease in injecting larger amounts of amendments at a time to increase overall distribution.

Full-scale Implementation. Full-scale implementation of in-situ enhanced biodegradation would consist of injecting the chosen amendment (assumed 3DMe^{TM}) into the groundwater upgradient of the existing site building. For the purpose of this FS it is assumed that this would be conducted via temporary injection points. It is assumed that given the groundwater direction and velocity that one row of injection points at an approximate 10-foot spacing (up to 10 points), located upgradient of the site building would be sufficient to distribute the amendments under the building and to other on-site impacted areas. This area has been chosen since it is not feasible to conduct injections beneath the building. Also, given the velocity of the groundwater and the size of the on-site footprint of impacted soil and groundwater on-site, injection downgradient of the building may not prove to be valuable since the amendments may travel too quickly off-site in order to be effective. Given that injections will not be conducted throughout the impacted area, and since the recommended amount of amendments is quite high, it is anticipated that the total dose of amendments would be split up into two injection events approximately 6 months apart. Injections during the second round will be staggered a few feet from the original injections for better overall distribution of the amendments.

Regenesis was contacted to provide conceptual costs and quantities required for this site-specific use (refer to Appendix I). Based on Regenesis' calculations, it is estimated that approximately 9,240 pounds of 3DMe^{TM} and 210 pounds of HRC^{TM} Primer would be required (approximately 475 pounds of amendment per injection point per event), to treat groundwater and saturated soil over an approximate 5-foot interval.

Additionally, two monitoring wells would be installed. These monitoring wells as well as other monitoring wells on site will be used to monitor the effectiveness of the injections. In addition, monitoring wells located down gradient from the site will be monitored for groundwater quality.

In addition, this alternative would also include institutional controls, as described under Alternative 2, to prevent exposure to contamination that remains at the site until the remediation goals are achieved.

Long-term Monitoring. Long-term monitoring would be conducted to evaluate the effectiveness of the enhanced biodegradation remedy as well as the effects of natural attenuation in the off-stie, downgradient areas. The evaluation of repeat injections would be based upon long-term monitoring results. Results of the long-term monitoring and overall performance of the remedial alternative will be summarized in an annual report. Monitoring will be conducted on an approximate quarterly basis for years one and two, on a semi-annual basis for years three and four, and every fifth quarter thereafter through year 30.

Periodic O&M Activities. Subsequent to full-scale implementation, monitoring of groundwater conditions would be conducted to determine the effectiveness of the implementation of in-situ enhanced biodegradation, as discussed in the previous section, and whether or not additional injections are warranted. For FS costing purposes, it has been assumed that the injections will take place over two events, separated by six months and that the need for additional injections beyond this will be evaluated during the 5-year review of the site.

11.6.1 Detailed Evaluation of Alternative 4

The following paragraphs present an assessment of Alternative 4 based upon the eight criteria identified above.

Compliance with New York State SCGs. Alternative 4 would comply with Chemical-specific SCGs by use of in-situ treatment to reduce contaminant concentrations within the plume, thereby reducing the time necessary to meet SCGs. Location- and Action-specific SCGs associated with this alternative includes 40 CFR Part 144 – Underground Injection Control Program.

Overall Protection of Public Health and the Environment. This alternative would protect public health and the environment by providing in-situ treatment of contaminated groundwater and soil at the Former Speedy's Cleaners site to reduce levels of total VOCs.

Short-term Impacts and Effectiveness. This alternative includes the addition of amendments using direct push technology at the Former Speedy's Cleaners site, as well as installation of additional monitoring wells; therefore, there would be potential short-term adverse impacts and risks of the remedy upon site occupants. These risks would be addressed through coordination and communication with the property owner(s) and preparation and implementation of a construction health and safety plan. This alternative would decrease the level of contamination in the soil and groundwater on-site and would therefore reduce the continued migration of impacted groundwater further off-site.

Long-term Effectiveness and Permanence. This alternative includes in-situ treatment of VOCs in soil and groundwater. Long-term effectiveness of this alternative would rely upon the effectiveness of the in-situ treatment, raising uncertainties regarding the potential magnitude of mass reduction that could be achieved. Based on available soil data, there is one location on-site where VOC concentrations in soil are high enough to suggest a possible source of continuous contamination (DP-17 area on Figure 4.1). This alternative may not be fully effective at reducing VOC concentrations of this magnitude.

Reduction of Toxicity, Mobility, or Volume with Treatment. This alternative reduces the toxicity, mobility and volume of groundwater contamination through in-situ treatment.

Implementability. The technologies used for implementation of enhanced biodegradation are well developed and would not be difficult to implement. Special considerations would need to be employed to consider the proximity of the building with respect to the injection points as well as locations of underground utilities. In general, the amendments used for in-situ enhanced biodegradation are long-lasting and migrate with groundwater flow, and therefore are expected to reach the impacted area located beneath and downgradient of the site building. A comprehensive utility survey would be conducted prior to the installation of injections wells, and injection points that are within or near a suspected utility area would be pre-cleared either by hand or with vacuum excavation prior to installation. Services or materials required to implement this alternative are readily available.

Cost-Effectiveness. The capital cost of this Alternative is $105,000. The NPW of this Alternative is $517,000. A summary of the costs associated with this alternative is presented in Table 11.3. Detailed cost analysis backup is provided in Appendix I.

Land Use. The current and reasonably anticipated future land use of the Site is for commercial purposes. Because it is not clear whether enhanced biodegradation will reduce the concentration of PCE at DP-17 to below the commercial use SCO, this alternative may not be protective of potential commercial workers conducting subsurface work at the Site.

11.7 ALTERNATIVE 5: ON-SITE EXCAVATION AND IN-SITU ENHANCED BIODEGRADATION

Alternative 5 consists of the following components:

- pre-design investigation
- mobilization and temporary facilities and controls
- full-scale excavation and in-situ enhanced biodegradation
- site restoration
- long-term monitoring in the treatment areas and downgradient areas, and associated reporting

Pre-design Investigations. Pre-design investigations would be conducted to determine the horizontal and vertical extents of the source area excavation in the vicinity of monitoring well MW-212 (and soil sample location DP-17), as well as the horizontal and vertical extents of the localized excavation in the vicinity of DP-13. This would include advancing up to twelve Geoprobe® borings (six at each excavation area) and collecting soil samples at various depths from each boring based on field screening. In addition, composite samples from within the known limits of excavations (the most impacted Geoprobe® location based on PID readings) will be collected and submitted for disposal pre-characterization purposes, so that direct loading of PCE contaminated soil can be performed. Sampling of site groundwater would also be conducted to determine the applicability of enhanced bioremediation as described in Subsection 11.4 and injection testing would also be conducted.

Full-scale Implementation. Full-scale implementation of this remedial alternative includes excavation of the soil source areas (areas around DP-17 and DP-13- Shown in Appendix I) and in-situ enhanced biodegradation. Since the excavation activities will include the removal of monitoring well MW-212, two replacement monitoring wells will be installed immediately downgradient of the source area excavation (one northeast and one southeast of the excavation area) prior to excavating and an initial groundwater sample from each will be collected and analyzed for VOCs. The excavation of soil around DP-13 is not expected to damage nearby monitoring wells, and no additional wells are proposed to be installed around the excavation since there are several existing wells that can be monitored.

Following installation of the groundwater monitoring wells, excavation activities will begin and will require the removal of asphalt and the use of trench boxes or other means of shoring to stabilize the excavation areas. Excavated soil would be segregated depending upon results from the pre-design investigations as well as total VOC readings collected in the field with a PID, whereas material deemed for disposal will be directly loaded for off-site disposal and material deemed re-usable will be stockpiled on-site. Dewatering of the excavation may be required. If necessary, dewatering effluent would be pumped to a temporary tank to allow for settling of solids, treated using activated carbon, sampled and discharged to a storm sewer. No confirmatory samples will be collected since the sides of the excavations will not be accessible and the bottom of the excavations will be weathered bedrock, the limits of the excavations will be predetermined based on pre-design investigations. Prior to backfilling the excavation areas, dewatering will be discontinued and the excavations will be allowed to fill with groundwater. Once groundwater enters the excavations the chosen amendment (HRC^{TM}) will be added to the open excavations.

The excavations will then be backfilled using primarily crushed stone to ensure that sufficient compaction is achieved. The segregated/re-usable soil will be used as backfill (above the static groundwater table) and will be compacted in six inch lifts. The extent of the excavation will be finished to meet existing conditions. Additionally a six-inch diameter stainless steel well, screened from approximately 7-12 feet deep, will be placed in the center of each excavation to facilitate future injections. Stainless steel will be used in lieu of PVC, to ensure that it is not damage by heavy equipment during the backfilling process.

Regenesis (the manufacturer of HRC^{TM}) was contacted to provide conceptual costs and quantities required for this site-specific use (refer to Appendix I) of the biodegradation amendment. Based on Regenesis' calculations and recommendations, it is estimated that approximately 210 pounds of

HRC^{TM} and 90 pounds of HRC^{TM} Primer would be required to be added to each of the open excavations. It is assumed, for conservative purposes, that this dose would be re-applied by use of the stainless steel wells, six months following the excavation activities.

In addition to the soil excavations and addition of biological amendments to the open excavations, enhanced biodegradation via injection would be completed upgradient of the on-site building as described in Alternative 4 for the purpose of treating the areas under the on-site building and the areas not impacted by the addition of amendment within the excavation areas.

In addition, this alternative would also include institutional controls, as described under Alternative 2, to prevent exposure to contamination that remains at the site until the remediation goals are achieved.

Long-term Monitoring. Long-term groundwater quality monitoring would be conducted both on-site and downgradient from the site to evaluate the effectiveness of having removed the heavily contaminated soil from the source areas, impacted vadose zone soil, and the implementation of the biodegradation remedy on-site. The need for repeat injections beyond those described under full-scale remediation, would be evaluated based upon long-term monitoring results. Results of the long-term monitoring and overall performance of the remedial alternative will be summarized in an annual report. Monitoring will be conducted on an approximate quarterly basis for years one and two, on a semi-annual basis for years three and four, and every fifth^{h} quarter thereafter through year 30.

Periodic O&M Activities. Subsequent to full-scale implementation, monitoring of groundwater conditions would be conducted to determine the effectiveness of the initial implementation of the soil excavations and the in-situ enhanced biodegradation, as discussed in the previous section, and whether or not additional injections are warranted. For FS costing purposes, it has been assumed that the injections will take place over two events, separated by six months and that the need for additional injections beyond this will be evaluated during the 5-year review of the site.

11.7.1 Detailed Evaluation of Alternative 5

The following paragraphs present an assessment of Alternative 5 based upon the eight criteria identified above.

Compliance with New York State SCGs. Alternative 5 would comply with Chemical-specific SCGs by use of excavation and in-situ treatment to reduce contaminant concentrations within the vadose and saturated soil and within the groundwater plume, thereby reducing the time necessary to meet SCGs. Location- and Action-specific SCGs associated with this alternative includes 40 CFR Part 144 – Underground Injection Control Program.

Overall Protection of Public Health and the Environment. This alternative would protect public health and the environment by the excavation and removal of soil contamination in excess of commercial use criteria in the saturated zone, by excavating the most highly impacted soil within the vadose zone and by providing in-situ treatment of contaminated groundwater and soil at the Former Speedy's Cleaners site to reduce levels of total VOCs.

Short-term Impacts and Effectiveness. This alternative includes the excavation of contaminated soil; the addition of amendments using direct push technology; as well as installation of additional monitoring wells; therefore, there would be potential short-term adverse impacts upon site occupants. These risks would be addressed through coordination and communication with the property owner(s) and preparation and implementation of a construction health and safety plan. This alternative would be effective in the short term since it will immediately remove soil contamination in the most highly impacted areas of the site, thus reducing contaminant migration.

Long-term Effectiveness and Permanence. This alternative includes excavation of impacted soil and in-situ treatment of VOCs in soil and groundwater. Long-term effectiveness will be realized because the most highly contaminated areas of the site will have been removed. Additional long-term effectiveness would depend upon the effectiveness of the in-situ treatment, raising uncertainties regarding the potential magnitude of mass reduction that could ultimately be achieved.

Reduction of Toxicity, Mobility, or Volume with Treatment. This alternative reduces the toxicity, mobility and volume of groundwater contamination through in-situ treatment. Additionally, it reduces the mobility and volume of contaminants by excavation and off-site disposal of soil.

Implementability. The technologies used for implementation of soil excavation and enhanced biodegradation are well developed and would not be difficult to implement. Special consideration is required to consider the proximity of the building and underground utilities with respect to the injection points and the excavation areas. In general, the amendments used for in-situ enhanced biodegradation are long-lasting and migrate with groundwater flow, and therefore are expected to reach the contaminated soil located beneath and downgradient of the site building. A comprehensive utility survey would be conducted prior to the installation of injections wells, and wells that are within or near a suspected utility area would be pre-cleared either by hand or with vacuum excavation prior to well installation. Services or materials required to implement this alternative are readily available.

Cost-Effectiveness. The capital cost of this Alternative is $311,000. The NPW of this Alternative is $745,000. A summary of the costs associated with this alternative is presented in Table 11.4. Detailed cost analysis backup is provided in Appendix I.

Land Use. The current and reasonably anticipated future land use of the Site is for commercial purposes. This alternative will reduce the concentrations of contaminants at the site to below the commercial use SCOs, as well as the protection of groundwater SCOs, and will therefore meet the land use requirements for the Site.

11.8 ALTERNATIVE 6: SOURCE AREA EXCAVATION, ON-SITE AND OFF-SITE IN-SITU ENHANCED BIODEGRADATION, AND SOIL VAPOR EXTRACTION

Alternative 6 consists of the following components:

- pre-design investigation
- bench scale testing
- pilot test
- mobilization and temporary facilities and controls

- full-scale excavation, in-situ enhanced biodegradation and SVE installation
- site restoration
- long-term operation and maintenance, monitoring both on-site and downgradient and associated reporting

Alternative 6 is being presented as the most likely alternative to restore the site to pre-disposal conditions. This alternative includes a combination of several alternatives that have already been presented in this FS and also includes additional remedial activities such as vapor extraction beneath the existing building and enhanced biodegradation of groundwater in downgradient off-site areas. Although this alternative would provide remediation to the levels of pre-disposal site conditions, the additional benefits are minimal in comparison to some of the other alternatives and therefore the additional work, time and costs are not fully justified.

Pre-design Investigations. Pre-design investigations would be conducted to determine the horizontal and vertical extents of the source area excavations in the vicinity of monitoring well MW-212, similar to Alternative 5. In addition, sampling of on-site and off-site groundwater would be conducted to determine the applicability of enhanced bioremediation and injection testing.

A pre-design investigation similar to that of Alternative 3 would also be conducted including indoor air sampling, and the collection of soil and vapor samples both beneath and outside of the on-site building to fill data gaps for the SVE portion of the remedial alternative. For FS costing purposes the treatment area includes locations both downgradient of the on-site building and beneath the building where soil contamination in the vadose zone has been observed.

Pilot Scale Test. Similarly to Alternative 3, a pilot scale test would be implemented to determine the specific radius of influence of the SVE wells. This alternative does not include air sparging since it relies on enhanced bioremediation to treat the saturated zone, so the pilot test would only include SVE wells. However, since the square area of the overall SVE system would be bigger than that of Alternative 3 (includes portions under the building), the pilot test would include a few additional SVE wells.

Full-scale Implementation. Full-scale implementation of this remedial alternative includes excavation of the two source areas, in-situ enhanced biodegradation, and installation and operation of an SVE system. This will be conducted by following the procedures described in Alternative 5 for excavation in the source areas and in-situ enhanced biodegradation. SVE wells, similar to those installed in Alternative 3, would be installed both beneath and downgradient of the on-site building to treat the vadose zone soil. Conveyance piping would be installed between all of the SVE wells and a treatment system would be placed on-site.

In addition to the components of this alternative that are similar to those of Alternative 3 and 5, Alternative 6 would also include in-situ enhanced biodegradation off- site. It has been assumed that this would include approximately 10 times the effort and amendments as what is proposed for the temporary injections in Alternative 5 based primarily of the overall surface area (and therefore impacted volume) of the downgradient plume. Injections in the downgradient area, as with the on-site area would occur twice, approximately six months apart.

Operation, Maintenance and Monitoring (OM&M). OM&M of the SVE treatment system would include weekly site visits. Weekly site visits would include routine and preventative maintenance, system measurements, and vapor sampling and analysis of system influent and effluent. Arrangements would also be made during the site visits to change out carbon as needed. It is assumed for the purpose of this FS that the remedial system will operate for 10 years. If there is a rebound in vapor or groundwater concentrations observed during continued monitoring following shut down of the system, the system operations will resume.

Long-term Monitoring. Long-term monitoring would be conducted both on-site and off-site to evaluate the effectiveness of the alternative. The need for repeat injections beyond those described under full-scale remediation, would be evaluated based on long-term groundwater quality monitoring results. Results of the long-term monitoring and overall performance of the remedial alternative will be summarized in an annual report. Monitoring will be conducted on an approximate quarterly basis for years one and two, on a semi-annual basis for years three and four, and every fifth quarter thereafter through year 30.

Periodic O&M Activities. Subsequent to full-scale implementation, monitoring of groundwater conditions would be conducted to determine the effectiveness of the initial implementation of the soil excavation and the in-situ enhanced biodegradation, as discussed in the previous section, and whether or not additional injections are warranted. For FS costing purposes, it has been assumed that the injections will take place over two events, separated by six months and that the need for additional injections beyond this will be evaluated during the 5-year review of the site.

11.8.1 Detailed Evaluation of Alternative 6

The following paragraphs present an assessment of Alternative 6 based upon the eight criteria identified above.

Compliance with New York State SCGs. Alternative 6 would comply with Chemical-specific SCGs by use of in-situ treatment to reduce contaminant concentrations within the plume, and SVE to reduce contaminant concentrations in the vadose zone, thereby reducing the time necessary to meet SCGs. Location- and Action-specific SCGs associated with this alternative includes 40 CFR Part 144 – Underground Injection Control Program. Additionally, this alternative will immediately eliminate soil concentrations in excess of the commercial use criteria by means of excavation and off-site disposal.

Overall Protection of Public Health and the Environment. This alternative would protect public health and the environment by the excavation and removal of soil contamination in excess of commercial use criteria, by providing in-situ treatment of contaminated groundwater and saturated soil both on-site and downgradient of the site, and by providing soil vapor extraction to treat vadose zone soil on-site.

Short-term Impacts and Effectiveness. This alternative includes the excavation of contaminated soil; the addition of amendments using direct push technology; installation of an SVE system (including SVE wells beneath the building); as well as installation of additional monitoring wells; therefore, there would be potential short-term adverse impacts upon site occupants. These risks would be addressed through coordination and communication with the property owner(s) and preparation and implementation of a construction health and safety plan, however it could likely cause significant disruption in day-to-day commercial activities at the site. This alternative would be effective in the short term since it will immediately remove soil contamination in the most highly impacted areas of the site, thus reducing migration.

Long-term Effectiveness and Permanence. This alternative includes excavation of impacted soil, in-situ treatment of VOCs in soil and groundwater, and ex-situ treatment of VOCs via SVE. Long-term effectiveness will be realized because the most highly impacted areas of the site will have been removed. Additional long-term effectiveness would rely upon the effectiveness of the in-situ treatment and the SVE system, raising uncertainties regarding the potential magnitude of mass reduction that could ultimately be achieved.

Reduction of Toxicity, Mobility, or Volume with Treatment. This alternative reduces the toxicity, mobility and volume of groundwater contamination through in-situ treatment. Additionally, it reduces the mobility and volume of contaminants by excavation and off-site disposal of soil and by implementation of an SVE system.

Implementability. The technologies used for implementation of soil excavation, in-situ enhanced biodegradation and SVE are well developed and would not be difficult to implement. Special consideration would need to be employed to consider the proximity of the building and location of underground utilities with respect to the injection points, the excavation area, and the location of SVE wells and conveyance piping. Installation of SVE wells and conveyance piping under the building could cause challenges with respect to available room and interference with day to day activities at the site building. A comprehensive utility survey would be conducted prior to any subsurface activities and good communications with the property owner(s) and/or business managers would be required. Services or materials required to implement this alternative are readily available.

Cost-Effectiveness. The capital cost of this Alternative is estimated at $1,783,000. The NPW of this Alternative is $3,052,000. A summary of the costs associated with this alternative is presented in Table 11.5. Detailed cost analysis backup is provided in Appendix I.

Land Use. The current and reasonably anticipated future land use of the Site is for commercial purposes. This alternative will reduce the concentrations of contaminants at the site to below the commercial use SCOs, as well as the protection of groundwater SCOs, and will therefore meet the land use requirements for the Site.

12.0 COMPARATIVE ANALYSIS OF ALTERNATIVES

The comparative analysis evaluates the relative performance of each alternative using the same criteria by which the detailed analysis of each alternative was conducted. The purpose of the comparative analysis is to identify the advantages and disadvantages of each alternative relative to one another to aid in selecting an overall remedy for the Former Speedy's Cleaners site.

The comparative analysis includes a narrative discussion of the strengths and weaknesses of the alternatives relative to one another with respect to each criterion, and how reasonable variations of key uncertainties could change the expectations of their relative performance, as applicable. The comparative analysis presented in this document uses a qualitative approach to comparison, with the exceptions of comparing alternative costs and the required time to implement each alternative.

A comparison of the capital and long-term costs associated with the remedial alternatives is presented in Table 12.1. Table 12.2 provides a summary of the comparative analysis of the groundwater remedial alternatives, respectively, to the first six evaluation criteria. Detailed cost analysis backup is provided in Appendix I.

12.1 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES

The following paragraphs present a comparison of the remedial alternatives evaluated in detail in Section 11.0, relative to the first eight evaluation criteria.

Compliance with New York State SCGs. Alternatives 1 and 2 would not comply with Chemical-specific SCGs, and would not decrease on-site contaminant concentrations or off-site contaminant migration. Alternative 3 provides SVE and treatment to reduce contaminant concentrations, but does not address the impacted area located beneath the site building. Alternatives 4, 5 and 6 would provide in-situ treatment while complying with 40 CFR Part 144 – Underground Injection Control Program and the Effluent Limitations. Alternative 5 would provide immediate removal of the most highly contaminated soil on Site (both in the saturated and vadose zones). Alternative 6, being a combination of several of the alternatives, would comply with chemical-specific SCGs in the on-site vadose zone (including under the building), and in the saturated zone both on-site and off-site.

Relative to overall compliance with SCGs, Alternative 6 rates highest at meeting this evaluation criterion because it includes a combination of alternatives to address soil and groundwater contamination on-site and enhanced biodegradation to address site contaminants in off-site groundwater.

Overall Protection of Public Health and the Environment. Alternative 1 does not provide protection of public health and the environment because no further actions would be conducted to reduce or control groundwater and soil contamination. Alternative 2 would provide institutional controls to protect public health but does not provide active means of remediation. Alternative 3 is protective of public health and the environment because it reduces contamination by means of vapor extraction. Alternatives 4 and 5 are protective of public health and the environment due to contaminant reduction by means of in-situ treatment. Alternative 5 would remove the most highly contaminated soils from the site that potentially represent a continuous source of groundwater contamination. Alternative 6, actively addresses vadose zone contamination under the building and groundwater contamination downgradient of the site, however the vapors under the site building are currently being addressed by the on-site SSDS, and groundwater downgradient of the site is not used for drinking, nor have downgradient SVI sampling results indicated that SVI is pathway of concern.

Alternative 6 rates highest at meeting the evaluation criterion for overall protection of the environment. However, Alternatives 5 and 6 rate equally high at meeting the evaluation criterion for overall protection of public health.

Short-term Impacts and Effectiveness. Alternatives 1 and 2 would not include any construction activities; therefore, there would be no potential for short-term adverse impacts of the remedy upon the community, the workers, and the environment during the construction. Alternatives 1 and 2 would not, however, reduce contaminant concentrations or the potential for off-site migration. Alternative 3 requires time to install SVE and air sparge wells, associated conveyance piping and the treatment system, there are potential short-term adverse impacts upon the community, workers and the environment. Alternative 3 also requires long-term operation, maintenance, and monitoring to achieve contaminant reduction. Alternatives 4, 5 and 6 would require the use of temporary injection points for amendment application, which could be completed relatively quickly. Alternative 5 would require excavation of two small areas presenting potential short-term adverse impacts upon the community, workers and the environment, however the excavation activities would be completed fairly quickly. Alternative 6 would require excavation in two areas and would also include drilling and trenching both indoors and outdoors to install the SVE system. Alternative 6 would take the most time to implement, and would rely upon long-term operation, maintenance, and monitoring to achieve contaminant reduction.

Alternative 5 would best meet the short-term impact and effectiveness evaluation criterion, as it could be implemented in a relatively short period of time and would provide immediate results.

Long-term Effectiveness and Permanence. Alternative 1 would not meet RAOs because no remedial actions would be implemented at the Site. This alternative would not provide long-term effectiveness. Alternative 2 is not likely to meet RAOs because no active remedial actions would take place other than protecting human health through the use of institutional controls. Alternative 3 would provide long-term effectiveness, but would take a significant amount of time to meet RAOs, requires ongoing operation, monitoring and maintenance of the treatment system, and has the potential for contaminant concentration rebound after the system is turned off. Alternatives 4 and 5 will both provide long-term effectiveness at reducing VOC concentrations in soil and groundwater, however, Alternative 4 may not be successful at reducing the high contaminant concentrations in the source areas, and therefore permanence of the remedial alternative may not be realized. Alternatives 5 and 6 would provide excavation of the source areas in addition to in-situ treatment and would therefore remove the potential, continuous source thereby providing permanence with regards to the remediation. Alternative 5 relies on the continued operation of the SSDS to remove soil vapors from under the building, whereas Alternative 6 would more aggressively treat this area via SVE. Alternative 6 actively treats residual groundwater contamination downgradient of the Site; other alternatives do not directly address this off-site area.

Relative to long-term effectiveness and permanence, Alternative 6 would best meet this evaluation criterion, followed closely by Alternative 5 because they both remove the source areas and provide treatment of residual soil and groundwater contamination.

Reduction of Toxicity, Mobility, or Volume with Treatment. Alternatives 1 and 2 would not reduce the toxicity, volume, and mobility of groundwater and soil contamination. Alternatives 3 and 6 would reduce the toxicity and volume of contamination in the ground by soil vapor extraction, and may also reduce the mobility of contamination by evaporation and capturing of VOC concentrations from the groundwater. However it would not meet the requirement of reduction in toxicity and volume unless treatment, rather than disposal, of spent carbon is included. Alternatives 4, 5 and 6 include in-situ treatment to reduce the toxicity, mobility, and volume of contamination. Alternatives 5 and 6 include the removal and disposal of contaminated soil which would reduce mobility of contamination at the site, however, the removal of this soil is not considered reduction of toxicity and volume since it would simply be relocated elsewhere for disposal rather than being treated.

Alternative 4 would best meet this evaluation criterion, followed by Alternative 5.

Implementability. Alternative 1 does not require any activities to be implemented; however, it would be difficult to obtain regulatory approval of this alternative. Alternative 2 is a widely accepted alternative; however, it too would be difficult to obtain regulatory approval since it does not include any active remediation.

The SVE technologies used for implementation of Alternatives 3 and 6 are widely used and accepted, and would not be difficult to implement. These alternatives would, however, require heavy equipment, space, and a significant amount of time and effort to implement which may interfere with day to day business activities at the site, and would require access agreements and coordination with the property owner(s). Alternative 6 would have an even greater impact since it requires SVE well and trench installation beneath the building.

The use of in-situ enhanced biodegradation in Alternatives 4, 5 and 6 are generally becoming more widely used and accepted, and would not be significantly difficult to implement. Services and materials required to implement these alternatives are readily available. A primary obstacle to successful implementation of these remedies is the location of the on-site building over a large portion of the treatment area. However, the amendments used for in-situ enhanced biodegradation are long-lasting and migrate with groundwater flow. In-situ enhanced biodegradation, however, may not be effective at treating highly contaminated areas (e.g. DP-17 area); therefore Alternative 5 and 6 also include excavation of the source areas. Excavation is also a widely used and accepted remedial technology and is easy to implement, however, it will cause some interference with day to day work activities at the site and will require good communications with the property owner.

Alternative 4 would best meet this evaluation criterion, followed by Alternative 5.

Cost-Effectiveness. A comparison of the capital and long-term costs associated with the remedial alternatives is presented in Table 12.1. The costs for Alternative 1 is $0 per year, with no costs for capital improvements, however, the alternative does not provide any remediation of existing conditions. The following is a summary of the capital costs and NPW for the various alternatives.

Alternative No / Name	Capital Costs	Net Present Worth
1 – No Further Action	$ 0	$ 0
2 – No Further Action with Site Management	$ 19,000	$ 261,000
3 –Soil Vapor Extraction and Air Sparging	$ 559,000	$ 1,640,000
4 – In-Situ Enhanced Biodegradation	$ 105,000	$ 517,000
5 – On-site Excavation and In-Situ Enhanced Biodegradation	$ 311,000	$ 745,000
6 –Source Area Excavation, On-site and Off-site In-Situ Enhanced Biodegradation, and Soil Vapor Extraction	$ 1,809,000	$ 3,052,000

Land Use. The current and reasonably anticipated future land use of the Site is for commercial purposes. Alternatives 1 and 2 will not reduce the concentrations of contaminants at the site to below the commercial use SCOs. Alternatives 3 and 4 may also not be effective in reducing the contaminants of concern to below the commercial use SCOs. Alternatives 5 and 6 reduce the concentrations of contaminants at the site to below the commercial use SCOs, as well as the protection of groundwater SCOs, and will therefore meet the land use requirements for the Site.

Alternatives 5 and 6 would best meet the current and anticipated future land use of the site.

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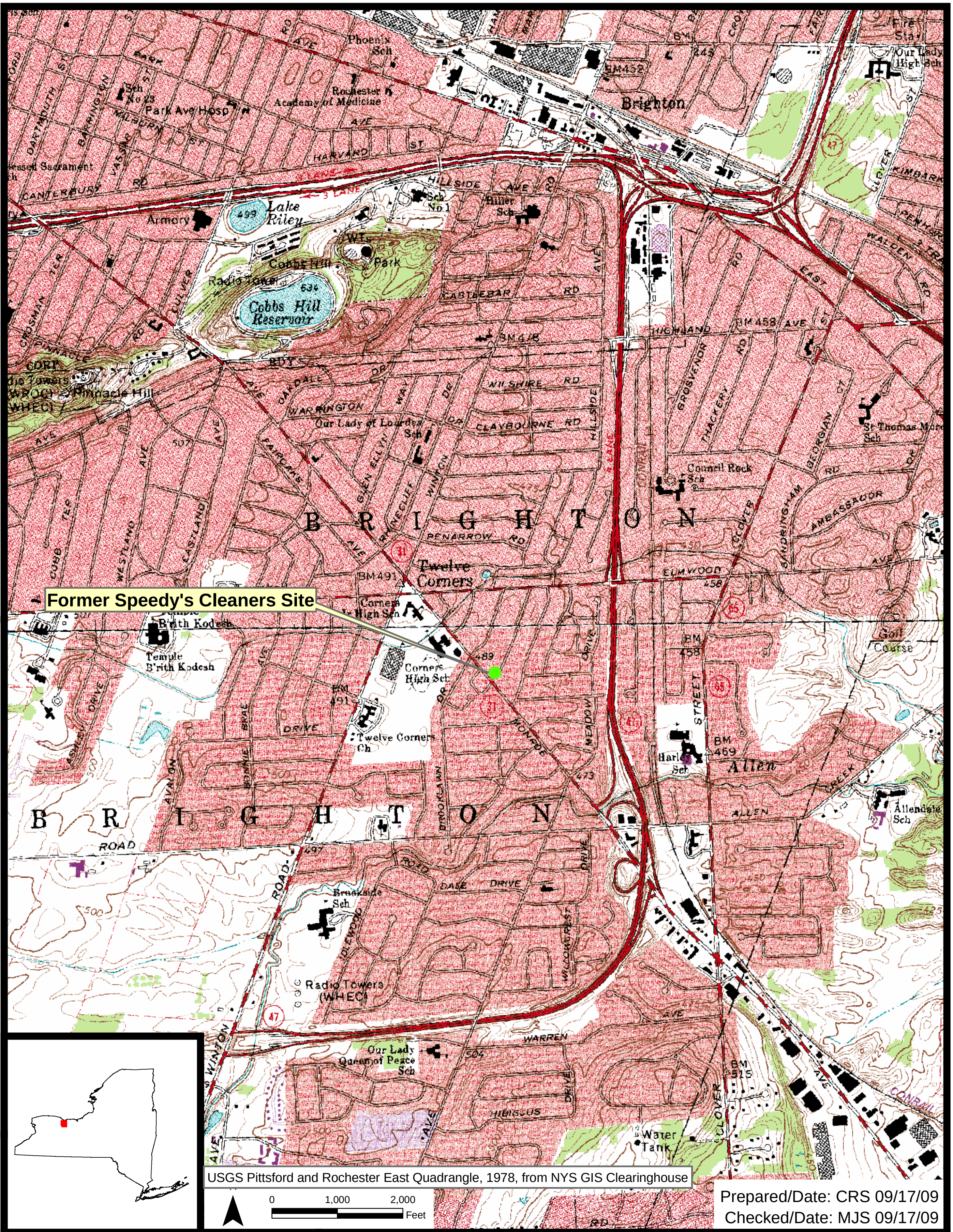
FIGURES



USGS Pittsford and Rochester East Quadrangle, 1978, from NYS GIS Clearinghouse

Prepared/Date: CRS 09/17/09
Checked/Date: MJS 09/17/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Site Location
Project No. 3612-08-2109
Figure 1.1

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Aerial photo from NYS GIS Clearinghouse

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NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Site Features

Project 3612-08-2109

Figure 1.2

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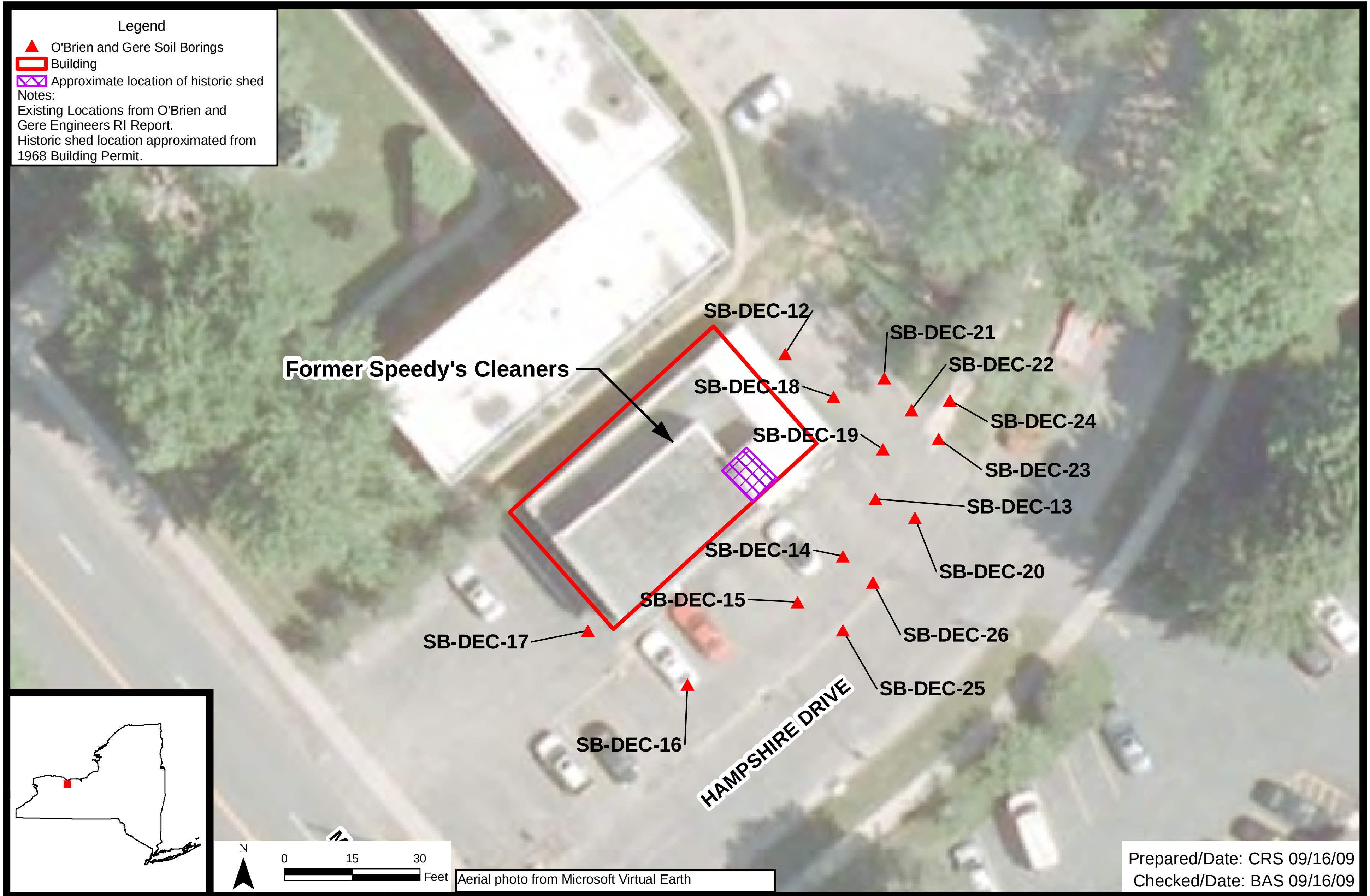

Notes:
Existing Locations from O'Brien and Gere Engineers RI Report.
Historic shed location approximated from 1968 Building Permit.

Aerial photo from Microsoft Virtual Earth

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NYSDEC
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Brighton, NY

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O'Brien and Gere
Soil Investigation Locations
Project 3612-08-2109 Figure 1.3

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Legend

⊕ Groundwater Monitoring Wells

🟥 Former Speedy's Cleaners Building

Notes:
Well locations from Popli Design Group.

Aerial photo from Microsoft Virtual Earth

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Brighton, NY

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Groundwater Monitoring Well Locations

Project 3612-08-2109

Figure 1.4

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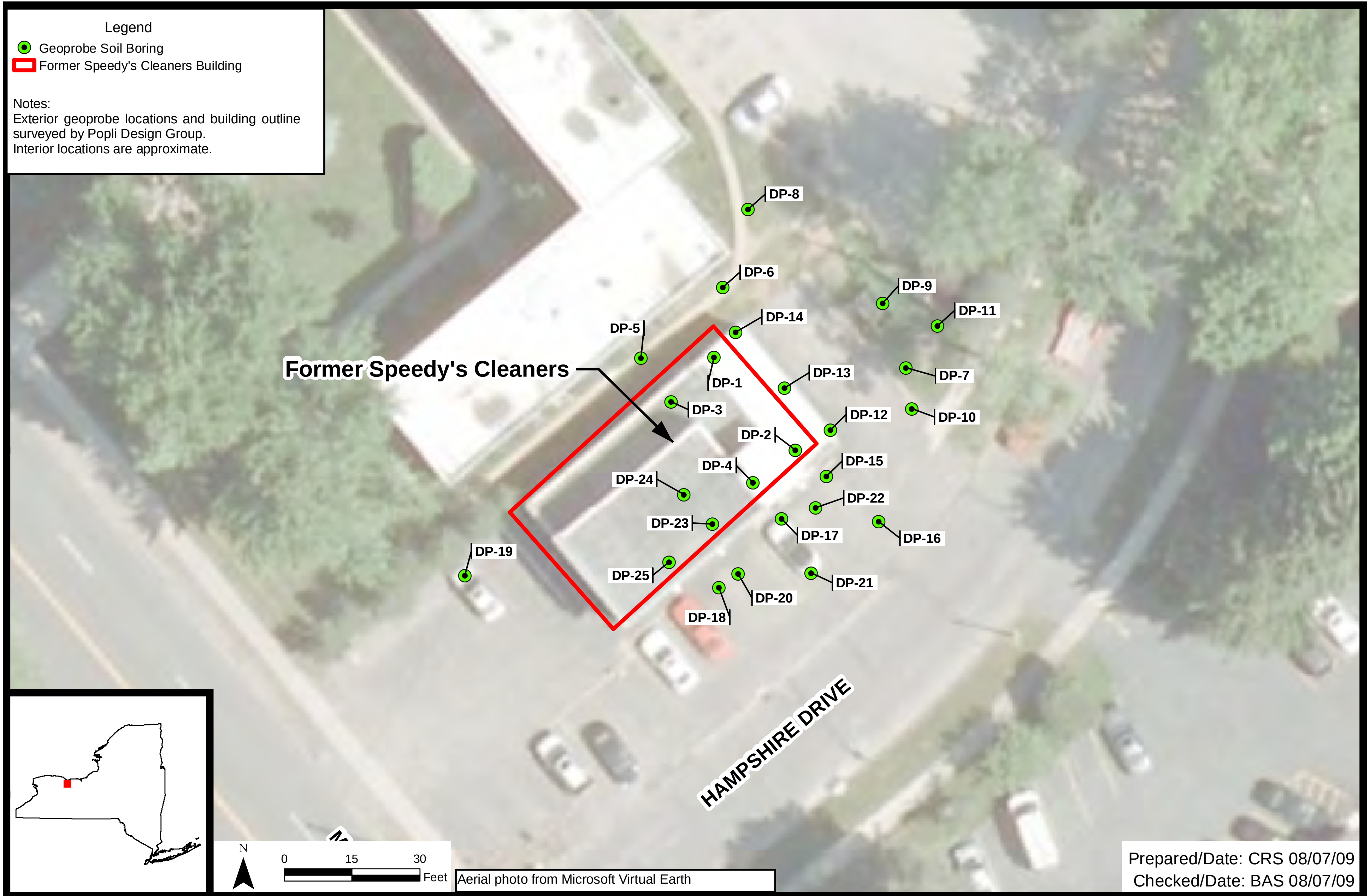

Notes:
Exterior geoprobe locations and building outline surveyed by Popli Design Group.
Interior locations are approximate.

Aerial photo from Microsoft Virtual Earth

Prepared/Date: CRS 08/07/09
Checked/Date: BAS 08/07/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

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Geoprobe Soil Sampling Locations

Project 3612-08-2109

Figure 2.1

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Notes:
Well locations from Popli Design Group.
Soil sample locations are approximate.

Aerial photo from Microsoft Virtual Earth

Prepared/Date: CRS 09/17/09
Checked/Date: BAS 09/17/09

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Brighton, NY

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Former Speedy's Cleaners RI Monitoring Well and Surface Soil Sample Locations

Project 3612-08-2109

Figure 2.2

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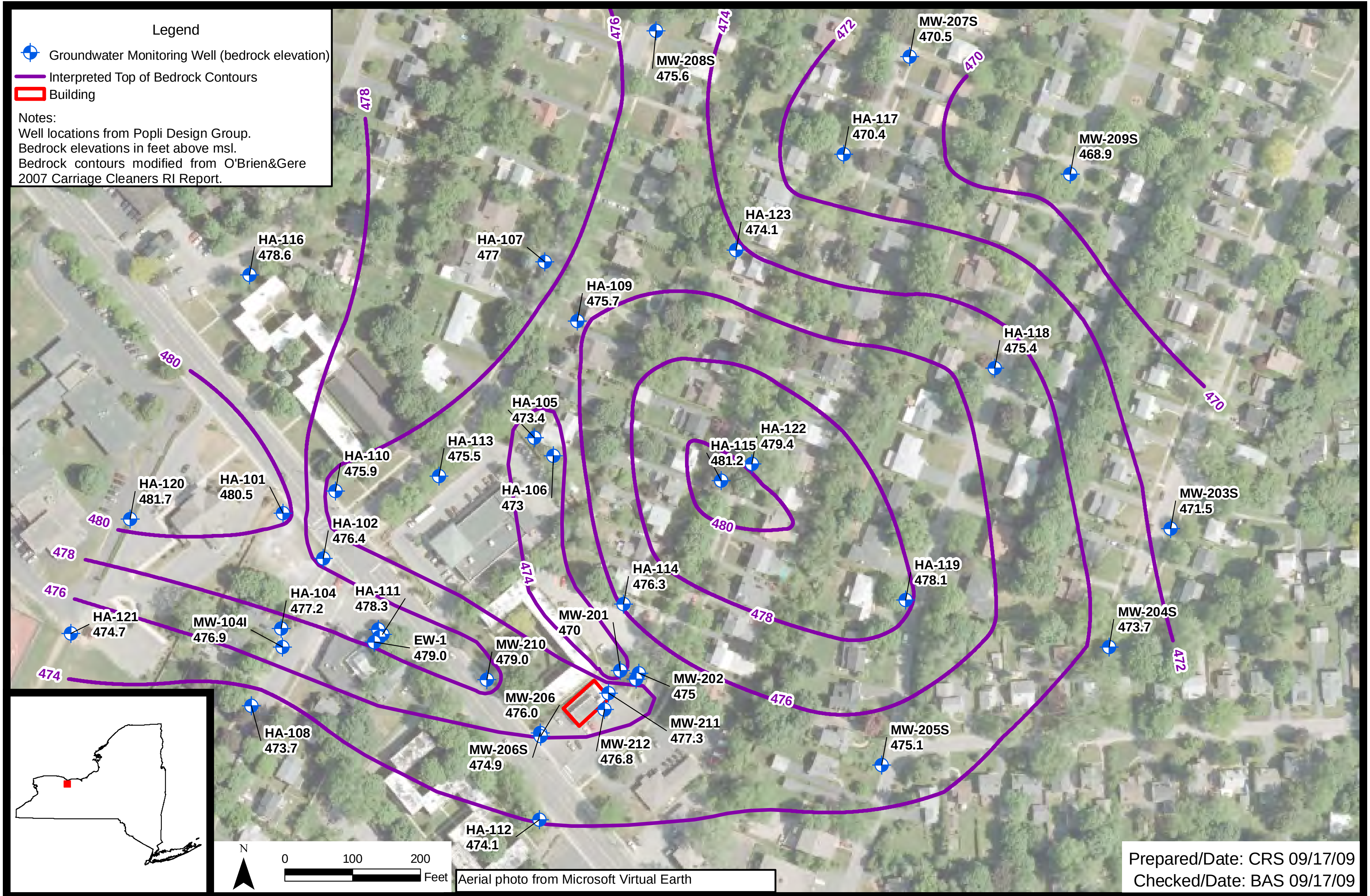
Legend

⊕ Groundwater Monitoring Well (bedrock elevation)

Interpreted Top of Bedrock Contours

🟥 Building

Notes:
Well locations from Popli Design Group.
Bedrock elevations in feet above msl.
Bedrock contours modified from O'Brien&Gere 2007 Carriage Cleaners RI Report.



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Checked/Date: BAS 09/17/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Interpreted Top of Bedrock Elevations

Project 3612-08-2109

Figure 3.1

Notes:
Well locations from Popli Design Group.
Groundwater elevations in feet above msl.
Water level measurements collected by MACTEC on January 20, 2009.

Aerial photo from Microsoft Virtual Earth

Prepared/Date: CRS 09/17/09
Checked/Date: BAS 09/17/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Interpreted Groundwater Surface Contours
January 2009
Project 3612-08-2109 Figure 3.2

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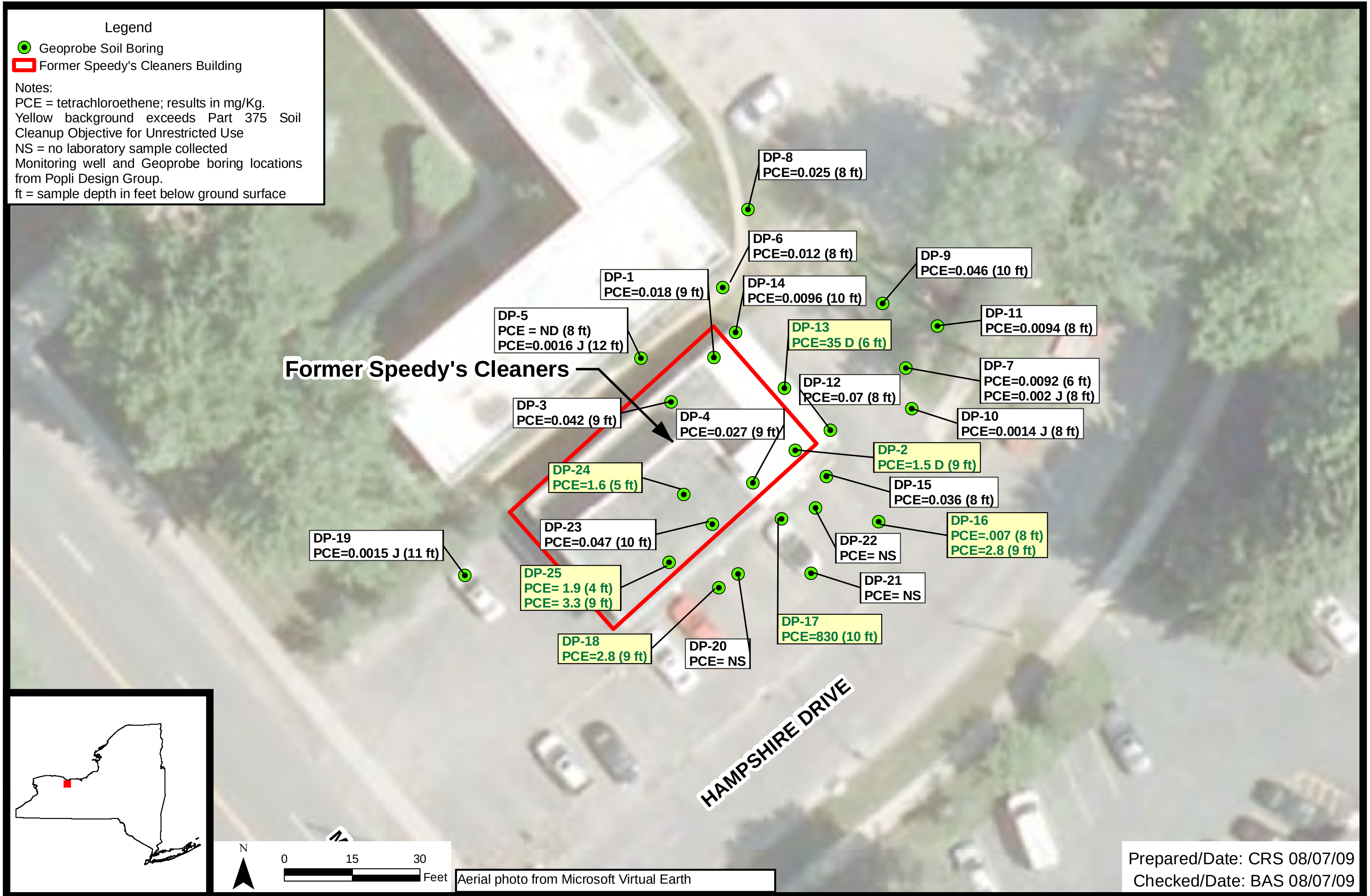

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● Geoprobe Soil Boring

🟥 Former Speedy's Cleaners Building

Notes:

PCE = tetrachloroethene; results in mg/Kg.

Yellow background exceeds Part 375 Soil Cleanup Objective for Unrestricted Use

NS = no laboratory sample collected

Monitoring well and Geoprobe boring locations from Popli Design Group.

ft = sample depth in feet below ground surface

Aerial photo from Microsoft Virtual Earth

Prepared/Date: CRS 08/07/09
Checked/Date: BAS 08/07/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

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PCE Concentrations in Soil

Project 3612-08-2109

Figure 4.1

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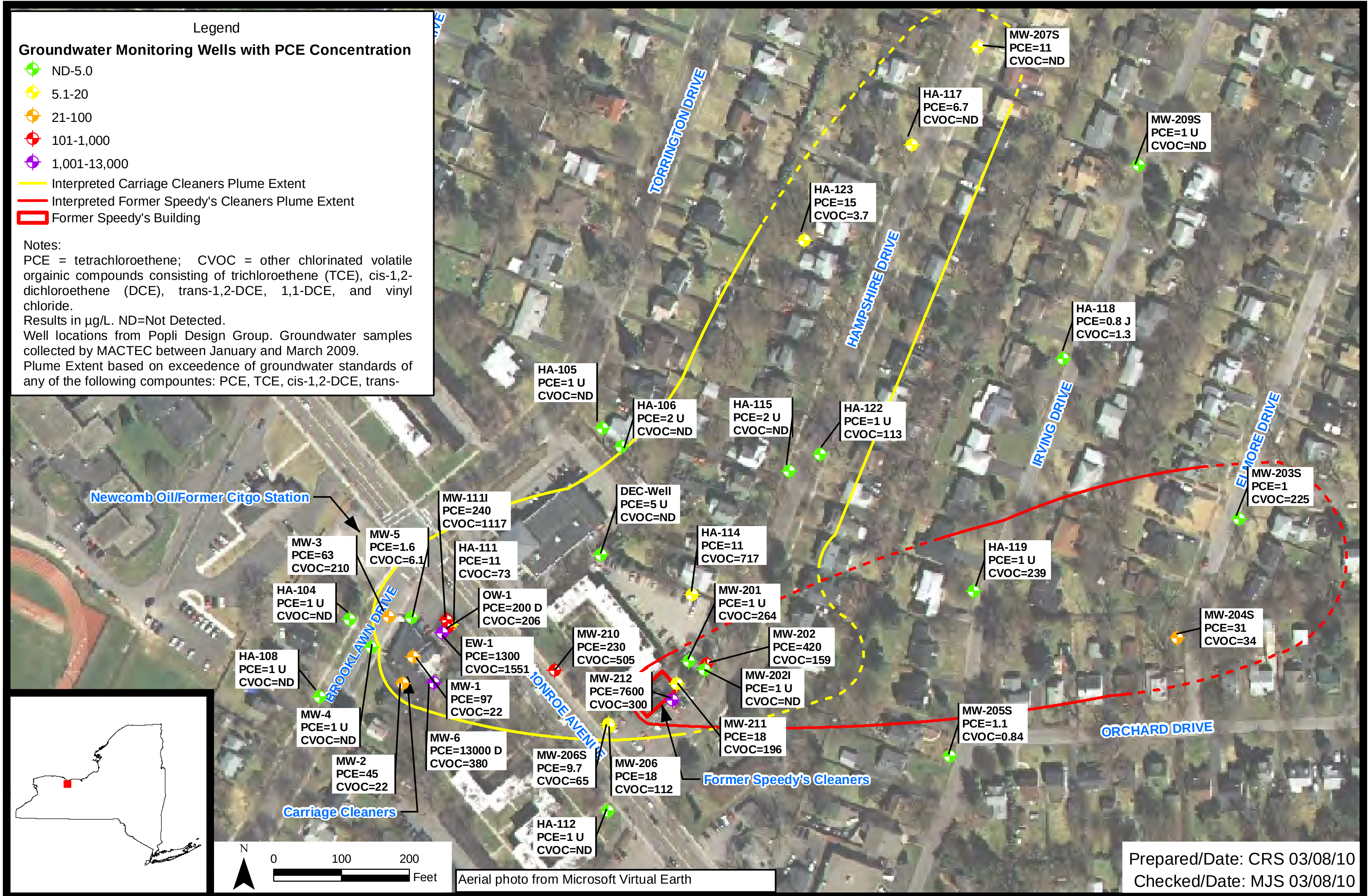

Legend

Groundwater Monitoring Wells with PCE Concentration

- 🟢 ND-5.0
- 🟡 5.1-20
- 🟠 21-100
- 🔴 101-1,000
- 🟣 1,001-13,000
- Interpreted Carriage Cleaners Plume Extent
- Interpreted Former Speedy's Cleaners Plume Extent
- 🟥 Former Speedy's Building

Notes:
PCE = tetrachloroethene; CVOC = other chlorinated volatile orgainic compounds consisting of trichloroethene (TCE), cis-1,2-dichloroethene (DCE), trans-1,2-DCE, 1,1-DCE, and vinyl chloride.
Results in µg/L. ND=Not Detected.
Well locations from Popli Design Group. Groundwater samples collected by MACTEC between January and March 2009.
Plume Extent based on exceedence of groundwater standards of any of the following compountes: PCE, TCE, cis-1,2-DCE, trans-

Aerial photo from Microsoft Virtual Earth

Prepared/Date: CRS 03/08/10
Checked/Date: MJS 03/08/10

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Chlorinated Solvent
Concentrations in Groundwater
Project 3612-08-2109

Figure 4.2

TABLES

Table 3.1: Groundwater Elevation Data

Monitoring Well ID	Ground Elevation (ft MSL)	Casing Elevation (ft MSL)	Top of PVC Elevation (ft MSL)	TOC-TOR	Well Depth (ft BTOC)	Top Of Bedrock Elevation (ft MSL)	Depth to Water (BTOR) (01/20/2009)	Groundwater Elevation (01/20/2009)	Depth to Water (BTOR) (03/11/2009)	Groundwater Elevation (03/11/2009)
MW-1	488.66	490.06	490.06	0.00	11.8	NA	9.05	481.01	8.50	481.56
MW-2	488.33	489.53	489.53	0.00	10.0	NA	8.68	480.85	7.70	481.83
MW-3	488.24	488.24	488.10	0.14	11.0	NA	NM	NM	6.53	481.57
MW-4	487.92	487.92	487.74	0.18	10.5	NA	6.76	480.98	5.80	481.94
MW-5	489.29	489.29	489.17	0.12	12.0	NA	8.24	480.93	7.84	481.33
MW-6	488.66	488.66	488.26	0.30	10.2	NA	7.33	480.93	6.34	481.92
HA-101	490.52	490.52	490.76	-0.24	17.0	480.5	NM	NM	NM	NM
HA-102	490.40	490.40	490.71	-0.31	20.2	476.4	NM	NM	NM	NM
HA-104	488.35	488.35	487.97	0.38	18.8	477.2	6.75	481.22	6.10	481.87
MW-104I	488.10	488.10	487.73	0.37	39.8	476.9	NM	NM	25.11	462.62
HA-105	486.42	486.42	486.09	0.33	15.8	473.4	8.70	477.39	NM	NM
HA-106	486.73	486.73	486.41	0.32	15.6	473	9.10	477.31	NM	NM
HA-107	482.97	482.97	482.57	0.40	14.9	477	NM	NM	NM	NM
HA-108	487.20	487.20	486.97	0.23	14.7	473.7	5.81	481.16	4.51	482.46
HA-109	485.56	485.56	485.32	0.24	15.2	475.7	NM	NM	NM	NM
HA-110	489.70	489.70	489.39	0.31	18.4	475.9	NM	NM	NM	NM
HA-111	489.27	489.27	489.12	0.15	16.2	478.3	8.27	480.85	NM	NM
MW-111I	489.56	489.56	489.17	0.39	29.3	479.6	10.28	478.89	8.86	480.31
HA-112	486.67	486.67	486.55	0.12	15.8	474.1	7.15	479.40	4.52	482.03
HA-113	487.98	487.98	487.67	0.31	15.9	475.5	NM	NM	NM	NM
HA-114	485.29	485.29	485.02	0.27	14.8	476.3	8.26	476.76	6.82	478.20
HA-115	484.42	484.42	484.14	0.28	16.2	481.2	6.80	477.34	5.95	478.19
HA-116	488.59	488.59	488.44	0.15	14.9	478.6	NM	NM	NM	NM
HA-117	480.39	480.39	480.08	0.31	14.9	470.4	8.58	471.50	7.12	472.96
HA-118	480.40	480.40	479.96	0.44	15.3	475.4	7.64	472.32	6.72	473.24
HA-119	482.26	482.26	481.97	0.29	14.8	478.1	7.26	474.71	5.91	476.06
HA-120	491.53	491.53	490.89	0.64	15.3	481.7	NM	NM	NM	NM
HA-121	488.69	488.69	488.37	0.32	15.2	474.7	NM	NM	NM	NM
HA-122	483.30	483.30	482.90	0.40	15.3	479.4	7.14	475.76	6.38	476.52
HA-123	484.89	484.89	484.72	0.17	15.2	474.1	9.68	475.04	7.81	476.91
DEC-Well	487.59	487.59	487.28	0.31	16.0	NA	9.18	478.10	8.25	479.03

Table 3.1: Groundwater Elevation Data

Monitoring Well ID	Ground Elevation (ft MSL)	Casing Elevation (ft MSL)	Top of PVC Elevation (ft MSL)	TOC-TOR	Well Depth (ft BTOC)	Top Of Bedrock Elevation (ft MSL)	Depth to Water (BTOR) (01/20/2009)	Groundwater Elevation (01/20/2009)	Depth to Water (BTOR) (03/11/2009)	Groundwater Elevation (03/11/2009)
MW-201	485.34	485.34	485.14	0.20	20.0	470	7.75	477.39	6.23	478.91
MW-202	485.76	485.76	484.81	0.95	15.7	475	7.32	477.49	6.15	478.66
MW-202I	485.68	485.68	485.28	0.40	49.6	475.9	37.12	448.16	35.75	449.53
MW-203S	478.80	478.80	478.51	0.29	14.8	471.5	8.03	470.48	7.42	471.09
MW-204S	479.24	479.24	478.86	0.38	15.9	473.7	7.01	471.85	6.11	472.75
MW-205S	482.38	482.38	482.05	0.33	14.8	475.1	7.11	474.94	5.70	476.35
MW-206	486.83	486.83	486.49	0.35	19.5	476.0	7.04	479.45	5.22	481.27
MW-206S	486.87	486.87	486.55	0.32	12.0	474.9	7.18	479.37	5.38	481.17
MW-207S	479.65	479.65	479.46	0.19	15.6	470.5	10.03	469.43	7.63	471.83
MW-208S	481.08	481.08	480.65	0.43	15.6	475.6	NM	NM	NM	NM
MW-209S	479.80	479.80	479.66	0.14	15.5	468.9	10.56	469.10	7.66	472.00
MW-210	487.03	487.03	486.70	0.2	18.0	479.0	6.92	479.78	5.32	481.38
MW-211	486.54	486.54	486.25	0.3	18.5	477.3	7.87	478.38	6.56	479.69
MW-212	486.75	486.75	486.40	0.3	15.5	476.8	7.85	478.55	6.48	479.92
EW-1	489.46	489.46	489.21	0.2	28.2	479.0	8.60	480.61	7.73	481.48
OW-1	489.53	489.53	489.23	0.3	28.0	478.5	8.58	480.65	7.86	481.37

Notes:

Northing, Easting and Elevation data from:
  Historic data- Popli Engineers - dated 8/3/2006
  New wells- Popli Design Group - dated 3/30/2009
Horizontal Datum: NAD 83/96 - NYSPCS WEST ZONE
Vertical Datum: NAVD88
ft MSL - Feet Above Mean Sea Level
ft BTOC - Feet Below Top Of Casing
TOC - Top of Casing
TOR - Top of Riser
NA - Not Available
NM - Not Measured

Created by: BAS 04/01/2009
Checked by: CRS 7/20/09

Table 3.2: Groundwater Hydraulic Data

Summary of Hydraulic Conductivity (Slug) Tests January 2008

Well Identification	Well Type	Hvorslev (cm/sec) FHT	Hvorslev (cm/sec) RHT	Bouwer-Rice (cm/sec) FHT	Bouwer-Rice (cm/sec) RHT	Geometric mean (cm/sec)	K values (ft/day)
MW-206	OB/BR	0.008	0.011	0.005	0.008	0.008	21.4
MW-210	OB/BR	0.003	0.004	0.003	0.002	0.0027	7.7
MW-211	OB/BR	0.004	0.006	0.004	0.004	0.0044	12.6
MW-212	OB/BR		0.003		0.002	0.0020	5.5

Well Identification	V = Ki/n (ft/day) (n=0.05)	V (ft/year)	Geometric mean	
MW-206	3.4	1250	**604**	**=V (ft/year)**
MW-210	1.2	448		
MW-211	2.0	734		
MW-212	0.9	324		

Well Identification	V = Ki/n (ft/day) (n=0.20)	V (ft/year)	Geometric mean	
MW-206	0.9	312	**151**	**=V (ft/year)**
MW-210	0.3	112		
MW-211	0.5	184		
MW-212	0.2	81		

Notes
FHT = Falling Head Slug Test
RHT = Rising Head Slug Test
cm/sec = centimeters per second
ft/day = feet per day
ft/year = feet per year
K = hydraulic conductivity
V = velocity (in either ft/day or ft/year)
i = hydraulic gradient (feet per foot); hydraulic gradient calculated at .008
n = porosity, assumed porosity of 0.05 for the bedrock wells, and 0.25 for the overburden wells.

Because well screens cross the overburden/bedrock interface, porosity of both 0.05 and 0.2 maybe present within the screened interval; therefore velocities using porosity values of both 0.05 and 0.2 are presented above.

Created by: CRS 4/10/09
Checked by: RAL 4/15/09

Former Speedy's Cleaners Site, Brighton, NY
Hydraulic Gradient Calculations

$$i = \frac{\text{(Change in Head)}}{\text{(Shortest distance between observed or interpreted heads)}}$$

Hydraulic Gradient (i) calculations from 3/2009 contour data.

Interface Zone

MW-206 to HA-119

5.2 = difference in head
550 = distance between locations (feet)
i = 0.009455

HA-104 to HA-122

5.4 = difference in head
750 = distance between wells (feet)
i = 0.0072

0.008327 = Arithmetic mean Interface Zone hydraulic gradient.
0.008 feet/foot

Created by: CRS 4/10/09
Checked by: RAL 4/15/09

Table 4.1: Summary of Pesticides, PCBs, SVOCs, and Metals Concentrations in Soil

	Location	BKSS-001		BKSS-002		BKSS-003		DP-004		DP-004		DP-005		DP-007	
	Sample Date	12/15/2008		12/15/2008		12/15/2008		12/18/2008		12/18/2008		12/15/2008		12/15/2008	
	Sample ID	828128BKSS001001		828128BKSS002001		828128BKSS003001		828128DP004009		828128DP004009DUP		828128DP005012		828128DP007008	
	Media	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Qc Code	FS		FS		FS		FS		FD		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Pesticides/PCBs															
Alpha-Chlordane	0.094							0.0019	U	0.0019	U	**0.0058**	J	0.0019	U
Dieldrin	0.005							0.0036	U	0.0037	U	**0.016**		0.0037	U
Gamma-Chlordan	NA							0.0019	U	0.0019	U	**0.0048**		0.0019	U
SVOCs								ND		ND		ND		ND	
Metals															
Aluminum	NA	**10,300**		**12,700**		**10,900**		**3,570**	J	**2,460**	J	**9,750**		**5,160**	
Arsenic	13	**3**		**2.4**		**4.8**		**7.2**	J	**10.1**	J	**3.5**		1.1	U
Barium	350	**59.9**		**70.1**		**64.5**		**20.4**		**16**		**43.1**		**23.7**	
Calcium	NA	**18,400**		**7,380**		**8,940**		**141,000**		**168,000**		**57,700**		**59,000**	
Chromium	30	**22.4**		**17.8**		**16.6**		**6.5**		**5.5**		**13.5**		**7.5**	
Cobalt	NA	6.3	U	**7**		6.3	U	5.5	U	5.6	U	5.7	U	5.5	U
Copper	50	**22.4**		**17.7**		**15.5**		**6.8**		**7.3**		**12.5**		**8.8**	
Iron	NA	**15,800**		**17,500**		**16,400**		**9,890**	J	**9,730**	J	**14,700**		**10,100**	
Lead	63	**100**		**75.6**		**65.2**		**16.4**		**17.1**		**15.1**		**14.7**	
Magnesium	NA	**10,800**		**4,490**		**6,000**		**72,000**		**90,000**		**30,900**		**30,400**	
Manganese	1600	**460**		**560**		**486**		**479**		**521**		**458**		**377**	
Mercury	0.18	**0.41**		**0.09**		**0.07**		0.04	U	0.03	U	0.04	U	0.04	U
Nickel	30	**11.6**		**13.9**		**12.3**		**5.4**		4.5	U	**11.7**		**7.1**	
Potassium	NA	**1,270**		**1,340**		**1,420**		**934**		**731**		**1,510**		**955**	
Selenium	3.9	**1.5**		**2.1**		**2.1**		1.1	U	1.1	U	**1.2**		1.1	U
Sodium	NA	**268**		135	U	**142**		**292**		**319**		**359**		**177**	
Vanadium	NA	**22.7**		**25.9**		**24.2**		**9.4**		**7.2**		**19**		**13**	
Zinc	109	**122**		**107**		**200**		**40.7**		**30.4**		**80.9**		**157**	

Notes:
Results in milligrams per kilogram (mg/Kg)
Only detected compounds shown.
Samples analyzed for Metals by EPA Method 6010B, for SVOCs by EPA Method 8270, and Pesticides/PCBs by EPA Methods 8081/8082.
QC Code:
- FS = Field Sample
- FD = Field Duplicate

Qualifiers:
- U = Not detected at a concentration greater than the reporting limit
- J = Estimated value

Criteria = Values from 6 NYCRR Part 375 Soil Cleanup Objectives for Unrestrictive use.
NA = No criteria available
Detections are indicated in **BOLD**
Highlighted results exceed criteria
ND = Not detected above reporting limit

Table 4.2: Summary of VOC Concentrations in Soil

Location		DP-001		DP-002		DP-003		DP-004		DP-004	
Sample Date		12/17/2008		12/18/2008		12/18/2008		12/18/2008		12/18/2008	
Sample ID		828128DP001001		828128DP002009		828128DP003009		828128DP004009		828128DP004009DUP	
Sample Depth (ft bgs)		9		9		9		9		9	
Qc Code		FS		FS		FS		FS		FD	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NL	0.011	U	0.012	U	0.011	U	0.011	U	0.011	U
Benzene	0.06	0.0053	U	0.0061	U	**0.00041**	J	0.0057	U	0.0055	U
Carbon disulfide	NL	0.011	U	0.012	U	0.011	U	0.011	U	0.011	U
Cis-1,2-Dichloroethene	0.25	**0.0014**	J	**0.019**		**0.00061**	J	0.0057	U	0.0055	U
Cyclohexane	NL	0.0053	U	0.0061	U	0.0057	U	0.0057	U	0.0055	U
Ethyl benzene	1	0.0053	U	0.0061	U	0.0057	U	0.0057	U	0.0055	U
Methyl cyclohexane	NL	0.0053	U	0.0061	U	**0.0014**	J	**0.00057**	J	**0.00052**	J
Tetrachloroethene	1.3	**0.018**		**1.5**	D	**0.042**		**0.027**	J	**0.041**	J
Toluene	0.7	**0.0006**	J	**0.0013**	J	**0.0031**	J	**0.00064**	J	**0.00082**	J
Trichloroethene	0.47	**0.0048**	J	**0.016**		**0.00097**	J	0.0057	U	**0.00049**	J
Xylene, m/p	0.26	0.0053	U	**0.0017**	J	**0.0034**	J	0.0057	U	**0.00065**	J
Xylene, o	0.26	0.0053	U	0.0061	U	**0.001**	J	0.0057	U	0.0055	U
Percent Solids		87.3		82.5		88.3		91.7		89.2	

Notes:
Results in milligrams per kilogram (mg/Kg)
Depth in feet below outside ground surface
Only detected compounds shown
Samples analyzed for VOCs by EPA Method 8260B
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
D = Result from dilution run
Criteria - 6 NYCRR 375 Soil Cleanup Objectives for unrestricted use.
Detections are indicated in **BOLD**
Highlighted results exceed criteria
NL = Not Listed
NA = Not Applicable

Created by: BJS 6/18/09
Checked By: TLC 6/22/09

Table 4.2: Summary of VOC Concentrations in Soil

Location		DP-005		DP-005		DP-006		DP-007		DP-007		DP-008	
Sample Date		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
Sample ID		828128DP005008		828128DP005012		828128DP006008		828128DP007006		828128DP007008		828128DP008008	
Sample Depth (ft bgs)		8		12		8		6		8		8	
Qc Code		FS		FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NL	0.012	U	0.011	U	0.012	U	0.013	U	0.011	U	0.012	U
Benzene	0.06	0.0059	U	0.0054	U	0.006	U	0.0065	U	0.0057	U	0.0059	U
Carbon disulfide	NL	0.012	U	**0.00039**	J	0.012	U	0.013	U	0.011	U	0.012	U
Cis-1,2-Dichloroethene	0.25	0.0059	U	0.0054	U	0.006	U	0.0065	U	0.0057	U	0.0059	U
Cyclohexane	NL	0.0059	U	**0.00042**	J	0.006	U	0.0065	U	0.0057	U	0.0059	U
Ethyl benzene	1	0.0059	U	0.0054	U	0.006	U	**0.00056**	J	0.0057	U	0.0059	U
Methyl cyclohexane	NL	0.0059	U	**0.0011**	J	0.006	U	0.0065	U	0.0057	U	0.0059	U
Tetrachloroethene	1.3	0.0059	U	**0.0016**	J	**0.012**		**0.0092**		**0.002**	J	**0.025**	
Toluene	0.7	**0.00058**	J	**0.0022**	J	**0.001**	J	**0.0037**	J	**0.00052**	J	**0.0018**	J
Trichloroethene	0.47	0.0059	U	0.0054	U	0.006	U	0.0065	U	0.0057	U	0.0059	U
Xylene, m/p	0.26	0.0059	U	**0.003**	J	0.006	U	**0.0017**	J	0.0057	U	0.0059	U
Xylene, o	0.26	0.0059	U	**0.00082**	J	0.006	U	0.0065	U	0.0057	U	0.0059	U
Percent Solids		84.6		87.5		84.7		84.6		88.4		88.2	

Notes:

Results in milligrams per kilogram (mg/Kg)
Depth in feet below outside ground surface
Only detected compounds shown
Samples analyzed for VOCs by EPA Method 8260B
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
D = Result from dilution run
Criteria - 6 NYCRR 375 Soil Cleanup Objectives for unrestricted use.
Detections are indicated in **BOLD**
Highlighted results exceed criteria
NL = Not Listed
NA = Not Applicable

Created by: BJS 6/18/09
Checked By: TLC 6/22/09

Table 4.2: Summary of VOC Concentrations in Soil

Location		DP-009		DP-010		DP-011		DP-011		DP-012		DP-012	
Sample Date		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
Sample ID		828128DP009010		828128DP010008		828128DP011008		828128DP011008DUP		828128DP012008		828128DP012009	
Sample Depth (ft bgs)		10		8		8		8		8		9	
Qc Code		FS		FS		FS		FD		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NL	**0.0014**	J	0.012	U	0.011	U	0.012	U	0.011	U	0.012	U
Benzene	0.06	**0.00046**	J	0.0059	U	0.0057	U	0.006	U	0.0055	U	0.0058	U
Carbon disulfide	NL	0.011	U	0.012	U	0.011	U	0.012	U	0.011	U	0.012	U
Cis-1,2-Dichloroethene	0.25	0.0055	U	0.0059	U	0.0057	U	0.006	U	0.0055	U	0.0058	U
Cyclohexane	NL	**0.00058**	J	0.0059	U	0.0057	U	0.006	U	0.0055	U	0.0058	U
Ethyl benzene	1	0.0055	U	0.0059	U	0.0057	U	0.006	U	0.0055	U	0.0058	U
Methyl cyclohexane	NL	**0.0011**	J	**0.00064**	J	0.0057	U	0.006	U	0.0055	U	**0.00085**	J
Tetrachloroethene	1.3	**0.046**		**0.0014**	J	**0.0094**		**0.0057**	J	**0.0093**		**0.07**	
Toluene	0.7	**0.0018**	J	**0.0012**	J	**0.00056**	J	0.006	U	**0.00056**	J	**0.0018**	J
Trichloroethene	0.47	0.0055	U	0.0059	U	0.0057	U	0.006	U	0.0055	U	**0.0006**	J
Xylene, m/p	0.26	**0.0021**	J	**0.002**	J	0.0057	U	0.006	U	0.0055	U	**0.003**	J
Xylene, o	0.26	**0.00068**	J	0.0059	U	0.0057	U	0.006	U	0.0055	U	**0.00058**	J
Percent Solids		87.4		85		86.2		84.3		90.6		85.5	

Notes:
Results in milligrams per kilogram (mg/Kg)
Depth in feet below outside ground surface
Only detected compounds shown
Samples analyzed for VOCs by EPA Method 8260B
QC Code:
FS = Field Sample
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Qualifiers:
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Highlighted results exceed criteria
NL = Not Listed
NA = Not Applicable

Created by: BJS 6/18/09
Checked By: TLC 6/22/09

Table 4.2: Summary of VOC Concentrations in Soil

Location		DP-013		DP-014		DP-015		DP-016		DP-016		DP-017	
Sample Date		12/15/2008		12/15/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008	
Sample ID		828128DP013006		828128DP014010		828128DP015008		828128DP016008		828128DP016009		828128DP017010	
Sample Depth (ft bgs)		6		10		8		8		9		10	
Qc Code		FS		FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NL	1.3	U	0.011	U	0.011	U	0.011	U	1.2	U	54	U
Benzene	0.06	0.63	U	0.0056	U	0.0056	U	0.0056	U	0.58	U	27	U
Carbon disulfide	NL	1.3	U	0.011	U	0.011	U	0.011	U	1.2	U	54	U
Cis-1,2-Dichloroethene	0.25	0.63	U	0.0056	U	0.0056	U	0.0056	U	0.58	U	27	U
Cyclohexane	NL	0.63	U	0.0056	U	0.0056	U	0.0056	U	0.58	U	27	U
Ethyl benzene	1	0.63	U	0.0056	U	0.0056	U	0.0056	U	0.58	U	27	U
Methyl cyclohexane	NL	0.63	U	0.0056	U	**0.00042**	J	0.0056	U	0.58	U	27	U
Tetrachloroethene	1.3	**35**	D	**0.0096**		**0.036**		**0.0077**		**2.8**		**830**	
Toluene	0.7	0.63	U	**0.0011**	J	**0.0014**	J	**0.00041**	J	0.58	U	27	U
Trichloroethene	0.47	0.63	U	0.0056	U	0.0056	U	0.0056	U	0.58	U	27	U
Xylene, m/p	0.26	0.63	U	**0.00089**	J	**0.0016**	J	0.0056	U	0.58	U	27	U
Xylene, o	0.26	0.63	U	0.0056	U	0.0056	U	0.0056	U	0.58	U	27	U
Percent Solids		83.4		89.2		86.2		89.9		88.9		90	

Notes:

Results in milligrams per kilogram (mg/Kg)

Depth in feet below outside ground surface

Only detected compounds shown

Samples analyzed for VOCs by EPA Method 8260B

QC Code:
- FS = Field Sample
- FD = Field Duplicate

Qualifiers:
- U = Not detected at a concentration greater than the reporting limit
- J = Estimated value
- D = Result from dilution run

Criteria - 6 NYCRR 375 Soil Cleanup Objectives for unrestricted use.

Detections are indicated in **BOLD**

Highlighted results exceed criteria

NL = Not Listed

NA = Not Applicable

Table 4.2: Summary of VOC Concentrations in Soil

	Location	DP-018		DP-019		DP-023		DP-024		DP-025		DP-025	
	Sample Date	12/16/2008		12/16/2008		5/4/2009		5/4/2009		5/4/2009		5/4/2009	
	Sample ID	828128DP018009		828128DP019011		828128DP023010		828128DP024005		828128DP025004		828128DP025009	
	Sample Depth (ft bgs)	9		11		10		5		4		9	
	Qc Code	FS		FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NL	1.2	U	0.011	U	0.49	UJ	0.71	UJ	0.68	UJ	0.48	UJ
Benzene	0.06	0.6	U	0.0057	U	0.25	U	0.36	U	0.34	U	0.24	U
Carbon disulfide	NL	1.2	U	0.011	U	0.49	U	0.71	U	0.68	U	0.48	U
Cis-1,2-Dichloroethene	0.25	0.6	U	**0.00049**	J	0.25	U	0.36	U	0.34	U	0.24	U
Cyclohexane	NL	0.6	U	0.0057	U	0.49	U	0.71	U	0.68	U	0.48	U
Ethyl benzene	1	0.6	U	0.0057	U	0.25	U	0.36	U	0.34	U	0.24	U
Methyl cyclohexane	NL	0.6	U	**0.00061**	J	0.49	U	0.71	U	0.68	U	0.48	U
Tetrachloroethene	1.3	**2.8**		**0.0015**	J	**0.47**		**1.6**		**1.9**		**3.3**	
Toluene	0.7	0.6	U	**0.001**	J	0.25	U	0.36	U	0.34	U	0.24	U
Trichloroethene	0.47	0.6	U	0.0057	U	0.25	U	0.36	U	0.34	U	0.24	U
Xylene, m/p	0.26	0.6	U	**0.0014**	J	0.25	U	0.36	U	0.34	U	0.24	U
Xylene, o	0.26	0.6	U	0.0057	U	0.25	U	0.36	U	0.34	U	0.24	U
Percent Solids		88.3		87.9		91.3		83.8		82.1		92	

Notes:
Results in milligrams per kilogram (mg/Kg)
Depth in feet below outside ground surface
Only detected compounds shown
Samples analyzed for VOCs by EPA Method 8260B
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
D = Result from dilution run
Criteria - 6 NYCRR 375 Soil Cleanup Objectives for unrestricted use.
Detections are indicated in **BOLD**
Highlighted results exceed criteria
NL = Not Listed
NA = Not Applicable

Table 4.3: Summary of VOC Concentrations in Groundwater

	Location	DEC-WELL		EW-1		EW-1		HA-104		HA-105		HA-106		HA-108	
	Sample Date	1/21/2009		1/19/2009		1/19/2009		1/21/2009		1/21/2009		1/21/2009		1/19/2009	
	Sample ID	828128-DEC-WELL014R1		828120-EW-001025		828120-EW-001025D		828120-HA-104015		828128-HA-105012R1		828128-HA-106014R1		828120-HA-108009	
	Qc Code	FS		FS		FD		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5	5	U	10	U	10	U	1	U	1	U	2	U	1	U
1,2-Dichloroethane	0.6	**7.5**		10	U	10	U	1	U	1	U	2	U	1	U
2-Butanone	50*	25	U	50	U	50	U	5	U	5	U	10	U	5	U
Benzene	1	**210**		10	U	10	U	1	U	**6.5**		**18**		1	U
Bromodichloromethane	50*	5	U	10	U	10	U	1	U	1	U	2	U	1	U
Carbon disulfide	60	5	U	10	U	10	U	1	U	1	U	2	U	1	U
Chloroform	7	5	U	10	U	10	U	1	U	1	U	2	U	1	U
Cis-1,2-Dichloroethene	5	5	U	**1100**		**1000**		1	U	1	U	2	U	1	U
Cyclohexane	NA	**190**	J	**46**		**34**		1	U	1	U	**150**	J	1	U
Ethyl benzene	5	**590**		**27**		**25**		**9.1**		**17**		**320**		1	U
Isopropylbenzene	5*	**40**		**3.8**	J	**3.4**	J	**3.7**		**6**		**24**		1	U
Methyl cyclohexane	NA	**75**		**22**		**19**		1	U	**1.1**		**87**		1	U
Methyl Tertbutyl Ether	10*	5	U	10	U	10	U	1	U	1	U	2	U	1	U
Methylene chloride	5	5	U	**5**	J	**5.3**	J	1	U	1	U	2	U	1	U
Tetrachloroethene	5	5	U	**1300**		**1200**		1	U	1	U	2	U	1	U
Toluene	5	**900**		**3.8**	J	**3.5**	J	1	U	1	U	**69**		1	U
trans-1,2-Dichloroethene	5	5	U	**8.5**	J	**7.4**	J	1	U	1	U	2	U	1	U
Trichloroethene	5	5	U	**350**		**320**		1	U	1	U	2	U	1	U
Vinyl chloride	2	5	U	**92**		**84**		1	U	1	U	2	U	1	U
Xylene, m/p	5	**1400**		**2.5**	J	20	U	2	U	2	U	**500**		2	U
Xylene, o	5	**570**		10	U	10	U	1	U	1	U	**140**		1	U

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for VOCs by EPA Method 8260B
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
D = Result from diluted run
Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance values and Groundwater Effluent Limitations (NYSDEC, 1998).
Number shown is standard unless *.
* Criteria is NYSDEC Guidance Value
Detections are indicated in **BOLD**
Highlighted results exceed criteria
NA = No criteria available

Table 4.3: Summary of VOC Concentrations in Groundwater

	Location	HA-111		HA-112		HA-114		HA-115		HA-117		HA-118		HA-119	
	Sample Date	1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/20/2009		1/21/2009	
	Sample ID	828120-HA-111014		828128-HA-112015R1		828128-HA-114012R1		828128-HA-115155R1		828128-HA-117014R1		828128-HA-118012R1		828128-HA-119013R1	
	Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5	1	U	1	U	**0.83**	J	2	U	1	U	1	U	1	U
1,2-Dichloroethane	0.6	1	U	1	U	1	U	2	U	1	U	1	U	1	U
2-Butanone	50*	5	U	5	U	5	U	10	U	5	U	5	U	5	U
Benzene	1	1	U	1	U	**2.1**		**16**		1	U	1	U	**0.74**	J
Bromodichloromethane	50*	1	U	1	U	1	U	2	U	1	U	1	U	1	U
Carbon disulfide	60	1	U	1	U	1	U	2	U	1	U	1	U	**0.45**	J
Chloroform	7	1	U	1	U	1	U	2	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	5	**31**		1	U	**540**	D	2	U	1	U	**1.3**		**180**	D
Cyclohexane	NA	**43**	J	1	U	**23**	J	**150**	J	1	U	1	U	1	U
Ethyl benzene	5	**24**		1	U	**27**		**360**		1	U	1	U	**0.29**	J
Isopropylbenzene	5*	**7.4**		1	U	**3.7**		**36**		1	U	1	U	1	U
Methyl cyclohexane	NA	**33**		1	U	**5.9**		**75**		1	U	1	U	1	U
Methyl Tertbutyl Ether	10*	1	U	1	U	1	U	2	U	**3.7**		**4.6**		**2.4**	
Methylene chloride	5	1	U	1	U	1	U	2	U	1	U	1	U	1	U
Tetrachloroethene	5	**11**		1	U	**11**		2	U	**6.7**		**0.8**	J	1	U
Toluene	5	**1.8**		1	U	**6.9**		**74**		1	U	1	U	**0.56**	J
trans-1,2-Dichloroethene	5	1	U	1	U	**9.3**		2	U	1	U	1	U	**2**	
Trichloroethene	5	**4.2**		1	U	**6.8**		2	U	1	U	1	U	**0.95**	J
Vinyl chloride	2	**38**		1	U	**160**		2	U	1	U	1	U	**56**	
Xylene, m/p	5	**5.8**		2	U	**1.7**	J	**360**		2	U	2	U	2	U
Xylene, o	5	**2**		1	U	1	U	**220**		1	U	1	U	1	U

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
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Number shown is standard unless *.
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Detections are indicated in **BOLD**
Highlighted results exceed criteria
NA = No criteria available

Table 4.3: Summary of VOC Concentrations in Groundwater

	Location	HA-119		HA-122		HA-123		MW-1		MW-2		MW-3		MW-3	
	Sample Date	1/21/2009		1/21/2009		1/21/2009		1/19/2009		1/19/2009		3/12/2009		3/12/2009	
	Sample ID	828128-HA-119013R1D		828128-HA-122012R1		828128-HA-123155R1		828120-MW-001009		828120-MW-002009		828120-MW-003011		828120-MW-003011D	
	Qc Code	FD		FS		FS		FS		FS		FS		FD	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	0.6	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	50*	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	1	**0.78**	J	**30**		1	U	**0.44**	J	**0.42**	J	**1**		1	U
Bromodichloromethane	50*	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	60	**0.44**	J	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	7	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	5	**190**	D	**43**		**2**		**8.1**		**14**		**150**		**140**	
Cyclohexane	NA	1	U	**30**	J	1	U	**6.2**		1	U	**100**	J	**97**	J
Ethyl benzene	5	**0.27**	J	**66**		1	U	1	U	1	U	**73**		**69**	
Isopropylbenzene	5*	1	U	**6.6**		1	U	**1**		1	U	**14**		**14**	
Methyl cyclohexane	NA	1	U	**14**		1	U	**4**		1	U	**110**		**85**	
Methyl Tertbutyl Ether	10*	**2.4**		1	U	1	U	1	U	1	U	1	U	1	U
Methylene chloride	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	1	U	1	U	**15**		**97**		**45**		**63**		**60**	
Toluene	5	**0.59**	J	**10**		1	U	1	U	1	U	**3.8**		**3.7**	
trans-1,2-Dichloroethene	5	**2.2**		**1.1**		1	U	1	U	1	U	**1.2**		**1.1**	
Trichloroethene	5	**0.96**	J	1	U	**1.7**		**11**		**7**		**18**		**17**	
Vinyl chloride	2	**55**		**69**		1	U	**2.5**		**0.84**	J	**41**		**37**	
Xylene, m/p	5	2	U	**49**		2	U	2	U	2	U	**38**		**38**	
Xylene, o	5	1	U	**35**		1	U	1	U	1	U	**4.7**		**4.8**	

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for VOCs by EPA Method 8260B
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FD = Field Duplicate
Qualifiers:
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D = Result from diluted run
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Number shown is standard unless *.
* Criteria is NYSDEC Guidance Value
Detections are indicated in **BOLD**
Highlighted results exceed criteria
NA = No criteria available

Table 4.3: Summary of VOC Concentrations in Groundwater

	Location	MW-4		MW-5		MW-6		MW-111I		MW-201		MW-202		MW-202	
	Sample Date	1/21/2009		1/19/2009		1/19/2009		1/19/2009		2/2/2009		1/22/2009		1/22/2009	
	Sample ID	828120-MW004009		828120-MW-005009		828120-MW-006009		828120-MW-111I025		828128-MW-201017R1		828128-MW-202012R1		828128-MW-202012R1D	
	Qc Code	FS		FS		FS		FS		FS		FS		FD	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5	1	U	1	U	100	U	5	U	1	U	2.5	U	2.5	U
1,2-Dichloroethane	0.6	1	U	1	U	100	U	5	U	1	U	2.5	U	2.5	U
2-Butanone	50*	5	U	5	U	500	U	25	U	5	U	13	U	13	U
Benzene	1	1	U	1	U	100	U	**2.4**	J	**0.63**	J	2.5	U	2.5	U
Bromodichloromethane	50*	1	U	**1.4**		100	U	5	U	1	U	2.5	U	2.5	U
Carbon disulfide	60	1	U	1	U	100	U	5	U	1	U	2.5	U	2.5	U
Chloroform	7	1	U	**23**		100	U	5	U	1	U	2.5	U	2.5	U
Cis-1,2-Dichloroethene	5	1	U	**3.7**		**240**		**920**		**240**	D	**120**		**120**	
Cyclohexane	NA	1	U	1	U	100	U	**38**		**3.6**		2.5	U	2.5	U
Ethyl benzene	5	1	U	**0.63**	J	100	U	**50**		**4.6**		2.5	U	2.5	U
Isopropylbenzene	5*	1	U	1	U	100	U	**4.8**	J	**0.4**	J	2.5	U	2.5	U
Methyl cyclohexane	NA	1	U	**1.7**		100	U	**24**		**0.51**	J	2.5	U	2.5	U
Methyl Tertbutyl Ether	10*	1	U	1	U	100	U	**4.5**	J	1	U	**0.95**	J	2.5	U
Methylene chloride	5	1	U	**0.74**	J	100	U	5	U	1	U	2.5	U	2.5	U
Tetrachloroethene	5	1	U	**1.6**		**13000**	D	**240**		1	U	**420**		**410**	
Toluene	5	1	U	1	U	100	U	**7.6**		**0.37**	J	2.5	U	2.5	U
trans-1,2-Dichloroethene	5	1	U	1	U	100	U	**7**		**3.7**		**2**	J	**2.2**	J
Trichloroethene	5	1	U	**0.52**	J	**140**		**140**		**0.93**	J	**24**		**24**	
Vinyl chloride	2	1	U	**1.9**		100	U	**110**		**19**		**13**		**13**	
Xylene, m/p	5	2	U	2	U	200	U	**3**	J	**0.43**	J	5	U	5	U
Xylene, o	5	1	U	1	U	100	U	**1.6**	J	1	U	2.5	U	2.5	U

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
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Qualifiers:
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Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance values and Groundwater Effluent Limitations (NYSDEC, 199
Number shown is standard unless *.
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Detections are indicated in **BOLD**
Highlighted results exceed criteria
NA = No criteria available

Table 4.3: Summary of VOC Concentrations in Groundwater

	Location	MW-202I		MW-203S		MW-204S		MW-205S		MW-206		MW-206S		MW-207S	
	Sample Date	1/21/2009		1/20/2009		1/21/2009		1/20/2009		1/20/2009		1/20/2009		1/21/2009	
	Sample ID	828128-MW-2021045R1		828128-MW-203S012R1		828128-MW-204S012R1		828128-MW-205S012R1		828128-MW-206017R1		828128-MW-206S010R1		828128-MW-207S012R1	
	Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	0.6	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	50*	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	1	1	U	1	U	1	U	1	U	**0.95**	J	1	U	1	U
Bromodichloromethane	50*	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	60	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	7	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	5	1	U	**190**	D	**32**		**0.84**	J	**100**		**59**		1	U
Cyclohexane	NA	1	U	1	U	1	U	1	U	**15**		**4.8**		1	U
Ethyl benzene	5	1	U	1	U	1	U	1	U	**22**		**1.2**		1	U
Isopropylbenzene	5*	1	U	1	U	1	U	1	U	**0.86**	J	1	U	1	U
Methyl cyclohexane	NA	1	U	1	U	1	U	1	U	**2.3**		1	U	1	U
Methyl Tertbutyl Ether	10*	**6.4**		**66**		1	U	1	U	1	U	1	U	1	U
Methylene chloride	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	1	U	**1**		**31**		**1.1**		**18**		**9.7**		**11**	
Toluene	5	1	U	1	U	1	U	1	U	**3**		1	U	1	U
trans-1,2-Dichloroethene	5	1	U	**0.97**	J	1	U	1	U	**0.97**	J	1	U	1	U
Trichloroethene	5	1	U	1	U	**2**		1	U	**4.5**		**3.1**		1	U
Vinyl chloride	2	1	U	**34**		1	U	1	U	**6.9**		**2.9**		1	U
Xylene, m/p	5	2	U	2	U	2	U	2	U	**0.57**	J	2	U	2	U
Xylene, o	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for VOCs by EPA Method 8260B
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
D = Result from diluted run
Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance values and Groundwater Effluent Limitations (NYSDEC, 199
Number shown is standard unless *.
* Criteria is NYSDEC Guidance Value
Detections are indicated in **BOLD**
Highlighted results exceed criteria
NA = No criteria available

Table 4.3: Summary of VOC Concentrations in Groundwater

	Location	MW-209S		MW-210		MW-211		MW-212		OW-1	
	Sample Date	1/21/2009		1/19/2009		1/20/2009		1/21/2009		1/19/2009	
	Sample ID	828128-MW-209S014R1		828128-MW-210015R1		828128-MW-211015R1		828128-MW-212010R1		828120-OW-001025	
	Qc Code	FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5	1	U	2.5	U	1	U	50	U	1	U
1,2-Dichloroethane	0.6	1	U	2.5	U	1	U	50	U	1	U
2-Butanone	50*	5	U	13	U	5	U	250	U	**5.6**	
Benzene	1	1	U	**1.1**	J	**0.97**	J	50	U	**4.8**	
Bromodichloromethane	50*	1	U	2.5	U	1	U	50	U	1	U
Carbon disulfide	60	1	U	2.5	U	1	U	50	U	1	U
Chloroform	7	1	U	2.5	U	1	U	50	U	1	U
Cis-1,2-Dichloroethene	5	1	U	**380**		**170**		**130**		**120**	
Cyclohexane	NA	1	U	**19**		**8**		50	U	**27**	
Ethyl benzene	5	1	U	**14**		**8.4**		50	U	**3.4**	
Isopropylbenzene	5*	1	U	**2.1**	J	**0.43**	J	50	U	**2.8**	
Methyl cyclohexane	NA	1	U	**7.9**		**1.4**		50	U	**19**	
Methyl Tertbutyl Ether	10*	1	U	**1.3**	J	**0.75**	J	50	U	**17**	
Methylene chloride	5	1	U	2.5	U	1	U	50	U	1	U
Tetrachloroethene	5	1	U	**230**		**18**		**7600**		**200**	D
Toluene	5	1	U	**2.9**		1	U	50	U	**3.6**	
trans-1,2-Dichloroethene	5	1	U	**3.1**		**1.1**		50	U	**1.2**	
Trichloroethene	5	1	U	**81**		**13**		**170**		**65**	
Vinyl chloride	2	1	U	**41**		**12**		50	U	**20**	
Xylene, m/p	5	2	U	**0.8**	J	**0.36**	J	100	U	**2.4**	
Xylene, o	5	1	U	2.5	U	1	U	50	U	1	U

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for VOCs by EPA Method 8260B
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
D = Result from diluted run
Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance values and Groundwater Effluent Limitations (NYSDEC, 199
Number shown is standard unless *.
* Criteria is NYSDEC Guidance Value
Detections are indicated in **BOLD**
Highlighted results exceed criteria
NA = No criteria available

Table 4.4: Metals, SVOCs, and Pesticides/PCBs in Groundwater

	Location	HA-114		HA-119		HA-119		MW-202I		MW-202		MW-202	
	Sample Date	1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/22/2009		1/22/2009	
	Sample ID	328128-HA-114012R1		328128-HA-119013R1		28128-HA-119013R1		28128-MW-202I045R		28128-MW-202012R		28128-MW-202012R1	
	Qc Code	FS		FS		FD		FS		FS		FD	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals													
Aluminum	NA	100	U	100	U	100	U	100	UJ	100	U	100	U
Barium	1000	**80.9**		**111**		**111**		**97.8**		**89.2**		**86.9**	
Calcium	NA	**68,800**		**96,300**		**96,200**		**178,000**		**99,600**		**97,000**	
Iron	300	**913**		100	U	100	U	100	U	100	U	100	U
Magnesium	35,000	**19,000**		**28,400**		**28,500**		**48,900**		**27,200**		**26,600**	
Manganese	300	**138**		**45.4**		**45.4**		**29.9**		**64**		**62.4**	
Potassium	NA	2,000	U	2,000	U	2,000	U	**3,250**		2,000	U	2,000	U
Sodium	20,000	**70,100**		**37,600**		**37,100**		**147,000**		**62,200**		**57,600**	
Zinc	2000	**24.5**		20	U	**65.2**		20	UJ	20	U	20	U
SVOCs/Pesticides/PCBs		NS		NS		NS		NS		ND		ND	

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for Metals by EPA Method 8260B,
SVOCs by EPA Method 8270, and Pesticides/PCBs
by EPA Methods 8081/8082
QC Code:
  FS = Field Sample
  FD = Field Duplicate
Qualifiers:
  U = Not detected at a concentration
    greater than the reporting limit
  J = Estimated value
Criteria = Values from Technical and Operational
  Guidance Series (TOGS) 1.1.1, Ambient Water
  Quality Standards and Guidance values and
  Groundwater Effluent Limitations (NYSDEC, 1998).
NA = No criteria available
Detections are indicated in **BOLD**
Highlighted results exceed criteria
ND = Not detected above reporting limit
NS = Not sampled

Created by: BJS 3/17/09
Checked By: CRS 3/18/09

Table 4.4: Metals, SVOCs, and Pesticides/PCBs in Groundwater

	Location	MW-203S		MW-205S		MW-206		MW-212	
	Sample Date	1/20/2009		1/20/2009		1/20/2009		1/21/2009	
	Sample ID	28128-MW-203S012R		28128-MW-205S012R		28128-MW-206017R		28128-MW-212010R	
	Qc Code	FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Metals									
Aluminum	NA	**311**	J	100	UJ	100	UJ	**129**	
Barium	1000	**64.8**		**78.7**		**153**		**109**	
Calcium	NA	**81,200**		**137,000**		**106,000**		**124,000**	
Iron	300	**281**		100	U	**1,300**		**155**	
Magnesium	35,000	**27,200**		**44,100**		**28,800**		**31,900**	
Manganese	300	**29.9**		10	U	**105**		**45.4**	
Potassium	NA	2,000	U	2,000	U	2,000	U	2,000	U
Sodium	20,000	**46,100**		**140,000**		**30,900**		**124,000**	
Zinc	2000	20	UJ	**245**	J	20	UJ	**49.2**	
SVOCs/Pesticides/PCBs		NS		NS		ND		ND	

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for Metals by EPA Method 8260B,
SVOCs by EPA Method 8270, and Pesticides/PCBs
by EPA Methods 8081/8082
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance values and Groundwater Effluent Limitations (NYSDEC, 1998).
NA = No criteria available
Detections are indicated in **BOLD**
Highlighted results exceed criteria
ND = Not detected above reporting limit
NS = Not sampled

Table 4.5: Groundwater Chemistry Results

Location		HA-114		HA-119		HA-119		MW-201		MW-202I	
Field Sample Date		1/21/2009		1/21/2009		1/21/2009		2/2/2009		1/21/2009	
Field Sample ID		828128-HA-114012R1		828128-HA-119013R1		828128-HA-119013R1D		828128-MW-201017R1		828128-MW-202I045R1	
QC Code		FS		FS		FD		FS		FS	
Parameter	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Laboratory Results											
Ethane	ug/l	**3.6**		1	U	**1**		**1.1**		1	U
Ethene	ug/l	**12**		**2.5**		**2.5**		**2.6**		1	U
Methane	ug/l	**33**		**9.3**		**9.4**		**17**		**47**	
Carbon Dioxide	mg/l	**220**		**309**		**312**		**264**		**340**	
Chloride	mg/l	**131**		**58.7**		**58**		**86.5**		**254**	
Nitrate as N	mg/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
pH	ph units	**7.31**		**7.22**		**7.2**		**7.48**		**7.02**	
Sulfate	mg/l	**12.9**		**63.2**		**62.7**		**39.3**		**290.0**	
Alkalinity, Bicarbonate	mg/l	**225**		**309**		**310**		**281**		**310**	
Total Alkalinity, as CaCO3	mg/l	**225**		**309**		**310**		**281**		**310**	
Total Organic Carbon	mg/l	**2.8**		1.7		**1.7**		**2**		**2.1**	
Iron	ug/l	**913**		100	U	100	U	**1420**		100	U
Manganese	ug/l	**138**		**45.4**		**45.4**		**82.5**		**29.9**	
Field Measurements											
pH	NA	7.3		7.1		7.1		7.8		6.9	
Temperature	Deg. C	10		10		10		10		11	
Specific Conductance	mS/cm	0.615		0.608		0.608		0.821		1.95	
Dissolved Oxygen	mg/L	8.9		< 0.1		< 0.1		6.3		< 0.1	
Redox Potential	mV	-150		-270		-270		-50		-310	
Natural Attenuation Score		14		14		14		9		10	

Notes:

Only detected compounds shown (Nitrite was not detected above 0.01 mg/L and sulfide was not detected above 1 mg/L).

Detected laboratory results shown in **BOLD**

NA = Not Analyzed

Monitoring Natural Attenuation Parameters = TOC by USEPA Method 415.1, Nitrate by NYSDEC ASP Method 352.1, Sulfate by NYSDEC ASP Method 375.4, Sulfide by NYSDEC ASP Method 376.2, Methane/Ethane/Ethene by ASTM Method D-1945, Carbon Dioxide by Hach Method, Nitrite by NYSDEC ASP Method 354.1, Alkalinity by USEPA Method 310.1, Chloride by USEPA Method 325.3, and Iron and Manganese by USEPA Method 6010B.

Dissolved oxyen, specific conductance and reduction/oxydation potential measured during well stabilization.

Field measurements recorded using a Horiba U-22 during purging activities.

Field parameters determined to be stable using USEPA low-flow guidance values.

Daily calibration of field instruments within acceptable ranges.

Natural Attenuation Score from 'Bichlor' program following the "Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater", USEPA 1998.

0 to 5 =	Inadequate evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics
6 to 14 =	Limited evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics
15 to 20 =	Adequate evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics
>20 =	Strong evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics

Table 4.5: Groundwater Chemistry Results

Location		MW-203S		MW-205S		MW-206		MW-211		MW-212	
Field Sample Date		1/20/2009		1/20/2009		1/20/2009		1/20/2009		1/21/2009	
Field Sample ID		828128-MW-203S012R1		828128-MW-205S012R1		828128-MW-206017R1		828128-MW-211015R1		828128-MW-212010R1	
QC Code		FS		FS		FS		FS		FS	
Parameter	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Laboratory Results											
Ethane	ug/l	1	U	1	U	1	U	1	U	1	U
Ethene	ug/l	**6.7**		1	U	1	U	1	U	1	U
Methane	ug/l	**9.2**		**4.5**		2	U	**6**		**6.7**	
Carbon Dioxide	mg/l	**270**		**385**		**333**		**312**		**352**	
Chloride	mg/l	**73.8**		**283**		**43.7**		**70.1**		**254**	
Nitrate as N	mg/l	**0.56**		**1.53**		0.5	U	0.5	U	**0.8**	
pH	ph units	**7.38**		**7.17**		**7.31**		**7.34**		**7.2**	
Sulfate	mg/l	**34.3**		**70.0**		**71.6**		**57.3**		**58.7**	
Alkalinity, Bicarbonate	mg/l	**282**		**379**		**340**		**321**		**350**	
Total Alkalinity, as CaCO3	mg/l	**282**		**379**		**340**		**321**		**350**	
Total Organic Carbon	mg/l	**1.4**		**1.9**		**2.1**		**2**		**1.4**	
Iron	ug/l	**281**		100	U	**1300**		NA		**155**	
Manganese	ug/l	**29.9**		10	U	**105**		NA		**45.4**	
Field Measurements											
pH	NA	8.6		7.0		7.1		7.1		8	
Temperature	Deg. C	7		9		12		14		11	
Specific Conductance	mS/cm	0.999		1.89		0.99		1.00		1.52	
Dissolved Oxygen	mg/L	4.3		4.8		1.4		2.4		< 0.1	
Redox Potential	mV	-100		-110		-60		-70		180	
Natural Attenuation Score		9		9		8		9		11	

Notes:

Only detected compounds shown (Nitrite was not detected above 0.01 mg/L and sulfide was not detected above 1 mg/L).

Detected laboratory results shown in **BOLD**

NA = Not Analyzed

Monitoring Natural Attenuation Parameters = TOC by USEPA Method 415.1, Nitrate by NYSDEC ASP Method 352.1, Sulfate by NYSDEC ASP Method 375.4, Sulfide by NYSDEC ASP Method 376.2, Methane/Ethane/Ethene by ASTM Method D-1945, Carbon Dioxide by Hach Method, Nitrite by NYSDEC ASP Method 354.1, Alkalinity by USEPA Method 310.1, Chloride by USEPA Method 325.3, and Iron and Manganese by USEPA Method 6010B.

Dissolved oxyen, specific conductance and reduction/oxydation potential measured during well stabilization

Field measurements recorded using a Horiba U-22 during purging activities.

Field parameters determined to be stable using USEPA low-flow guidance values.

Daily calibration of field instruments within acceptable ranges.

Natural Attenuation Score from 'Bichlor' program following the "Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater", USEPA 1998.

0 to 5 = Inadequate evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics
6 to 14 = Limited evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics
15 to 20 = Adequate evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics
>20 = Strong evidence for anaerobic biodegradation (reductive dechlorination) of chlorinated organics

Table 4:6 Groundwater VOC Results-July 2009

	Location	DEC-WELL		EW-1		HA-114		MW-1		MW-6		MW-201		MW-202	
	Sample Date	7/15/2009		7/15/2009		7/15/2009		7/15/2009		7/15/2009		7/15/2009		7/15/2009	
	Sample ID	DEC-WELL		EW-1		HA-114		MW-1		MW-6		MW-201		MW-202	
	QC Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Benzene	1	**27**		10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	5	**2**	J	**1200**	D	**510**	D	**1**	J	**110**		**18**		**68**	
Ethyl benzene	5	**6**	J	**14**		10	U	10	U	10	U	10	U	10	U
Styrene	5	**7**	J	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5	**4**	J	**2100**	D	**16**		**48**		**29000**	D	10	U	**1100**	EBD
Toluene	5	**110**		**1**	J	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	5	10	U	**2**	J	**1**	J	10	U	10	U	10	U	10	U
Trichloroethene	5	1	U	**170**		**7**	J	**1**	J	**47**		10	U	**12**	
Vinyl chloride	2	10	U	**77**		**22**		10	U	10	U	**7**	J	**4**	
Xylene, m/p	5	**640**	D	10	U	10	U	10	U	10	U	10	U	10	U
Xylene, o	5	**400**	D	10	U	10	U	10	U	10	U	10	U	10	U

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for VOCs by EPA Method 624/8260B
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
E= Value exceeds calibration range
D = Result from diluted run
B = Analyte detected in blank
Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance values and Groundwater Effluent Limitations (NYSDEC, 1998). Number shown is standard.
Detections are indicated in **BOLD**
Highlighted results exceed criteria

Created by: CRS 8/5/09
Checked By: CRS 8/6/09

Table 4:6 Groundwater VOC Results-July 2009

	Location	MW-202		MW-206		MW-206S		MW-210		MW-211		MW-212	
	Sample Date	7/15/2009		7/15/2009		7/15/2009		7/15/2009		7/15/2009		7/15/2009	
	Sample ID	X-1		MW-206		MW-206S		MW-210		MW-211		MW-212	
	QC Code	FD		FS		FS		FS		FS		FS	
Parameter	**Criteria**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Benzene	1	10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	5	**65**		**12**		**9**	J	**48**		**32**		**110**	
Ethyl benzene	5	10	U	10	U	10	U	10	U	10	U	10	U
Styrene	5	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5	**1000**	EBD	**4**	J	**2**	J	**64**	B	**3**	J	**22000**	ED
Toluene	5	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	5	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	5	**12**		**1**	J	10	U	**18**		**2**	J	**180**	
Vinyl chloride	2	**4**		**3**	J	10	U	10	U	10	U	**2**	J
Xylene, m/p	5	10	U	10	U	10	U	10	U	10	U	10	U
Xylene, o	5	10	U	10	U	10	U	10	U	10	U	10	U

Notes:
Results in microgram per liter (µg/L)
Only detected compounds shown.
Samples analyzed for VOCs by EPA Method 624/826
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration greater than the reporting limit
J = Estimated value
E= Value exceeds calibration range
D = Result from diluted run
B = Analyte detected in blank
Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance values and Groundwater Effluent Limitations (NYSDEC, 19
Number shown is standard.
Detections are indicated in **BOLD**
Highlighted results exceed criteria

Created by: CRS 8/5/09
Checked By: CRS 8/6/09

Table 5.1: Conceptual Site Model

Media	Known or Suspected Source of Contamination	Type of Contamination (General)	COPCs (Specific)	Primary or Secondary Source Release mechanism	Migration Pathways	Potential Receptors
Soil	Former dry cleaning operations. Spills or disposal of solvents which are assumed to be under/adjacent to the site building.	Solvents	PCE; TCE; 1,2 DCE; vinyl choride	Leaks and or Spills	Infiltration / percolation	Human: direct contact if excavation occurs in contaminated area (s)
Groundwater	Contaminated soil and potentially bedrock (secondary source).	Solvents	PCE; TCE; 1,2 DCE; vinyl choride	Infiltration / percolation from contaminated soil and bedrock	Groundwater flow	The community surrounding the Site is serviced by public water. Human or ecological receptors are not expected to be exposed, although it is possible that construction workers could come in contact with groundwater in deep excavations.
Air /Soil Vapor	Contaminated soil and bedrock at the Site and contaminated groundwater downgradient from the Site.	Solvents	PCE; TCE; 1,2 DCE; vinyl choride	Volatilization of contaminants from soil, bedrock, and groundwater	Soil Vapor Intrusion	Human: sub-slab depressurization systems have been installed at potential receptor residences.

Notes:
COPCs = contaminants of potential concern
PCE = Tetrachloroethene
TCE = Trichloroethene
DCE = Dichloroethene

Prepared by: CRS 7/21/09
Checked by: MJS 7/21/09

Table 8.1: Remediation Goals

Soil				**Chemical-Specific SCGs (mg/kg)**			
Chemical Name	**Maximum Detection (mg/kg)**	**Location**	**Depth**	**Part 375 Unrestricted Use SCOs**	**Part 375 Commercial Use SCOs**	**Part 375 Protection of Groundwater SCOs**	**Remediation Goal (mg/kg)**
Cis-1,2-Dichloroethene	0.019	DP-002	9	0.25	500	0.25	0.25
Tetrachloroethene	**830**	DP-017	10	1.3	150	1.3	1.3
Trichloroethene	0.016	DP-002	9	0.47	200	0.47	0.47

Groundwater				**Chemical Specific SCGs (µg/L)**	
Chemical Name	**Maximum Detection (µg/L)**	**Location**	**Date**	**NTS Class GA GW Standard/Guidance**	**Remediation Goal (µg/L)**
Cis-1,2-Dichloroethene	**240**	MW-201	2/2/2009	5	5
Methyl Tertbutyl Ether	**66**	MW-203s	1/20/2009	10[2]	10[2]
Tetrachloroethene	**22,000**	MW-212	7/15/2009	5	5
trans-1,2-Dichloroethene	3.7	MW-201	2/2/2009	5	5
Trichloroethene	**180**	MW-212	7/15/2009	5	5
Vinyl chloride	**56**	HA-119	1/21/2009	2	2

Notes:

1. Entry in **Bold** indicates a standard(s) exceedance.
2. NYSDEC Guidance Value

Created by: KAW 12/4/09
Checked by: JDW 1/5/10

Table 9.1 Identification and Screening of Potential Remedial Technologies and Process Options

Environmental Media	General Response Action	Remedial Technology	Process Option	Applicability to		Screening Status	Comments
				Site-Limiting Characteristics	**Waste-Limiting Characteristics**		
Soil	No Action			Not Applicable	Not Applicable	Retained.	Retained to be carried through detailed analysis of alternatives.
	Access Restrictions	Land Use Restrictions		None.	Would not reduce toxicity, mobility, or volume of site related contaminants.	Retained.	Viable as a component of remedial actions which do not involve remediation of all contamination above RGs to protect workers during subsurface work related to potential construction or utility work.
		Fencing		Would not reduce human exposure because there's no shallow contamination and impacted area is already beneath pavement or beneath a building.	Would not reduce toxicity, mobility, or volume of VOC contaminants.	Eliminated.	
	Containment	Capping	Soil Cover	Would not reduce human exposure because there's no shallow contamination and impacted area is already beneath pavement or beneath a building.	There is no surface contamination, so this would not reduce toxicity, mobility, or volume of VOC contaminants.	Eliminated.	
			Low Permeability Cover System	Contamination is located beneath a parking area and building which are already low permeability.	Would not reduce toxicity, mobility, or volume of VOC contaminants.	Eliminated	
		Vertical Barriers	Slurry wall, sheet piling	Contamination in soil is generally located in the saturated zone just above bedrock and is only a couple of feet thick. Vertical barrier would not prevent migration of groundwater through impacted soil and then beneath the barrier via fractured bedrock.	Would reduce mobility of groundwater flowing through impacted soil, but would not reduce toxicity or volume of VOC contamination unless combined with another treatment area.	Eliminated.	
		Surface Controls	Diversion/collection, grading, soil stabilization	Site is small and paved. No benefit would be realized by this alternative.	There is no surface contamination, so this would not reduce toxicity, mobility, or volume of VOC contaminants.	Eliminated.	
	In-Situ Treatment	Biological Treatment	Enhanced Biodegradation	The technology would not address relatively low contaminant concentrations in the soils within the vadose zone.	None.	Retained.	Viable as a component of treatment of the overburden saturated soils, would also address groundwater.
		Physical Treatment	Solidification/ Stabilization	Shallow fractured bedrock is not likely to solidify or stabilize easily.	Solidification/ stabilization has limited ability to effectively treat VOC contamination in soil, it may, however, reduce mobility.	Eliminated.	
		Vapor Extraction		Could be useful for the vadose zone outside of the building footprint, and under portions of the building that does not have a basement.	None.	Retained.	Would possibly require off-gas controls.
		Thermal Treatment	Electrical Resistance Heating	Difficult to install electrical resistance probes beneath the building where a basement exists. ERH is typically less cost-effective than other alternatives for shallow contamination with small footprints.	Removes VOC contaminants from the soil in the vadose and saturated zone. Would require capture and treatment of off-gases, which is typically a component of an ERH design.	Eliminated	

Table 9.1 Identification and Screening of Potential Remedial Technologies and Process Options

Environmental Media	General Response Action	Remedial Technology	Process Option	Applicability to		Screening Status	Comments
				Site-Limiting Characteristics	Waste-Limiting Characteristics		
Soil (continued)	Removal	Excavation	Solids Excavation	Excavation would be appropriate in the area located outside of the building footprint, however it would require screening/staging of non-impacted shallow soil prior to accessing the impacted soil. Dewatering would likely be required. Excavation next to the building would require excavation support to prevent structural damage to the building.	None.	Retained.	The source of contamination is unknown, but there is only one small area where soil contaminant concentrations are significantly higher than other areas. Retain excavation of this smaller area for detailed analysis.
		Disposal On-site		Disposal On-site is inappropriate due to the small size of the Site.	None.	Eliminated.	
		Disposal Off-site		None.	None.	Retained.	
	Ex-situ Treatment	Thermal Treatment	On-site Incineration	Small site in residential area is not suitable for ex-situ treatment.	None.	Retained	Retained as off-site treatment option.
			On-site Thermal Desorption	Small site in residential area is suitable for ex-situ treatment.	None.	Retained	Retained as off-site treatment option.
		Chemical Treatment	Oxidation/ Reduction	None.	None.	Retained	Retained as off-site treatment option.
			Solidification/ Stabilization	None.	Not useful for VOCs.	Retained	Retained as off-site treatment option.
		Physical Treatment	Soil Washing	None.	None.	Retained	Retained as off-site treatment option.
Groundwater	No Action			Not Applicable	Not Applicable	Retained.	Retained to be carried through detailed analysis of alternatives.
	Access Restrictions	Land Use Restrictions		None.	Would not reduce toxicity, mobility, or volume of VOC contaminants.	Retained.	Viable as a component of remedial actions which do not involve remediation of all contamination above RGs.
	Containment	Capping	Low Permeability Cover System	Contamination is located beneath a parking area and building which are already impermeable.	Would not reduce toxicity, mobility, or volume of VOC contaminants.	Eliminated	
		Vertical Barriers	Slurry wall, sheet piling	Shallow bedrock would cause implementability issues.	Would reduce mobility of impacted groundwater, but would not reduce toxicity or volume of VOC contamination unless combined with another treatment area.	Eliminated	
		Surface Controls	Diversion/collection, grading, soil stabilization	Site is small and paved. No benefit would be realized by this alternative.	There is no surface contamination adding to impacted groundwater, so this would not reduce toxicity, mobility, or volume of VOC contaminant.	Eliminated.	
		Collection	Extraction Wells/ Monitoring Wells	This technology could be limited by the shallow bedrock depth pending on amount and location of fractures. The site is quite small and there may not be sufficient space for ex-situ treatment equipment.	None.	Eliminated	

Prepared by: JDW 12/1/2009
Checked by: RTB 01/11/2010

Table 9.1 Identification and Screening of Potential Remedial Technologies and Process Options

Environmental Media	General Response Action	Remedial Technology	Process Option	Applicability to		Screening Status	Comments
				Site-Limiting Characteristics	Waste-Limiting Characteristics		
Groundwater (continued)	Containment (continued)	Collection (continued)	Collection Trench	This technology would be limited by the shallow depth to bedrock. The site is quite small and there may not be sufficient space for ex-situ treatment equipment.	None.	Eliminated.	
	In-Situ Treatment	Biological Treatment	Enhanced Biodegradation	Shallow fractured bedrock may make injections of amendments difficult or unpredictable.	None.	Retained.	Would also address soil contamination in the saturated zone.
		Chemical Oxidation	Chemical Oxidation	Oxidants may not be persistent enough to flow to all areas under the on-site building via migration with groundwater. May require penetration through the floor slab in order to get contact with all contaminated areas.	None.	Eliminated.	
		Physical Treatment	Permeable Reactive Barrier	This technology would be limited by the shallow depth to bedrock, which could be difficult to excavate and could potential allow seepage of contaminated groundwater beneath the reactive barrier.	None.	Eliminated.	
			Air Sparging	Difficult to implement under the building footprint.	None.	Retained.	Retained for evaluation in conjunction with SVE and off-gas controls. Otherwise not a viable option alone.
			Electrical Resistance Heating	Difficult to install electrical resistance probes beneath the building where a basement exists. ERH is typically less cost-effective than other alternatives for shallow contamination with small footprints.	Removes VOC contaminants from the soil in the vadose and saturated zone. Would require capture and treatment of off-gases, which is typically a component of an ERH design.	Eliminated.	
	Ex-Situ Treatment	Onsite Collection & Treatment	Granular Activated Carbon	Requires space within parking area for treatment system. Subject to fouling pending the presence of manganese, magnesium, iron and calcium, which would have to be tested to determine if they would be an issue.	None.	Eliminated.	Would otherwise be viable as a component of remedial actions including groundwater extraction which has been eliminated.
			Air Stripping	Requires space within parking area for treatment system.	Removes VOCs from extracted groundwater but may require off-gas controls.	Eliminated.	Would otherwise be viable as a component of remedial actions including groundwater extraction which has been eliminated.
		Offsite treatment and Disposal	Discharge to POTW after treatment	Discharge permit would be required.	None.	Eliminated.	Would otherwise be viable as a component of remedial actions including groundwater extraction which has been eliminated.
			Discharge to surface water after treatment	No local surface water body.	None.	Eliminated.	
			Reinjection after treatment	Site is too small; reinjection would mobilize groundwater contaminants.	None.	Eliminated.	

Prepared by: JDW 12/1/2009
Checked by: RTB 01/11/2010

Table 10.1: Preliminary Screening of Remedial Alternatives

Remedial Alternative	Effectiveness	Implementability	Cost	Comments
Alternative 1: No Action	Not effective because it does not include any actions to reduce toxicity and volume of contamination.	Not likely to be accepted by the regulatory agency.	There are no costs associated with this alternative.	Retained as baseline for comparison.
Alternative 2: Limited Action. On-Site Institutional Controls with Groundwater Monitoring	Not effective at reducing toxicity and volume of contamination in the short term. Site groundwater is not being used for drinking, and future institutional controls would ensure that groundwater is not used for drinking purposes in the future. Institutional controls would be put in place to restrict site usage (no residential use) and to protect future construction/utility workers from sub-surface soil by means of placing requirements for a health and safety and soil management plan. Groundwater at the site would be monitored to determine if concentrations are reduced over time.	The use of institutional controls is a widely accepted activity used to prevent future exposure to contaminated soil and groundwater in areas where off-site migration does not pose a risk. Groundwater monitoring is also widely accepted as a means to track remaining concentrations.	Costs associated with this alternative are estimated to be low compared to other alternatives.	Retained.
Alternative 3: SVE and Air Sparging On-Site with Groundwater Monitoring	Effective at reducing toxicity and volume of contamination from soil and groundwater, however this alternative takes time and continued operation and maintenance.	Would likely only be implemented to the northeast and east of the site building since implementation beneath the building would not be feasible given the continued use of the building.	Costs associated with this alternative are high due to long term operation, maintenance and monitoring of the system.	Retained.
Alternative 4: In-Situ Enhanced Biodegradation On-Site with Groundwater Monitoring	This alternative would enhance biological degradation of VOCs in groundwater and in saturated soil. May not be effective in highl contaminant impact areas.	In-situ enhanced biodegradation is generally a widely accepted technology and can be implemented using readily available technologies. However, the ability to meet RAOs using this technology can be unpredictable and generally occurs in the long-term. This would hold true given that the injections would be conducted upgradient of the on-site building and would require time for the amendments to reach the treatment area.	Costs associated with this alternative are estimated to be low for the nature and extent of contamination.	Retained.
Alternative 5: On-Site Excavation and Enhanced Biodegradation On-Site with Groundwater Monitoring	This alternative would reduce the volume of contamination in both dry and saturated soil within the excavation area, and would enhance biological degradation of VOCs in groundwater and in saturated soil.	Excavation, enhanced biodegradation and monitoring are widely accepted groundwater technologies. Implementing them together would remove the most highly impacted area, which would be difficult to treat by other methods. And biological enhancements would be used to treat other on-site areas.	Costs associated with this alternative are estimated to be slightly above average for the nature and extent of contamination given the location of the excavation.	Retained.
Alternative 6: Source Area Excavation, SVE Beneath and Downgradient of Building, Enhanced Biodegradation On-Site and Downgradient and Groundwater Monitoring	This alternative would reduce the volume of contamination in both dry and saturated soil within the excavation area, would reduce the volume on contamination in the vadose zone by use of SVE, and would reduce the volume of contamination in groundwater and saturated soil both on-site and downgradient by use of enhanced biodegradation.	Excavation, enhanced biodegradation, SVE and monitoring are widely accepted groundwater technologies and typically easy to implement. However, this alternative includes conducting in-situ enhanced biodegradation along the entire length of the plume which could require multiple access agreements, various permits and would be quite expensive. Additionally, the implementation of the SVE system under the on-site building could cause temporary business closures, and could be difficult to conduct depending upon the available room for construction.	Costs associated with this alternative are high due to long term operation and maintenance and implementation of the SVE system beneath the building, as well as the large downgradient area of groundwater to be treated using enhanced biodegradation.	Retained as the pre-disposal or unrestricted alternative.

Prepared by: JDW 02/03/2010
Checked by: RTB 3/8/2010

Table 11.1: Cost Summary for Alternative 2 - No Further Action with Site Management

ITEM		COST
DIRECT CAPITAL COSTS		
Institutional Controls	$	10,000
Contingency (@ 15 Percent)	$	2,000
Direct Cost Subtotal	$	12,000
INDIRECT CAPITAL COSTS		
Project Management (@ 10 Percent)	$	2,000
Remedial Design (@ 20 Percent)	$	3,000
Construction Management (@ 15 Percent)	$	2,000
Indirect Cost Subtotal	$	7,000
TOTAL CAPITAL COSTS	**$**	**19,000**
ANNUAL OPERATION AND MAINTENANCE COSTS*		
Annual Institutional Control Inspections and Reporting (years 1-30)	$	2,000
Quarterly Monitoring (years 1-2)	$	23,000
Semi-annual Monitoring (years 3-4)	$	12,000
Periodic Monitoring (years 5-30)	$	6,000
Annual Performance Reporting (years 1-30)	$	5,000
PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)	**$**	**242,000**
TOTAL PRESENT WORTH OF ALTERNATIVE 2 (30 yrs)	**$**	**261,000**
TOTAL NON-DISCOUNTED COST OF ALTERNATIVE 2 (30 yrs)	**$**	**455,000**

NOTES:

*Costs include additional 10 percent for bid contingency and 15 percent for scope contingency unforeseen project complexities, including insurance, taxes, and licensing costs (USEPA 2000).

Costs have been rounded to the nearest thousand.

Prepared By/Date: JDW 1/6/2010
Checked By/Date: KLS 1/11/2010

Table 11.2: Cost Summary for Alternative 3 - Soil Vapor Extraction and Air Sparging

ITEM		**COST**
DIRECT CAPITAL COSTS		
Pre-Design Investigation	$	23,000
Pilot Test	$	58,000
Full Scale SVE & Air Sparge Construction	$	269,000
Contingency (@ 20 Percent)	$	70,000
Direct Cost Subtotal	$	420,000
INDIRECT CAPITAL COSTS		
Project Management (@ 8 Percent)	$	34,000
Remedial Design (@ 15 Percent)	$	63,000
Construction Management (@ 10 Percent)	$	42,000
Indirect Cost Subtotal	$	139,000
TOTAL CAPITAL COSTS	**$**	**559,000**
ANNUAL OPERATION AND MAINTENANCE COSTS*		
Annual OM&M (years 1-10)	$	82,000
Quarterly Monitoring (years 1-2)	$	31,000
Semi-annual Monitoring (years 3-4)	$	16,000
Periodic Monitoring (years 5-30)	$	8,000
Annual Performance Reporting (years 1-30)	$	15,000
PERIODIC COSTS		
Assume upgrades at year 7 (20% of Capital Costs)	$	54,000
PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)	**$**	**1,081,000**
TOTAL PRESENT WORTH OF ALTERNATIVE 3 (30 yrs)	**$**	**1,640,000**
TOTAL NON-DISCOUNTED COST OF ALTERNATIVE 3 (30 yrs)	**$**	**2,185,000**

NOTES:

*Costs include additional 10 percent for bid contingency and 15 percent for scope contingency unforeseen project complexities, including insurance, taxes, and licensing costs (USEPA 2000).
Costs have been rounded to the nearest thousand.

Prepared By/Date: JDW 1/6/2010
Checked By/Date: KLS 1/11/2010

Table 11.3: Cost Summary for Alternative 4 - In-Situ Enhanced Biodegradation

ITEM		COST
DIRECT CAPITAL COSTS		
Pre-Design Investigation	$	7,000
Bench Scale	$	2,000
Full Scale In-situ Enhance Biodegradation	$	53,000
Contingency (@ 25 Percent)	$	16,000
Direct Cost Subtotal	$	78,000
INDIRECT CAPITAL COSTS		
Project Management (@ 10 Percent)	$	7,000
Remedial Design (@ 20 Percent)	$	12,000
Construction Management (@ 15 Percent)	$	8,000
Indirect Cost Subtotal	$	27,000
TOTAL CAPITAL COSTS	**$**	**105,000**
ANNUAL OPERATION AND MAINTENANCE COSTS*		
Quarterly Monitoring (years 1-2)	$	32,000
Semi-annual Monitoring (years 3-4)	$	16,000
Periodic Monitoring (years 5-30)	$	8,000
Annual Performance Reporting (years 1-30)	$	15,000
PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)	**$**	**412,000**
TOTAL PRESENT WORTH OF ALTERNATIVE 4 (30 yrs)	**$**	**517,000**
TOTAL NON-DISCOUNTED COST OF ALTERNATIVE 4 (30 yrs)	**$**	**859,000**

NOTES:

*Costs include additional 10 percent for bid contingency and 15 percent for scope contingency unforeseen project complexities, including insurance, taxes, and licensing costs (USEPA 2000).
Costs have been rounded to the nearest thousand.

Prepared By/Date: JDW 1/6/2010
Checked By/Date: KLS 1/11/2010

Table 11.4: Cost Summary for Alternative 5 – On-Site Excavation and In-Situ Enhanced Biodegradation

ITEM		**COST**
DIRECT CAPITAL COSTS		
Pre-Design Investigation	$	21,000
Bench Scale	$	2,000
Full Scale Source Excavation and Biodegradation	$	163,000
Contingency (@ 25 Percent)	$	47,000
Direct Cost Subtotal	$	233,000
INDIRECT CAPITAL COSTS		
Project Management (@ 8 Percent)	$	19,000
Remedial Design (@ 15 Percent)	$	35,000
Construction Management (@ 10 Percent)	$	24,000
Indirect Cost Subtotal	$	78,000
TOTAL CAPITAL COSTS	**$**	**311,000**
ANNUAL OPERATION AND MAINTENANCE COSTS*		
Quarterly Monitoring (years 1-2)	$	36,000
Semi-annual Monitoring (years 3-4)	$	18,000
Periodic Monitoring (years 5-30)	$	9,000
Annual Performance Reporting (years 1-30)	$	15,000
PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)	**$**	**434,000**
TOTAL PRESENT WORTH OF ALTERNATIVE 5 (30 yrs)	**$**	**745,000**
TOTAL NON-DISCOUNTED COST OF ALTERNATIVE 5 (30 yrs)	**$**	**1,103,000**

NOTES:

*Costs include additional 10 percent for bid contingency and 15 percent for scope contingency unforeseen project complexities, including insurance, taxes, and licensing costs (USEPA 2000).

Costs have been rounded to the nearest thousand.

Prepared By/Date: JDW 1/6/2010
Checked By/Date: KLS 1/11/2010

Table 11.5: Cost Summary for Alternative 6 – Source Area Excavation, On-Site and Off-Site In-Situ Enhanced Biodegradation, and Soil Vapor Extraction

ITEM		COST
DIRECT CAPITAL COSTS		
Pre-Design Investigation	$	53,000
Bench Scale	$	8,000
Pilot Test	$	58,000
Full Scale Source Excavation and Biodegradation	$	1,012,000
Contingency (@ 25 Percent)	$	283,000
Direct Cost Subtotal	$	1,414,000
INDIRECT CAPITAL COSTS		
Project Management (@ 6 Percent)	$	85,000
Remedial Design (@ 12 Percent)	$	170,000
Construction Management (@ 8 Percent)	$	114,000
Indirect Cost Subtotal	$	369,000
TOTAL CAPITAL COSTS	**$**	**1,783,000**
ANNUAL OPERATION AND MAINTENANCE COSTS*		
Annual OM&M (years 1-10)	$	82,000
Quarterly Monitoring (years 1-2)	$	71,000
Semi-annual Monitoring (years 3-4)	$	36,000
Periodic Monitoring (years 5-30)	$	18,000
Annual Performance Reporting (years 1-30)	$	15,000
PERIODIC COSTS		
Assume upgrades at year 7 (20% of Capital Costs)	$	51,000
PRESENT WORTH OF ANNUAL AND PERIODIC COSTS (30 yrs)	**$**	**1,306,000**
TOTAL PRESENT WORTH OF ALTERNATIVE 5 (30 yrs)	**$**	**3,052,000**
TOTAL NON-DISCOUNTED COST OF ALTERNATIVE 5 (30 yrs)	**$**	**3,735,000**

NOTES:

*Costs include additional 10 percent for bid contingency and 15 percent for scope contingency unforeseen project complexities, including insurance, taxes, and licensing costs (USEPA 2000).
Costs have been rounded to the nearest thousand.

Prepared By/Date: JDW 2/3/2010
Checked By/Date: RTB 2/4/2010

Table 12.1: Summary of Remedial Alternative Costs

Item	Description	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
1	Capital Costs	$ -	$ 19,000	$ 559,000	$ 105,000	$ 311,000	$ 1,783,000
2	Present Worth of Annual and Periodic Costs	$ -	$ 242,000	$ 1,081,000	$ 412,000	$ 434,000	$ 1,306,000
3	**Total Present Worth (Item 1 plus 2)**	**$ -**	**$ 261,000**	**$ 1,640,000**	**$ 517,000**	**$ 745,000**	**$ 3,052,000**
4	Annual Costs Years 1 and 2	$ -	$ 30,000	$ 128,000	$ 47,000	$ 51,000	$ 168,000
5	Annual Costs Years 3 and 4	$ -	$ 19,000	$ 113,000	$ 31,000	$ 33,000	$ 133,000
6	Annual Costs Years 5 through 15	$ -	$ 13,000	$ 105,000	$ 23,000	$ 24,000	$ 115,000
7	Annual Costs Years 16 through 30	$ -	$ 13,000	$ 23,000	$ 23,000	$ 24,000	$ 33,000
8	Periodic Costs (see Note 1)	$ -	$ -	$ 54,000	$ -	$ -	$ 51,000
9	Remedial Timeframe (yrs) (Note 3)	>30	30	30	30	30	30

Notes:

1. Periodic Costs for Alternative 3 and 6 would be incurred in Year 7.
2. Present Worth costs shown above are based upon the assumed Remedial Timeframe.
3. Annual and Periodic Costs (Item 4 - 7) presented are non-discounted (future) costs.
4. Estimated costs presented in this table are intended to be within the target accuracy range of minus 30 to plus 50 percent of actual cost.

Alternative Descriptions:

1 = No Further Action
2 = No Further Action with Site Management
3 = Soil Vapor Extraction and Air Sparging
4 = In-Situ Enhanced Biodegradation
5 = On-Site Excavation and In-Situ Enhanced Biodegradation
6 = Source Area Excavation, On-Site and Off-Site In-Situ Enhanced Biodegradation, and Soil Vapor Extraction

Revised By/Date: RTB 3/5/2010
Checked By/Date: CRS 3/5/2010

Table 12.2: Comparative Analysis of Remedial Alternatives for Groundwater

Remedial Alternative	Alternative 1: No Action	Alternative 2: Limited Action - Institutional Controls On-Site with Downgradient Monitoring	Alternative 3: SVE and Air Sparging On-Site with Downgradient Monitoring	Alternative 4: In-Situ Enhanced Biodegradation On-Site with Downgradient Monitoring	Alternative 5: On-Site Excavation and Enhanced Biodegradation On-site with Groundwater Monitoring	Alternative 6: Source Area Excavation, SVE Beneath and Downgradient of Building, Enhanced Biodegradation On-Site and Downgradient and Groundwater Monitoring
Compliance with New York State SCGs	Alternative 1 would not comply with Chemical-specific SCGs.	Alternative 2 would not comply with Chemical-specific SCGs.	Alternative 3 is likely to comply with Chemical-specific SCGs over time by implementing vapor extraction, however, Alternative 3 would not directly address the impacted area under the on-site building.	Alternative 4 would comply with Chemical-specific SCGs by implementing in-situ treatment to reduce contaminant concentrations within the plume, thereby reducing the time necessary to meet SCGs. Location- and Action-specific SCGs would include 40 CFR Part 144 – Underground Injection Control Program. May be difficult to meet the Chemical-specific SCGs in the source area.	Alternative 5 would comply with Chemical-specific SCGs by implementing in-situ treatment to reduce contaminant concentrations within the plume, thereby reducing the time necessary to meet SCGs. Location- and Action-specific SCGs would include 40 CFR Part 144 – Underground Injection Control Program. SCGs would be met immediately within the two excavation areas.	Alternative 6 would comply with Chemical-specific SCGs over time in the vadose zone by implementing vapor extraction and by implementing in-situ treatment to reduce contaminant concentrations within the plume. Location- and Action-specific SCGs would include 40 CFR Part 144 – Underground Injection Control Program. SCGs would be met immediately in the source areas via excavation of soil.
Overall Protection of Human Health and the Environment	Alternative 1 would not provide any additional protection of human health and the environment compared to present conditions.	Alternative 2 would protect human health by means of institutional controls, but would not provide any additional protection for the environment.	Alternative 3 would protect public health and the environment by providing vapor extraction to reduce contaminant levels in soil and groundwater.	Alternative 4 would protect public health and the environment by providing in-situ treatment of contaminated soil and groundwater at the site.	Alternative 5 would protect public health and the environment by providing in-situ treatment of contaminated soil and groundwater at the site as well as by removing the potentially continuous source of contamination.	Alternative 6 would protect public health and the environment by providing in-situ treatment of contaminated soil and groundwater both on-site and downgradient, as well as by removing the potentially continuous source of contamination and by the implementation of SVE in the vadose zone.
Short-term Impacts and Effectiveness	Alternative 1 does not include construction activities, therefore, there would be no potential short-term adverse impacts upon the community and the environment.	Alternative 2 does not include construction activities, therefore, there would be no potential short-term adverse impacts upon the community and the environment.	Alternative 3 includes the installation of wells, trenches and a treatment system which could be time consuming and would therefore contribute to potential short-term adverse impacts and risks upon site occupants. These risks would be addressed through coordination and communication with the property owner(s) and preparation and implementation of a construction health and safety plan. This alternative would decrease the level of contamination on-site over time, but would not have notable short-term effectiveness.	Alternative 4 includes the injection of a biological amendment via direct push method upgradient of the Site building, as well as installation of additional monitoring wells; therefore, there would be potential short-term adverse impacts upon site occupants, however the implementation would occur fairly quickly. These impacts would be addressed through coordination and communication with the property owner and preparation and implementation of a construction health and safety plan. This alternative would decrease the level of contamination on-site, but would not have any notable short-term effectiveness.	Alternative 5 includes the injection of a biological amendment via direct push methods upgradient of the Site building, as well as installation of additional monitoring wells and excavation of the source area; therefore, there would be potential short-term adverse impacts upon site occupants. Implementation would take longer than Alternative 4 but shorter than Alternative 3 and 6. These impacts would be addressed through coordination and communication with the property owner(s) and preparation and implementation of a construction health and safety plan. This alternative would have notable short-term effectiveness within the source zone.	Alternative 6 includes the injection of a biological amendment via direct push methods upgradient of the Site building and downgradient from the site, as well as installation of an SVE system, additional monitoring wells and excavation activities; therefore, there would be potential short-term adverse impacts upon site occupants. Implementation of this alternative would take longer than any other alternative. These impacts would be addressed through coordination and communication with the property owner(s) and preparation and implementation of a construction health and safety plan. This alternative would have notable short-term effectiveness within the source zone.
Long-term Effectiveness and Permanence	Alternative 1 would not meet the RAOs for the Site. This alternative would not provide long-term effectiveness.	Alternative 2 would not meet the RAOs for the Site. This alternative would not provide long-term effectiveness.	Alternative 3 includes soil vapor extraction and air sparging to remove VOCs from soil and groundwater. Long-term effectiveness of the alternative would rely upon the radius of influence of the SVE wells. This remedy would require long-term operation and maintenance, and may not provide permanence since the potential source area may not successfully be treated, causing potential rebound in contaminant concentrations.	Alternative 4 includes in-situ treatment of the VOC groundwater plume. Long-term effectiveness of this alternative would rely upon the effectiveness of the in-situ treatment, which contains uncertainties regarding the potential magnitude of mass reduction that could be achieved. Biological amendments are slow acting but are persistent and long lasting. Based upon results of one soil sample location, there may be discrete location that have VOC concentrations in soil that are too high for successful treatment via biodegradation.	Alternative 5 includes in-situ treatment of the VOC groundwater plume. Long-term effectiveness of this alternative would rely upon the effectiveness of the in-situ treatment, which contains uncertainties regarding the potential magnitude of mass reduction that could be achieved. Biological amendments are slow acting but are persistent and long lasting. The potential source area would be removed via excavation which would provide permanence of the remedy.	Alternative 6 includes in-situ treatment of the VOC groundwater plume, and SVE of the on-site vadose zone soils. Long-term effectiveness of this alternative would rely upon the effectiveness of the in-situ treatment, which contains uncertainties regarding the potential magnitude of mass reduction that could be achieved. The contaminant source areas would be removed via excavation which would provide permanence of the remedy.
Reduction of Toxicity, Mobility, and Volume	Alternative 1 would not result in reduction of toxicity, mobility, or volume of site contaminants at the site because no treatment is taking place.	Alternative 2 would not result in reduction of toxicity, mobility, or volume of site contaminants at the site because no treatment is taking place.	Alternative 3 includes soil vapor extraction to reduce the volume of contamination in the on-site groundwater and soil. However, toxicity and volume would not be reduced unless the granulated activated carbon is treated rather than disposed.	Alternative 4 includes treatment to reduce the toxicity, mobility, and volume of groundwater and soil contamination. Enhanced biodegradation involves the enhancement of natural processes to destroy the target contaminants.	Alternative 5 includes treatment to reduce the toxicity, mobility, and volume of groundwater and soil contamination. Enhanced biodegradation involves the enhancement of natural processes to destroy the target contaminants. Soil contamination would be reduced from the site via excavation, however, this soil would likely be transported for disposal and therefore toxicity would not be reduced.	Alternative 6 includes treatment to reduce the toxicity, mobility, and volume of groundwater and soil contamination. Enhanced biodegradation involves the enhancement of natural processes to destroy the target contaminants. Soil contamination would be reduced from the site via excavation, however, this soil would likely be transported for disposal and therefore toxicity would not be reduced. Additionally SVE would reduce the volume of contamination in the on-site vadose zone, however, toxicity would not be reduced unless the granulated activated carbon is treated rather than disposed.

Table 12.2: Comparative Analysis of Remedial Alternatives for Groundwater

Remedial Alternative	Alternative 1: No Action	Alternative 2: Limited Action - Institutional Controls On-Site with Downgradient Monitoring	Alternative 3: SVE and Air Sparging On-Site with Downgradient Monitoring	Alternative 4: In-Situ Enhanced Biodegradation On-Site with Downgradient Monitoring	Alternative 5: On-Site Excavation and Enhanced Biodegradation On-site with Groundwater Monitoring	Alternative 6: Source Area Excavation, SVE Beneath and Downgradient of Building, Enhanced Biodegradation On-Site and Downgradient and Groundwater Monitoring
Implementability	Although no services or materials would be required to implement Alternative 1, obtaining regulatory approval of Alternative 1 would be difficult.	Alternative 2 is a widely accepted procedure for protection of human health, however, since no active remediation would be conducted, obtaining regulatory approval for Alternative 2 would be difficult.	The technologies used for implementation of Alternative 3 are well developed and would not be difficult to implement. However, the remedy would require use of heavy equipment and would require full access of the parking area for a significant amount of time which would likely impede day to day business activities. It would also require a designated area for treatment equipment for approximately 15 years. These requirements may be difficult to resolve with the property owner(s).	The technologies used for implementation of Alternative 4 are well developed and would not be difficult to implement. Some difficulties in implementation of in-situ treatment would occur due to the location of the site building. However, the amendment used for in-situ enhanced biodegradation is long-lasting and typically migrates with groundwater flow, which is relatively fast-moving at the site, therefore injecting upgradient of the building would be applicable. Pre-design investigations would need to be conducted to determine if site conditions are favorable for this alternative (i.e., that the required micro-organisms exist).	The technologies used in Alternative 5 are well developed and would not be difficult to implement. Some difficulties in the implementation of in-situ treatment would occur due to the location of the site building. However, the amendment used for in-situ enhanced biodegradation is long-lasting and typically migrates with groundwater flow, which is relatively fast-moving at the site, therefore injecting upgradient of the building would be applicable. Pre-design investigations would need to be conducted to determine if site conditions are favorable for this alternative (i.e., that the required micro-organisms exist). The technologies used for excavation of the source area are also well developed and would not be difficult to implement. Good communications with the property owner will be required because the excavation will require use of a portion of the vehicle parking area for a limited amount of time.	The technologies used in Alternative 6 are well developed and are generally easy to implement. The SVE and excavation portions of the alternative would require use of heavy equipment, full access of the parking area, and access inside the building for a significant amount of time which would likely impede day to day business activities. The SVE system would also require a designated area for treatment equipment. These requirements may be difficult to resolve with the property owner(s). Difficulties in the implementation of in-situ treatment would occur due to the location of the site building. However, the amendment used for in-situ enhanced biodegradation is long-lasting and typically migrates with groundwater flow, which is relatively fast-moving at the site, therefore injecting upgradient of the building would be applicable. Pre-design investigations would need to be conducted to determine if site conditions are favorable for this alternative (i.e., that the required micro-organisms exist).

Prepared by / Revised: JDW 12/28/2009 / JDW 02/10/2010
Checked by / Re-checked: MJS 01/12/2010 / RTB 03/08/2010

APPENDIX A

SELECT O'BRIEN & GERE RI DATA

T:\10653_NYSDEC\CarriageCleaners\mxd\RI_REPORT\GWE_JULY2005.mxd

PLOT DATE: 1/30/07

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FIGURE 8

LEGEND

⊕	MONITORING WELL
—	GROUND WATER ELEVATION CONTOUR
➜	HYDRAULIC FLOW POTENTIAL
476.71	GROUND WATER ELEVATION

NYSDEC
CARRIAGE CLEANERS
TOWN OF BRIGHTON, NY

GROUND WATER ELEVATIONS JULY 2005

0 75 150 300
Feet

FEBRUARY 2007
10653\35749

O'BRIEN & GERE ENGINEERS, INC.

T:\10653_NYSDEC\CarriageCleaners\mxd\RI_REPORT\GWE_DEC2005.mxd

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PLOT DATE: 1/30/07

FIGURE 9

LEGEND

⊕	MONITORING WELL
—	GROUND WATER ELEVATION CONTOUR
➔	HYDRAULIC FLOW POTENTIAL
472.45	GROUND WATER ELEVATION

NYSDEC
CARRIAGE CLEANERS
TOWN OF BRIGHTON, NY

GROUND WATER ELEVATIONS DECEMBER 2005

0 75 150 300
Feet

FEBRUARY 2007
10653\35749

O'BRIEN & GERE ENGINEERS, INC.

T:\10653_NYSDEC\CarriageCleaners\mxd\RI_REPORT\GWE_APR2006.mxd

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PLOT DATE: 1/30/07

FIGURE 10

LEGEND

- MONITORING WELL
- GROUND WATER ELEVATION CONTOUR
- HYDRAULIC FLOW POTENTIAL
- 472.52 GROUND WATER ELEVATION

NYSDEC
CARRIAGE CLEANERS
TOWN OF BRIGHTON, NY

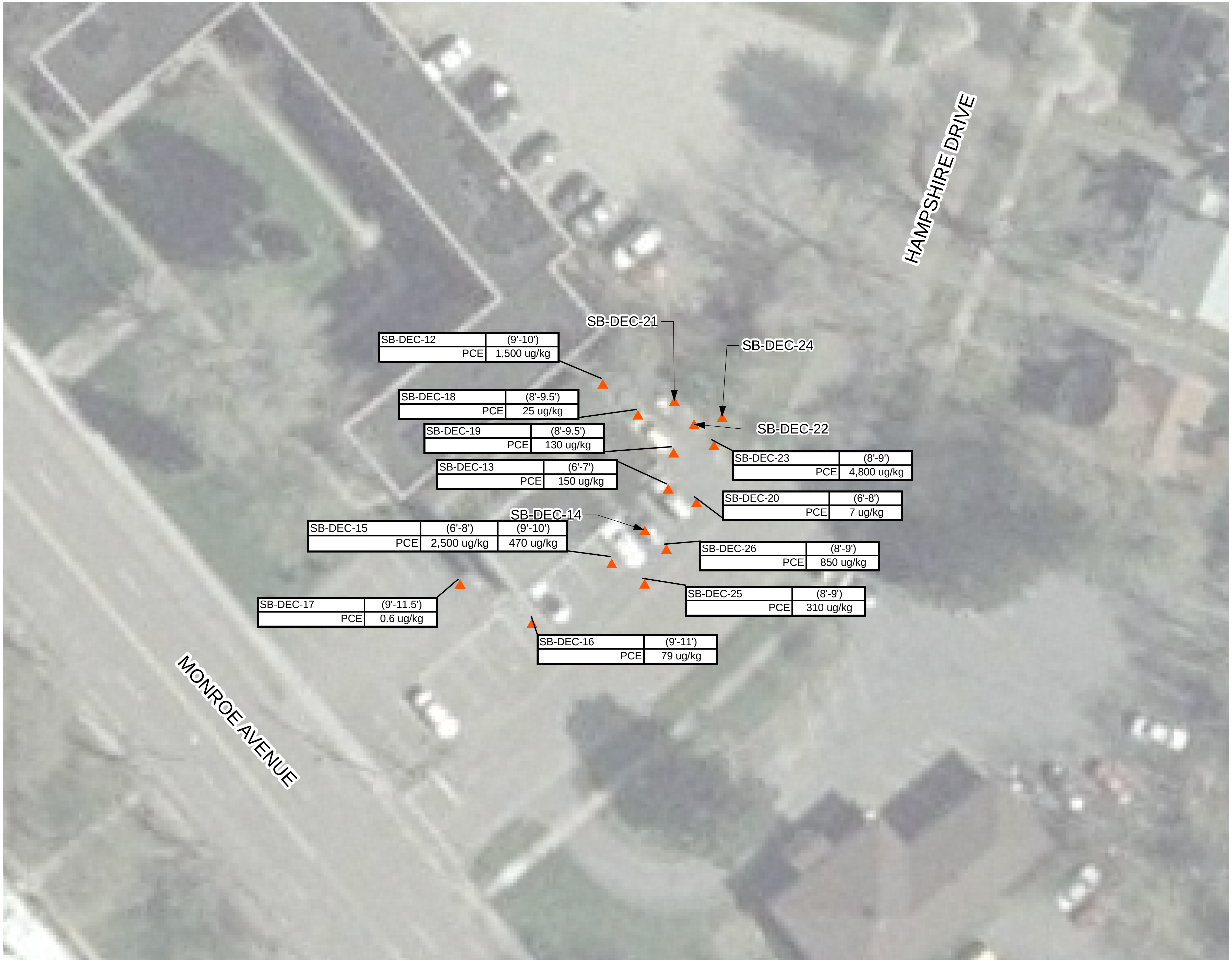
GROUND WATER ELEVATIONS APRIL 2006

0 75 150 300
Feet

FEBRUARY 2007
10653\35749

O'BRIEN & GERE ENGINEERS, INC.

T:\10653_NYSDEC\CarriageCleaners\mxd\RI_REPORT\SB_DATA_SPEEDYS.mxd



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PLOT DATE: 1/30/07

FIGURE 14

LEGEND

▲ SOIL BORING

CARRIAGE CLEANERS
NYSDEC

SOIL DATA - PCE

FORMER SPEEDY'S CLEANERS 2150 MONROE AVENUE

0 15 30 60
Feet

FEBRUARY 2007
10653\35749

O'BRIEN & GERE ENGINEERS, INC.

T:\10653_NYSDEC\CarriageCleaners\mxd\RI_REPORT\NEW_FIGS\PCE_CONC_RND1.mxd

PLOT DATE: 1/30/07

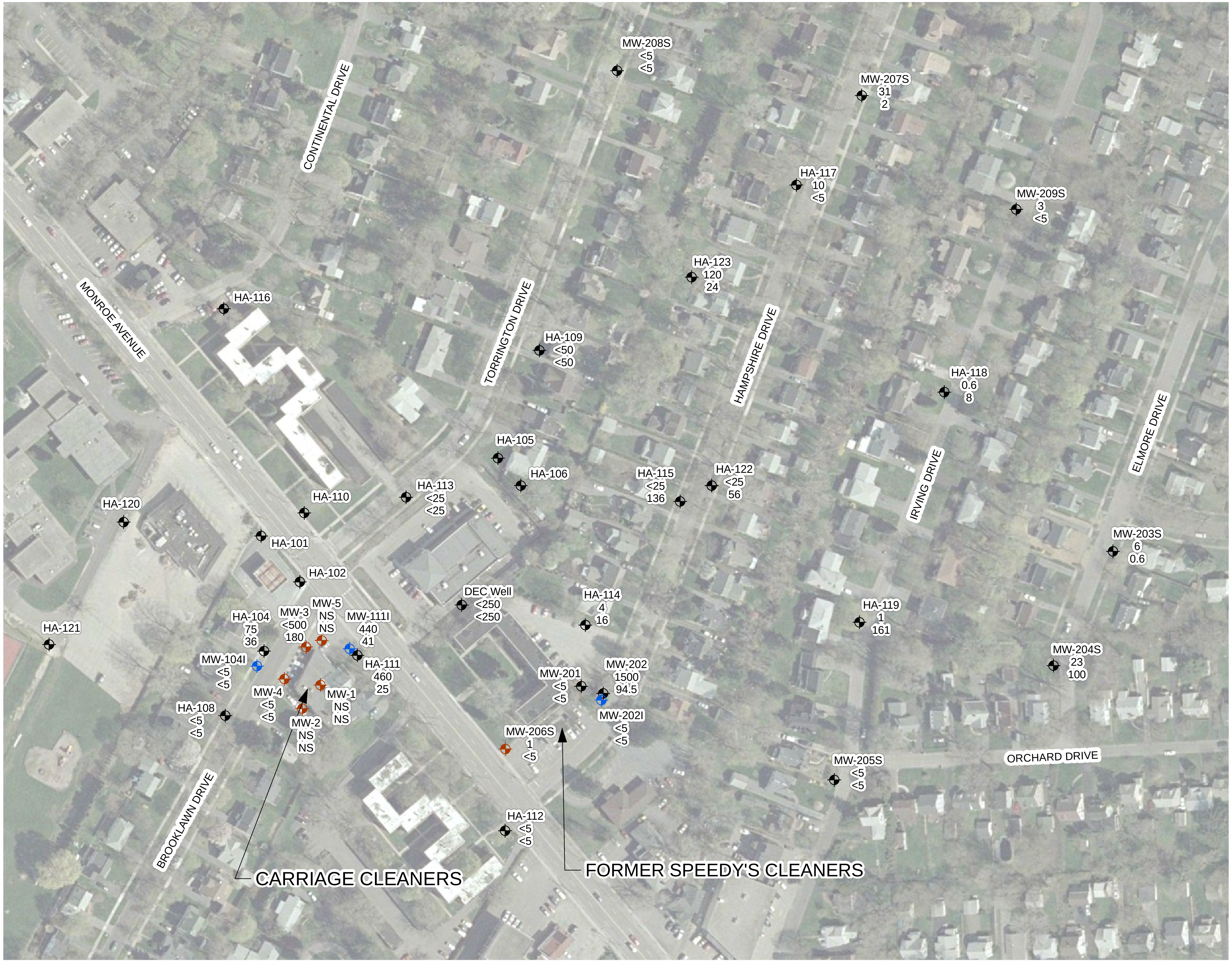

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FIGURE 15

LEGEND

● <all other values>
⊕ OVERBURDEN
⊕ SHALLOW BEDROCK INTERFACE
⊕ INTERMEDIATE BEDROCK

HA-123	WELL ID
120	PCE CONCENTRATION (UG/L)
24	TOTAL TCE, CIS-1,2-DCE, TRANS-1,2-DCE, AND VINYL CHLORIDE CONCENTRATIONS (UG/L)
NS	NOT SAMPLED

NYSDEC
CARRIAGE CLEANERS
TOWN OF BRIGHTON, NY

COC CONCENTRATIONS IN GROUND WATER JULY 2005

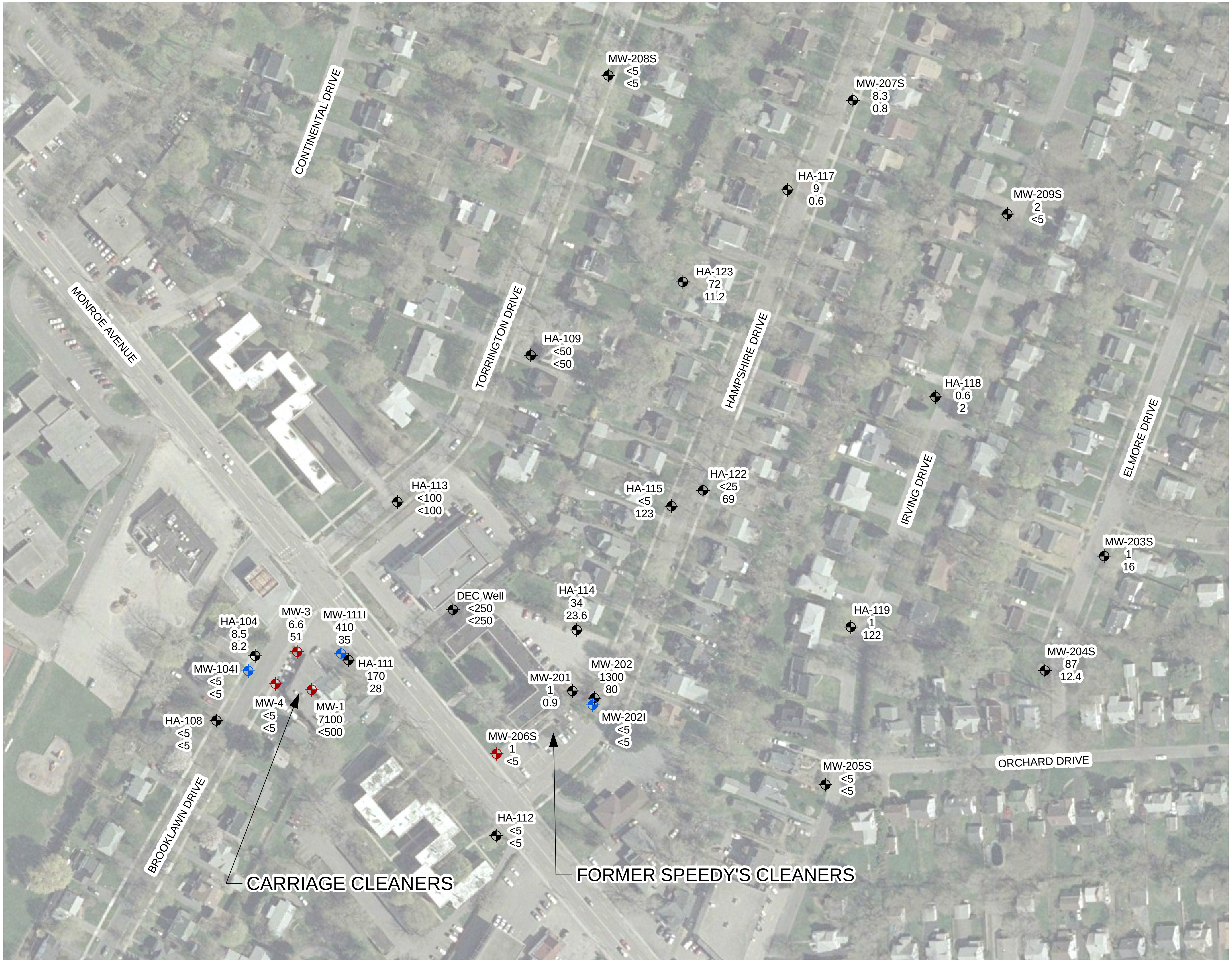
0 75 150 300
Feet

FEBRUARY 2007
10653\35749

O'BRIEN & GERE ENGINEERS, INC.

T:\10653_NYSDEC\CarriageCleaners\mxd\RI_REPORT\NEW_FIGS\PCE_CONC_RND2.mxd

FIGURE 16



This document was developed in color. Reproduction in B/W may not represent the data as intended.

LEGEND

⊕ OVERBURDEN
⊕ SHALLOW BEDROCK INTERFACE
⊕ INTERMEDIATE BEDROCK

HA-123	WELL ID
72	PCE CONCENTRATION (UG/L)
11.2	TOTAL TCE, CIS-1,2-DCE, TRANS-1,2-DCE, AND VINYL CHLORIDE CONCENTRATIONS (UG/L)

NYSDEC
CARRIAGE CLEANERS
TOWN OF BRIGHTON, NY

COC CONCENTRATIONS IN GROUND WATER DECEMBER 2005

0 75 150 300
Feet

FEBRUARY 2007
10653\35749

O'BRIEN & GERE ENGINEERS, INC.

PLOT DATE: 1/30/07

5.1.2 Other VOCs

VOCs, other than COCs, detected in the soil vapor samples mainly include petroleum and refrigerant compounds, many of which were detected in each of the soil vapor samples. NYSDOH has not established air guidance values for these compounds.

5.2 Sub-slab/Indoor Air

Two separate sub-slab/indoor air sampling events were completed as part of the Carriage Cleaners RI. The first sampling event occurred in April 2005 during which samples were collected from 22 properties. The second sampling event was completed between January 2006 and April 2006 during which samples were collected from 28 properties. Five of these properties were previously sampled during the first sampling event (April 2005) as shown on Figure 3. Indoor air sampling locations are shown on Figure 3. A summary of the VOCs detected in sub-slab vapor, basement air, and first floor air samples collected during the first sampling event (April 2005) is provided on Table 5. A summary of the VOCs detected in sub-slab vapor, basement air, and first floor air in samples collected during the second sampling event (January 2006 to April 2006) is provided on Tables 6. Table 7 provides an overall summary of the indoor air data as it relates to the number of samples analyzed, the number of detected concentrations, the number of guidance exceedances, and the range of detected concentrations for each COC and 1,1,1-trichloroethane (1,1,1-TCA) and carbon tetrachloride.

5.2.1 Evaluation of Soil Vapor Intrusion

Soil vapor intrusion is a process where VOCs migrate from a subsurface source into the indoor air of buildings. The vapors can migrate into indoor air due to interior and exterior pressure differentials through cracks, perforations in slabs or basement floors and/or walls, or openings around sumps or where pipes and/or electrical wires penetrate through the foundation. Heating, ventilation, and air conditioning systems, when operating, may cause negative pressure within the building that can draw soil vapor into the structure. Many chemicals are contained in household products, building materials, fuels, etc. and as such, chemicals are often found in air samples collected within structures even when a subsurface contaminant source is not present. Also, the subsurface source of soil vapor does not necessarily need to lie directly beneath a structure to adversely impact the vapor beneath the foundation.

From an indoor air monitoring perspective, the focus of this RI was to evaluate the concentrations of sub-slab vapor and indoor air and whether these concentrations are indicative of vapor intrusion. At locations where vapor intrusion was suspected, then appropriate actions to mitigate the vapor migration pathway and/or the exposure of building occupants to those vapors would be identified. In order to evaluate vapor intrusion, the sub-slab and indoor air sample results were reviewed and compared to the NYSDOH Soil Vapor/Indoor Air matrices described in *Guidance for Evaluating Soil Vapor Intrusion in the State of New York, Final* (NYSDOH, October 2006). Depending on the relationship between sub-slab and indoor air concentrations, vapor intrusion may or may not be suspected. The following provides discussion of the sub-slab and indoor air data in terms of the potential for vapor intrusion according to the NYSDOH air matrices.

To date, NYSDOH has developed matrices for the following VOCs: 1,1,1-TCA, PCE, TCE, and carbon tetrachloride. TCE and carbon tetrachloride are assigned to Soil Vapor/Indoor Air Matrix 1. 1,1,1-TCA and PCE are assigned to Soil Vapor/Indoor Air Matrix 2.

The sub-slab and indoor air analytical data for 1,1,1-TCA, PCE, TCE, and carbon tetrachloride from the April 2005 and January through April 2006 sampling events were evaluated against the NYSDOH decision matrices. Table 8 provides summaries of these data, NYSDOH matrix decision outcomes, and the corresponding actions considered appropriate by NYSDEC. Five potential decision matrix outcomes are described by NYSDOH as follows:

1. No further action:
Given that the compound was not detected in the indoor air sample and that the concentration detected in the sub-slab vapor sample is not expected to significantly affect indoor air quality, no additional actions are needed to address human exposures.

2. Take steps to identify source(s) and reduce exposures:
The concentration detected in the indoor air sample is likely due to indoor and/or outdoor sources rather than soil vapor intrusion given the concentration detected in the sub-slab vapor sample. Therefore, steps should be taken to identify potential source(s) and to reduce exposures accordingly.

3. Monitor:
Monitoring, including sub-slab vapor, basement air, lowest occupied living space air, and outdoor air sampling, is needed to evaluate whether concentrations in the indoor air or sub-slab vapor have changed. The type and frequency of monitoring is determined on a site-specific basis, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

4. Mitigate:
Mitigation is needed to minimize current or potential exposures associated with soil vapor intrusion. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

5. Monitor/Mitigate:
Monitoring or mitigation may be recommended after considering the magnitude of sub-slab vapor and indoor air concentrations along with building and site-specific conditions.

PCE, TCE, 1,1,1-TCA, and/or carbon tetrachloride were detected in select samples (*i.e.* sub-slab, basement, and/or first floor air) at concentrations above NYSDOH Soil Vapor/Indoor Air matrix values at various sample locations. Samples were collected from 45 locations (42 residential properties and three commercial properties). The following summarizes the actions considered as appropriate by NYSDEC in consideration of the NYSDOH matrices:

- No action is considered appropriate at 35 residential properties and two commercial properties. At these locations, detected COC concentrations are considered to be attributable to indoor and/or outdoor sources rather than vapor intrusion given the concentration detected in the sub-slab samples. At these locations, property owners should take measures to reduce exposure to indoor and/or outdoor-related sources. NYSDOH can provide guidance as to reasonable and practical actions that property owners and/or tenants can implement to reduce these exposures
- Additional monitoring is needed at seven residential properties to evaluate whether concentrations change over time and if mitigation is necessary at these locations. Implementation of this monitoring falls under the responsibility of the NYSDEC, with NYSDOH input as necessary.

- Mitigation is necessary at one commercial property due to the presence of PCE and TCE at elevated concentrations in air samples. Implementation of this action should be coordinated between NYSDOH and the property owner.

COCs associated with this RI, as well as other VOCs, were detected in indoor air samples. At most locations, the presence of these constituents in indoor air, are considered to be attributable to indoor and/or outdoor sources rather than vapor intrusion. At the small number of locations where vapor intrusion may be occurring, additional monitoring should be conducted to compare with previous results and evaluate if mitigation systems are warranted.

5.2.2 Other VOCs

Other VOCs detected mainly include petroleum and refrigerant compounds, many of which were detected in each of the sub-slab, basement air, and first floor air samples. NYSDOH has not established air guidance values for these compounds. However, 11 mitigation systems were installed by NYDSEC to address petroleum odors caused by the petroleum spill that occurred on the Newcomb Oil/Former Citgo Station property.

5.3 Subsurface Soil

A total of 27 subsurface soil samples were analyzed for VOCs as part of the RI, 13 of which were collected on the Carriage Cleaners property, and 14 collected on the former Speedy's Cleaners property (two samples were associated with the underground sewer evaluation described in Section 3.7). The objective of the soil boring program at the Carriage Cleaners property was to characterize the quality of soil in two separate areas. One area included the location of the underground storm and sanitary sewer lines servicing the facility and located along the west side of the building. The second area included narrow open areas/alleyways that separate the Carriage Cleaners building from a residential structure (2111 Monroe Avenue) that exists on the Carriage Cleaners property. Within this narrow open area/alleyway is an above ground storage tank that was formerly used to store PCE, as well as various 30 and 55-gallon drums. In addition, a backdoor to the facility is accessible via this area.

The soil borings were advanced at the former Speedy's Cleaners property to determine if PCE contamination exists in the shallow overburden that may be contributing to known off-site PCE groundwater contamination. The locations from which subsurface soil samples were collected are shown on Figures 5 and 6. A summary of the detected VOCs is provided on Table 9. The distribution of detected PCE concentrations in soil samples collected on the Carriage Cleaners and former Speedy's Cleaners properties is shown on Figures 13 and 14, respectively.

5.3.1 Constituents of concern

The following COCs were detected in the subsurface soil samples: PCE, TCE, cis-1,2-DCE, and vinyl chloride. As shown on Table 9, PCE was the only COC detected at concentrations exceeding TAGM 4046 RSCOs. Each of the 13 soil samples collected on the Carriage Cleaners property contained detectable concentrations of COCs. Each of the 12 soil samples collected at the former Speedy's Cleaners property contained detectable concentrations of COCs.

PCE

Two soil samples collected during the repair of the sewer utility, one just above the sewer (CC-STORM 2.5') and the other just below the sewer (CC-STORM 5.5'), contained PCE concentrations

Table 8

Carriage Cleaners RI/FS
NYSDEC Site #8-28-120

NYSDOH Decision Matrix Outcomes - Indoor Air

			MATRIX 2									
			1,1,1-Trichloroethane - Matrix 2					Tetrachloroethene - Matrix 2				
	Sample I.D.	**Sample Period**	**Subslab**	**Basement**	**First Floor**	**Ambient**	**Matrix Decision Outcome**	**Subslab**	**Basement**	**First Floor**	**Ambient**	**Matrix Decision Outcome**
1	01A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	2.8 J	1.6 J	2.4 J	1.2 J	No Further Action
2	01B	Apr-05	2.7	5.9	3.5	<0.83	Take reasonable and practical actions to identify source(s) and reduce exposures	2.5 J	2.2 J	3.2 J	6 J	No Further Action
3	02A	Apr-05	<0.83	0.78 J	0.61 J	<0.83	No Further Action	2.7 J	1 J	<1.0	1.2 J	No Further Action
4	03A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	3.7 J	2.8 J	2.3 J	1.2 J / <1	No Further Action
5	04A	Apr-05	1.2 J	3.8	2.9	<0.83	Take reasonable and practical actions to identify source(s) and reduce exposures	868.7 J	7.9 J	3.2 J	<1	Monitor / Mitigate
	012406-1	Jan-06	0.78 J	NA	NA	<0.832	No Further Action	230	4.2	3.2	2.69	Monitor / Mitigate
6	05A-1	Apr-05	<0.83	<0.83	NS	<0.83	No Further Action	2.3 J	1.2 J	NS	<1	No Further Action
	05A-2	Apr-05	<0.83	<0.83	NS	<0.83	No Further Action	2.3 J	0.69 J	NS	<1	No Further Action
7	06A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	1.9 J	2.6 J	2.5 J	<1	No Further Action
8	07A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	2.2 J	1.6 J	2.2 J	6 / 1.2 J	No Further Action
9	08A	Apr-05	<0.83	<0.83	0.55 J	<0.83	No Further Action	3.1 J	5.9 J	3.6 J	6 J	Take reasonable and practical actions to identify source(s) and reduce exposures
10	09A	Apr-05	<0.83	0.44	0.39 J	<0.83	No Further Action	12 J	<1	0.90 J	6 J	No Further Action
11	10A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	0.69 J	3.4 J	0.83 J	<1	Take reasonable and practical actions to identify source(s) and reduce exposures
12	11A	Apr-05	<0.83	0.89	<0.83	<0.83	No Further Action	2.5 J	0.83 J	3.9	1.5	Take reasonable and practical actions to identify source(s) and reduce exposures
13	12A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	5	1.4 J	1	1.5	No Further Action
14	13A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	6.9	2.8	1	1.5	No Further Action
15	14A	Apr-05	<0.83	0.72	1.1	<0.83	No Further Action	83 J	3.2	3.1	1.5	Take reasonable and practical actions to identify source(s) and reduce exposures
	012306-1	Jan-06	<0.83	NA	NA	<0.832	No Further Action	49	2.2	2.4	2.9	No Further Action
16	15A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	5.1 J	0.97 J	1.4	1.5	No Further Action
17	16A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	5.7 J	0.76 J	0.69 J	1.5	No Further Action
18	17A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	130 J	360	3.8	1.5	Mitigate
	030206-4	Mar-06	<28	NA	NA	<0.832	Incomplete data for decision making	280	3.5	2.3	0.689	Monitor
19	18A	Apr-05	<0.83	<0.83	<0.83	<0.83	No Further Action	1.7	0.83 J	2.5 J	1.5	No Further Action
20	19A	Apr-05	5.5	6.2	6.6	<0.83	Take reasonable and practical actions to identify source(s) and reduce exposures	67	30	27	1.2 J	Take reasonable and practical actions to identify source(s) and reduce exposures
	012406-2	Jan-06	1.2	NA	NA	<0.832	No Further Action	110	7	6.3	2.69	Monitor
21	20A	Apr-05	0.67 J	<0.83	<0.83	<0.83	No Further Action	270	2	5.4	1.2 J	Monitor
	013106-1	Jan-06	NS	<0.832	NA	<0.832	No Further Action	NS	1.31 J	3.6	0.483	Take reasonable and practical actions to identify source(s) and reduce exposures
22	C1-1	Aug-05	2.4	<0.83	<0.83	NS	No Further Action	250	340	150	NS	Mitigate
	C1-2	Aug-05	3.9					280				
23	012306-2	Jan-06	2.2	NA	NA	<0.832	No Further Action	23	5.5	2.1	2.9	Take reasonable and practical actions to identify source(s) and reduce exposures
24	012306-3	Jan-06	<0.83	NA	NA	<0.832	No Further Action	3.1 J	<1.5	<1.5	2.9	No Further Action
25	012306-4R	Jan-06	<0.83	NA	NA	<0.832	No Further Action	34	<1.5	<1.5	2.9	No Further Action
26	012306-5	Jan-06	<0.83	NA	NA	<0.832	No Further Action	11 J	4.7	3.7	2.9	Take reasonable and practical actions to identify source(s) and reduce exposures
27	012406-3	Jan-06	<0.83	NA	NA	<0.832	No Further Action	2.5 J	<1.4	<1.4	2.69	No Further Action
28	012506-1	Jan-06	0.33 J	NA	NA	<0.832	No Further Action	100	13	7.1	<1.03	Monitor / Mitigate
29	012506-2	Jan-06	<0.83	NA	NA	<0.832	No Further Action	370 J	1.9	<1.4	<1.03	Monitor
30	012506-3	Jan-06	<0.83	NA	NA	<0.832	No Further Action	8.5 J	2.3	1.2	<1.03	No Further Action
31	012506-4	Jan-06	NS	NA	NA	<0.832	Incomplete data for decision making	NS	<1.4	<1.4	<1.03	No Further Action
32	012506-5	Jan-06	0.22 J	NA	NA	<0.832	No Further Action	2.1 J	<1.5	<1.5	<1.03	No Further Action
33	012606-1	Jan-06	<0.83	NA	NA	<0.832	No Further Action	16	<1.4	1.4	<1.03	No Further Action
34	013006-1	Jan-06	0.44 J	27.2	NA	<0.832	Take reasonable and practical actions to identify source(s) and reduce exposures	2.8 J	1.17	1.9	0.827	No Further Action
35	013006-2	Jan-06	0.61 J	NA	NA	<0.832	No Further Action	72 J	2.2	2.2	0.827	No Further Action
36	013006-3	Jan-06	0.61 J	1.05	NA	<0.832	No Further Action	440 J	3.38 J	2.1	0.827	Monitor / Mitigate
37	013006-4	Jan-06	NS	<0.832	NA	<0.832	No Further Action	NS	25.5	15	0.827	Incomplete data for decision making
38	013006-5	Jan-06	<0.83	<0.832	NA	<0.832	No Further Action	45 J	1.17 J	1.7	0.827	No Further Action
39	013106-2	Jan-06	<0.83	NA	NA	<0.832	No Further Action	1.1 J	2.7	1.9	0.483	No Further Action
40	013106-3	Jan-06	<0.83	NA	NA	<0.832	No Further Action	13 J	2.2	NS	0.483	No Further Action
41	013106-4	Jan-06	0.28 J	<0.832	NA	<0.832	No Further Action	50 J	0.896 J	1.4	0.483	No Further Action
42	030206-1	Mar-06	NS	NA	NA	<0.832	Incomplete data for decision making	NS	<1.4	<1.4	0.689	No Further Action
43	030206-2	Mar-06	<280	NA	NA	<0.832	Incomplete data for decision making	47000	NS	1.9	22 / 12	Mitigate
	030206-3	Mar-06	<550	NA	NA	<0.832	Incomplete data for decision making	13000	NS	1.9	22 / 12	Mitigate
44	041006-1A	Apr-06	<0.83	NA	NA	<0.832	No Further Action	<1	2	2	1.59	No Further Action
	041006-1B								2	2.5	1.59	No Further Action
45	041106-1	Apr-06	0.67 J	NA	NA	NS	No Further Action	0.97 J	2.3	2	NS	No Further Action

Notes: NA - Not Analyzed
NS - Not Sampled
J - Estiated Concentration
OSHA PELs - Occupational Safety and Health Administration Permissible Exposure Limits

Table 8

Carriage Cleaners RI/FS
NYSDEC Site #8-28-120

NYSDOH Decision Matrix Outcomes - Indoor Air

			MATRIX 1									
			Trichloroethene - Matrix 1					Carbon Tetrachloride - Matrix 1				
	Sample I.D.	Sample Period	Subslab	Basement	First Floor	Ambient	Matrix Decision Outcome	Subslab	Basement	First Floor	Ambient	Matrix Decision Outcome
1	01A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	1	<0.96	<0.96	1.1	No Further Action
2	01B	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	<0.96	0.83 J	0.58 J	0.51 J	Take reasonable and practical actions to identify source(s) and reduce exposures
3	02A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	1.2	1	1	1.1	Take reasonable and practical actions to identify source(s) and reduce exposures
4	03A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	<0.96	1.1	3	1.1 / 0.9 J	Take reasonable and practical actions to identify source(s) and reduce exposures
5	04A	Apr-05	20	<0.82	4	<0.82	Monitor	0.64 J	1	0.9 J	0.9 J	Take reasonable and practical actions to identify source(s) and reduce exposures
	012406-1	Jan-06	14 J	NA	NA	0.874 J	Monitor	0.58 J	NA	NA	0.64 J	No Further Action
6	05A-1	Apr-05	<0.82	<0.82	NS	<0.82	No Further Action	0.64 J	<0.96	NS	0.9 J	No Further Action
	05A-2	Apr-05	<0.82	<0.82	NS	<0.82	No Further Action	0.77 J	<0.96	NS	0.9 J	No Further Action
7	06A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	<0.96	<0.96	<0.96	0.9 J	No Further Action
8	07A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	<0.96	0.45 J	<0.96	0.51 J / 0.96	Take reasonable and practical actions to identify source(s) and reduce exposures
9	08A	Apr-05	<0.82	<0.82	36	<0.82	Take reasonable and practical actions to identify source(s) and reduce exposures	<0.96	0.45 J	0.64 J	0.51 J	Take reasonable and practical actions to identify source(s) and reduce exposures
10	09A	Apr-05	0.55 J	<0.82	<0.82	<0.82	No Further Action	<0.96	0.45 J	0.38 J	0.51 J	Take reasonable and practical actions to identify source(s) and reduce exposures
11	10A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	0.64 J	<0.96	0.64 J	0.64 J	Take reasonable and practical actions to identify source(s) and reduce exposures
12	11A	Apr-05	<0.82	5.3	2.2	<0.82	Take reasonable and practical actions to identify source(s) and reduce exposures	0.58 J	0.64 J	<0.96	0.7 J	Take reasonable and practical actions to identify source(s) and reduce exposures
13	12A	Apr-05	8.4	<0.82	<0.82	<0.82	No Further Action	<0.96	<0.96	<0.96	0.7 J	No Further Action
14	13A	Apr-05	5.7	<0.82	<0.82	<0.82	No Further Action	<0.96	12.3	0.64 J	0.7 J	Take reasonable and practical actions to identify source(s) and reduce exposures
15	14A	Apr-05	7	<0.82	<0.82	<0.82	No Further Action	<0.96	0.64 J	<0.96	0.7 J	Take reasonable and practical actions to identify source(s) and reduce exposures
	012306-1	Jan-06	2.2 J	NA	NA	1.15 J	Take reasonable and practical actions to identify source(s) and reduce exposures	0.45 J	NA	NA	0.576 J	No Further Action
16	15A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	<0.96	0.83 J	0.77 J	0.7 J	No Further Action
17	16A	Apr-05	<0.82	<0.82	<0.82	<0.82	No Further Action	<0.96	0.7 J	0.64 J	0.7 J	No Further Action
18	17A	Apr-05	23	<0.82	<0.82	<0.82	Take reasonable and practical actions to identify source(s) and reduce exposures	<0.96	<0.96	0.64 J	0.7 J	No Further Action
	030206-4	Mar-06	30	NA	NA	<0.218	Incomplete data for decision making	<32	NA	NA	0.767 J	Incomplete data for decision making
19	18A	Apr-05	<0.82	6.9	<0.82	<0.82	Take reasonable and practical actions to identify source(s) and reduce exposures	<0.96	0.64 J	<0.96	0.7 J	Take reasonable and practical actions to identify source(s) and reduce exposures
20	19A	Apr-05	4.6	3	2.7	<0.82	Take reasonable and practical actions to identify source(s) and reduce exposures	<0.96	<0.96	0.64 J	0.96	Take reasonable and practical actions to identify source(s) and reduce exposures
	012406-2	Jan-06	0.38 J	NA	NA	0.874	No Further Action	0.38 J	NA	NA	0.64 J	No Further Action
21	20A	Apr-05	16	<0.82	<0.82	<0.82	No Further Action	<0.96	0.64 J	<0.96	0.96	Take reasonable and practical actions to identify source(s) and reduce exposures
	013106-1	Jan-06	NS	<0.218	NA	<0.218	No Further Action	NS	0.703 J	NA	0.576 J	Take reasonable and practical actions to identify source(s) and reduce exposures
22	C1-1	Aug-05	190	2.8	2.2	NS	Mitigate	<0.96	0.64 J	<0.96	NS	Take reasonable and practical actions to identify source(s) and reduce exposures
	C1-2	Aug-05	270					<0.96				
23	012306-2	Jan-06	3.2 J	NA	NA	1.15 J	No Further Action	0.58 J	NA	NA	0.576 J	No Further Action
24	012306-3	Jan-06	0.22 J	NA	NA	1.15 J	No Further Action	0.58 J	NA	NA	0.576 J	No Further Action
25	012306-4R	Jan-06	0.55 J	NA	NA	1.15 J	No Further Action	0.45 J	NA	NA	0.576 J	No Further Action
26	012306-5	Jan-06	<0.82	NA	NA	1.15 J	No Further Action	0.77 J	NA	NA	0.576 J	No Further Action
27	012406-3	Jan-06	0.44 J	NA	NA	0.874 J	No Further Action	0.7 J	NA	NA	0.64 J	No Further Action
28	012506-1	Jan-06	9.3 J	NA	NA	<0.218	Incomplete data for decision making	0.77 J	NA	NA	0.576 J	No Further Action
29	012506-2	Jan-06	6.9 J	NA	NA	<0.218	Incomplete data for decision making	0.32 J	NA	NA	0.576 J	No Further Action
30	012506-3	Jan-06	0.33 J	NA	NA	<0.218	No Further Action	0.83 J	NA	NA	0.576 J	No Further Action
31	012506-4	Jan-06	NS	NA	NA	<0.218	Incomplete data for decision making	NS	NA	NA	0.576 J	Incomplete data for decision making
32	012506-5	Jan-06	0.27 J	NA	NA	<0.218	No Further Action	0.64 J	NA	NA	0.576 J	No Further Action
33	012606-1	Jan-06	0.82	NA	NA	0.328 J	No Further Action	0.51 J	NA	NA	0.576 J	No Further Action
34	013006-1	Jan-06	0.22 J	2.2	NA	<0.218	No Further Action	0.51 J	0.767 J	NA	0.767 J	Take reasonable and practical actions to identify source(s) and reduce exposures
35	013006-2	Jan-06	9 J	NA	NA	<0.218	Incomplete data for decision making	0.26 J	NA	NA	0.767 J	No Further Action
36	013006-3	Jan-06	39 J	0.328 J	NA	<0.218	Monitor	0.51 J	0.831 J	NA	0.767 J	Take reasonable and practical actions to identify source(s) and reduce exposures
37	013006-4	Jan-06	NS	1.37 J	NA	<0.218	Incomplete data for decision making	NS	1.92	NA	0.767 J	Take reasonable and practical actions to identify source(s) and reduce exposures
38	013006-5	Jan-06	1.5 J	<0.218	NA	<0.218	No Further Action	0.38 J	0.64 J	NA	0.767 J	Take reasonable and practical actions to identify source(s) and reduce exposures
39	013106-2	Jan-06	<0.82	NA	NA	<0.218	No Further Action	0.58 J	NA	NA	0.576 J	No Further Action
40	013106-3	Jan-06	1 J	NA	NA	<0.218	No Further Action	0.58 J	NA	NS	0.576 J	No Further Action
41	013106-4	Jan-06	<0.82	<0.218	NA	<0.218	No Further Action	0.32 J	0.767 J	NA	0.576 J	Take reasonable and practical actions to identify source(s) and reduce exposures
42	030206-1	Mar-06	NS	NA	NA	<0.218	Incomplete data for decision making	NS	NA	NA	0.767 J	Incomplete data for decision making
43	030206-2	Mar-06	2100	NA	NA	<0.218	Mitigate	<320	NS	NA	0.767 J	Incomplete data for decision making
	030206-3	Mar-06	1300	NA	NA	<0.218	Mitigate	<640	NS	NA	0.767 J	Incomplete data for decision making
44	041006-1A	Apr-06	<0.82	NA	NA	<0.218	No Further Action	<0.96	NA	NA	<0.959	No Further Action
	041006-1B						No Further Action					No Further Action
45	041106-1	Apr-06	1.9 J	NA	NA	NS	No Further Action	<0.96	NA	NA	NS	No Further Action

Notes: NA - Not Analyzed
NS - Not Sampled
J - Estiated Concentration
OSHA PELs - Occupational Safety and Health Administration Permissible Exposure Limits

Table 8

Carriage Cleaners RI/FS
NYSDEC Site #8-28-120

NYSDOH Decision Matrix Outcomes - Indoor Air

	Sample I.D.	Sample Period	NYSDEC Action
1	01A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
2	01B	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
3	02A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
4	03A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
5	04A	Apr-05	Additional monitoring to evaluate needed for mitigation
	012406-1	Jan-06	
6	05A-1	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
	05A-2	Apr-05	
7	06A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
8	07A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
9	08A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
10	09A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
11	10A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
12	11A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
13	12A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
14	13A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
15	14A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
	012306-1	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
16	15A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
17	16A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
18	17A	Apr-05	Additional monitoring to evaluate needed for mitigation
	030206-4	Mar-06	
19	18A	Apr-05	No Action Needed; concentrations not attributed to vapor intrusion
20	19A	Apr-05	Additional monitoring to evaluate needed for mitigation
	012406-2	Jan-06	
21	20A	Apr-05	Additional monitoring to evaluate needed for mitigation
	013106-1	Jan-06	
22	C1-1	Aug-05	Mitigate due to presence of PCE and TCE
	C1-2	Aug-05	
23	012306-2	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
24	012306-3	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
25	012306-4R	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
26	012306-5	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
27	012406-3	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
28	012506-1	Jan-06	Additional monitoring to evaluate needed for mitigation
29	012506-2	Jan-06	Additional monitoring to evaluate needed for mitigation
30	012506-3	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
31	012506-4	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
32	012506-5	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
33	012606-1	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
34	013006-1	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
35	013006-2	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
36	013006-3	Jan-06	Additional monitoring to evaluate needed for mitigation
37	013006-4	Jan-06	No Action Needed; vapor mitigation system in-place
38	013006-5	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
39	013106-2	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
40	013106-3	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
41	013106-4	Jan-06	No Action Needed; concentrations not attributed to vapor intrusion
42	030206-1	Mar-06	No Action Needed; concentrations not attributed to vapor intrusion
43	030206-2	Mar-06	No Action Needed (OSHA PELs apply to active dry cleaner); house on property has vapor mitigation system in-place
	030206-3	Mar-06	
44	041006-1A	Apr-06	No Action Needed; concentrations not attributed to vapor intrusion
	041006-1B		
45	041106-1	Apr-06	No Action Needed; concentrations not attributed to vapor intrusion

Notes: NA - Not Analyzed
NS - Not Sampled
J - Estiated Concentration
OSHA PELs - Occupational Safety and Health Administration Permissible Exposure Limits

T:\10653_NYSDEC\CarriageCleaners\mxd\RI_REPORT\INDOOR_AIR_LOCS-NO_IDS.mxd

FIGURE 3

This document was developed in color. Reproduction in B/W may not represent the data as intended.

LEGEND

▨ PHASE I/II INDOOR AIR SAMPLE
▨ PHASE I INDOOR AIR SAMPLE
▨ PHASE II INDOOR AIR SAMPLE
◆ SOIL VAPOR SAMPLE

EXISTING SUB-SLAB SYSTEMS

● INSTALLED DUE TO PRESENCE OF PCE
● INSTALLED DUE TO PRESENCE OF PETROLEUM
● INSTALLED DUE TO PRESENCE OF RADON

NYSDEC
CARRIAGE CLEANERS
TOWN OF BRIGHTON, NY

AIR SAMPLE LOCATIONS

0 112.5 225 450
Feet

FEBRUARY 2007
10653/35749

O'BRIEN & GERE ENGINEERS, INC.

PLOT DATE: 1/30/07

APPENDIX B

FIELD DATA RECORDS

APPENDIX B.1

SOIL BORING LOGS

SOIL BORING LOG

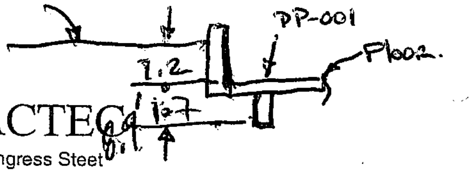
Project: Former Speedy's Cleaners Site
Boring/Well No.: DP-001
Project No.: 3612082109
Client: NYSDEC
Site: Former Speedy's Cleaners
Sheet No. 1 of 1
Logged By: C. Lyman
Ground Elevation: est 481.7
Start Date: 12/17/08
Finish Date: 12/17/08
Drilling Contractor: Nothnagle
Driller's Name: CLyman
Rig Type: Geoprobe Hand
Drilling Method: Direct Push
Protection Level: D
P.I.D. (eV): 10.0 580 B
Casing Size: 2"
Auger Size: —
Soil Drilled: 1.7'
Rock Drilled: NA
Total Depth: 8.9'
Depth to Groundwater/Date: unknown
Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
				5				
	1.0/1.0'	1.0/1.7		~~0-1.0~~ BROWN, Silty SAND, TRACE GRAVEL, MED-DENSE 7.2-8.9' Moist. *SAMPLED All interval	Fill	5.1 mx	NA	~~NA~~ *
	NA		NA	Bottom of boring ≈ 1.7' below slab ≈ 8.9' BGS.				

*Sample collected below basement slab;

-slab was ~7.2' bgs

JR 5/1/09



MACTEC
511 Congress Steet
Portland, ME 04101

FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

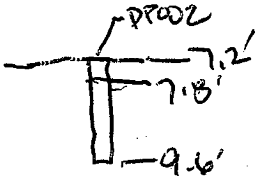
Project Former Speedy's Cleaners Site	Boring/Well No. DP-002	Project No. 3612082109
Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1
Logged By C. Lyman	Ground Elevation est 481.7'	Start Date 12/18/09
Finish Date 12/18/09	Drilling Contractor Nothnagle	Driller's Name C Lyman
Rig Type Geoprobe HAND	Drilling Method Direct Push	Protection Level D
P.I.D. (eV) 10.0 580 B	Casing Size 2 1/8	Auger Size —
Soil Drilled 1.8'	Rock Drilled NA	Total Depth 9.6'
Depth to Groundwater/Date UNK	Piez ☐ Well ☐ Boring ☑	

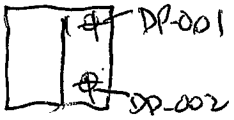
Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	PID	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
6 7 8 9	1.3'/1.8'	NA	NA	7.8 to 9.6: BROWN, SILTY SAND, PG/WS, MOIST, TRACE GRAVEL 0.1 fine SANDY silt lense @ Bottom	0 2 4 8 13	Fill ↓	15.2 (Max) PPM (Shoe)	NA	~~NA~~ *

1
2
3
4
5
6
7
8
9
10
11
12

*Sample collected below building slab;
basement slab was ~7.2' bgs

JR 5/1/09





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Portland, ME 04101

FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

PORT2007022w.mac

SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-003	Project No. 3612082109

Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1

Logged By C. Lyman	Ground Elevation Est. 481.7	Start Date 12/18/08	Finish Date 12/18/08

Drilling Contractor Nothnagle	Driller's Name CLyman	Rig Type Geoprobe Hand tools

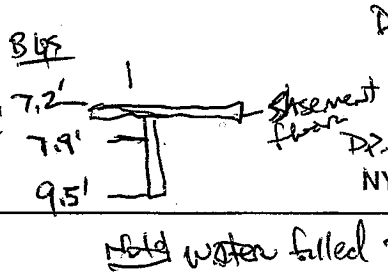
Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.0 580 B	Casing Size 2 1/2	Auger Size –

Soil Drilled 1.6'	Rock Drilled NA	Total Depth 9.5'	Depth to Groundwater/Date ~8.5' 12/18/08	Piez ☐	Well ☐	Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
7.2'	1 1.1/1.6	NA	NA	(7.9 – 9.5) Olive Brown, Med-Cose to fine sandy silt Pq{ slightly plastic. saturated Brickfrags, trace gravel	Fill	4.0	NA	
2								
3 9.5'				sampled 9'-9.5' * DP-003009				*
4				PID 100 PPM @ shoe (9.4' 9.5' BGS)				
5				(Watertable ≈ 8' BGS)				
6								
7				*Sample collected beneath				
8				basement slab,				
9				-slab was ~7.2' bgs				
10								
11								
12								

8

JR 5/1/09



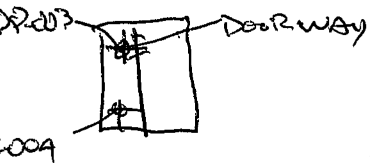


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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

PORT2007022w.mac

Note water filled BORING
Note PID malfunctioned

7.9
1.6
9

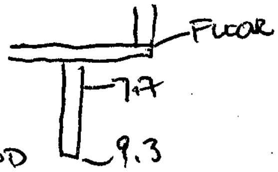
SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-004	Project No. 3612082109
Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1
Logged By C. Lyman	Ground Elevation est. 481.7	Start Date 12/18/08 Finish Date 12/18/08
Drilling Contractor Nothnagle	Driller's Name CLYMAN	Rig Type Geoprobe ~~6610 DT~~ HAND
Drilling Method Direct Push	Protection Level D P.I.D. (eV) 10.0 580 B	Casing Size 2 1/8 Auger Size —
Soil Drilled 1.6' Rock Drilled NA	Total Depth 9.3	Depth to Groundwater/Date Unknown Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
				Lt BROWN, fine/crs sandy silt, Moist, mod Plas.		10 ppm	NA	
7.7	1.0' / 1.6'	NA	NA	OLIVE BROWN., SANDY silt, Moist, mod Plasticity		26 ppm		
1								
2				sampled olive Brown horizon 1100				*
3 9.3					Fill			
4				*Sample collected beneath basement slab,				
5								
6								
7				Slab was ~ 7.2' bgs				
8								
9								
10								
11				Note) VOA, SVOC, Pest/PCB, Metals & DUP.				
12								

8

JR 5/1/09



Note) Collected second core out of DP-004 to get more volume.

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-05	Project No. 3612082109
Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1

Logged By C. Lyman / BShea	Ground Elevation 487.8'	Start Date 12-15-08	Finish Date 12-15-08
Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type Geoprobe 6610DT.	
Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.0 580 B	Casing Size 2.1/8
Auger Size			
Soil Drilled 11.5	Rock Drilled NA	Total Depth 11.5	Depth to Groundwater/Date ≈11' BGS 12/15/08

Piez ☐ Well ☐ Boring ☑

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1 @ 1025	1 2 3	2.4 4.0	NA	NA	0-0.8 DK Brown silty loam, MDense, PG, ~~damp~~ damp (JR), SP 0.8-3.5 Lt Brown/olive Brown fine sandy silt/silty sand, trace coarse sand, PG, SP, Bricks @ 3.1, damp to wet; 3.5-4 Lt olive brown silty sand w/ some gravel fine to coarse, WG, SP, MDense,	Fill Bricks	<0.1	NA	
S2 @ 1035	4 5 6 7	3.2 4.0			4-4.5 olive Brown fine sandy silt w/ some clay, damp PG, some bricks, MP, MStiff, 4.5-5.2 Lt olive/Lt Brown, fine sandy silt, PG, MP friable, Dense/stiff, 5.2-6.3 reddish brown, fine sandy silt, MP, PG, damp Dense/stiff, 6.3-7.5 reddish Brown to Lt Brown, silty fine to coarse sand, NP to MP, damp to wet, Bricks @ 7.1' 7.5-8 olive Brown silty coarse sand, PG, wet, SP,	Fill Bricks Fill Bricks Town SmSp	<0.1		4' * 828128DP0508 @1100 8'
S3 @ 1047	8 9 10 11	2.6 3.5			8-10.5 Lt Reddish brown fine to mcoarse sandy silty MP/SP, wet to saturated, WG, MStiff 10.5-11.5 olive Brown silty sand, fines to fine gravel, WG, NP, loose, ~~dry~~, Refusal @ 11.5;	~~Lo.1~~ SmSp Sm SW	<0.1		8' * 828128DP05012 @1100 11.5
	12				11.5' BGS = Bottom of boring.				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project: Former Speedy's Cleaners Site
Boring/Well No.: DP-006
Project No.: 3612082109

Client: NYSDEC
Site: Former Speedy's Cleaners
Sheet No. 1 of 1

Logged By: C. Lyman / B. Shaw
Ground Elevation: est 487.5'
Start Date: 12-15-08
Finish Date: 12-15-08

Drilling Contractor: Nothnagle
Driller's Name: Jeff Schweiter
Rig Type: Geoprobe 6610DT

Drilling Method: Direct Push
Protection Level: D
P.I.D. (eV): 10.0 580 B
Casing Size: 2 1/8
Auger Size: —

Soil Drilled: 10.5
Rock Drilled: N/A
Total Depth: 10.5
Depth to Groundwater/Date: —
Piez ☐ Well ☐ Boring ☑

S1 @ 1105

S2 @ 1112

S3 @ 1120

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
1 2 3 4	3.3 / 4.0	NA	NA	0-0.5 Lt Brown/olive Brown Sandy loam, damp, PG, loose, NP 0.5-3.1 Lt olive Brown to yellowish Brown fine sandy silt, w/some coarse sand, PG, wet, SP/MP, MStiff 3.1-4 DK olive fine Sandy silty PG, damp, MP, MStiff	Fill Bricks	<0.1	NA	
5 6 7 8	3.8 / 4.0			4-5.1 DK olive fine to M coarse sandy silt, PG, damp, MP, MStiff 5.1-7.2 Lt yellowish Brown to Lt reddish Brown PG fine sandy silt, MP, damp, Stiff to MStiff 7.2-8, silty sand, fines to fine gravel, WG, loose, damp, NP to SP, reddish Brown,	Fill ~~Bricks~~ b.J	<0.1	6' 8'	88128-DP006008 @ 1115
9 10	2.2 / 2.5			8-10.5 M coarse to coarse Sandy silty cobble @ 8.8 Lt Reddish Brown to DK olive Brown, damp to wet, MP to SP, WG,	SM SW	<0.1		
11 12				Bottom of boring = 10.5' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedy's Cleaners Site
Boring/Well No. DP-007
Project No. 3612082109

Client NYSDEC
Site Former Speedy's Cleaners
Sheet No. 1 of 1

Logged By C. Lyman
Ground Elevation 486.1
Start Date 12/15/08
Finish Date 12/15/08

Drilling Contractor Nothnagle
Driller's Name Jeff Schwetor
Rig Type Geoprobe 6610 DT

Drilling Method Direct Push
Protection Level D
P.I.D. (eV) 10.0 580 B
Casing Size 2 1/8
Auger Size

Soil Drilled 9.0
Rock Drilled NA
Total Depth 9.0
Depth to Groundwater/Date ≈8' BGS 12/15/08
Piez ☐ Well ☐ Boring ☑

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1	1 2 3	2.2/4.0	NA	NA	0.0-0.3 DK BROWN LOAM, M DENSE, PG 0.3-1.9 REDISH BRN, fine SAND, silt fine SAND 1.9-2.2 Lt olive BRN, SAND, trace BRICKS, gravel COARSE gravel BRICKS	fill	<0.1	NA	NA
S2	4 5 6 7	3.4/4.0			0.0-1.8 - BROWN, SAND; 1.8-2.5 - Moist, BROWN silty SAND 2.5-3.4 - ~~Wet~~ Brown, silty fine SAND Not sampled Sampled 4'-6' DP007006 1310 Sampled 6'-8' DP007008 1345		<0.1		
S3 1315	8	0.8/1			0.8-1 BROWN, silty SAND, wet.		<0.1		
	9 10 11 12				Bottom of boring = 9.0' BGS ← Refusal 9.0'				

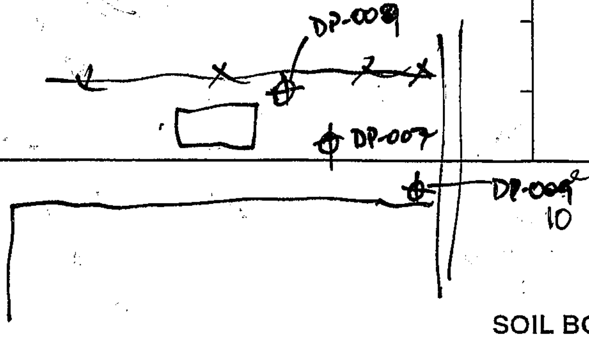

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project: Former Speedy's Cleaners Site
Boring/Well No. DP-08
Project No. 3612082109

Client: NYSDEC
Site: Former Speedy's Cleaners
Sheet No. 1 of 1

Logged By: C. Lyman
Ground Elevation: 487.5'
Start Date: 12-15-08
Finish Date: 12-15-08

Drilling Contractor: Nothnagle
Driller's Name: Jeff Schwietzer
Rig Type: Geoprobe 6610DT

Drilling Method: Direct Push
Protection Level: D
P.I.D. (eV): 10.0 580 B
Casing Size: 2 1/8"
Auger Size:

Soil Drilled: 10'
Rock Drilled: N/A
Total Depth: 10'
Depth to Groundwater/Date: —
Piez ☐ Well ☐ Boring ☑

	Depth (Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1 @ 1140	1 2 3 4	1.4/4.0	NA	NA	0'-≈2' Lt Brown fines to fine gravel, damp, w/ tree roots @ 0.5', Fill ≈2' to ≈4' Dk olive Brown, fine sandy silt, M Dense to Dense, P, PG, damp-	fill ↓	<0.1 ↓	NA	NA
S2 @ 1150	5 6 7 8	3.4/4.0			4'-8' Fine sandy silt, w/ some coarse sand to fine gravel, Fill material, M.Dense	Fill	<0.1 ↓		
S3 @ 1200	9 10	1.4/2.0			8'-10' Silt, fine sand, WC,		<0.1 ↓		
	11 12				Bottom of boring = 10.0' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedy's Cleaners Site		Boring/Well No. DP-9	Project No. 3612082109
Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1	
Logged By C. Lyman B Shaw	Ground Elevation, 486.3'	Start Date 12-15-08	Finish Date 12-15-08
Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type Geoprobe 6610DT	
Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.0 580 B	Casing Size 2 1/8" / Auger Size —
Soil Drilled 9 / Rock Drilled NA	Total Depth 9	Depth to Groundwater/Date ≈8' BGS 12/15/08	Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
0–4	2.6 / 4.0	NA	NA	0-0.5 olive silty loam, roots 0.5-3.2 Lt olive Brown to yellowish Brown ~~st~~ fine sandy silt, DG, metal slag (Black) @ ~1.7-2.1, 3.0 damp, MP/SP, MStiff to Stiff, 3.2-4 Lt Reddish Brown silty sand, fines to coarse gravel, loose, Dry, NP, WG	Fill Metal Slag Fill	<0.1		
4–8	3.7 / 4.0			4-5.4 Lt olive Brown fine sandy silt, some clay damp, MP/HP, DG, Stiff 5.4-8 Lt yellowish Brown silty sand, fines to coarse sand, little fine gravel, SP to NP, damp to wet @ ~7.4, MDense to Dense,	ML SP	<0.1		
8–9	0.9 / 1.0			8-9 Lt olive Brown silty sand, WG, SP/MP, MStiff, slight odor, wet to moist.	SW	<0.1	828*	128 DP@9.0 @1315
9–12				Bottom of boring ≈ 9.0' BGS				

S1 @1250

S2 @1302

S3 @1312

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project: Former Speedy's Cleaners Site

Boring/Well No.: DP-00~~8~~10

Project No.: 3612082109

Client: NYSDEC

Site: Former Speedy's Cleaners

Sheet No. 1 of 1

Logged By: C. Lyman

Ground Elevation: 485.6'

Start Date: 12/15/08

Finish Date: 12/15/08

Drilling Contractor: Nothnagle

Driller's Name: Jeff Schweitzer

Rig Type: Geoprobe 6620 DT

Drilling Method: Direct Push

Protection Level: D

P.I.D. (eV): 10.0 580 B

Casing Size: 2 1/4

Auger Size: —

Soil Drilled: 9.0'

Rock Drilled: NA

Total Depth: 9.0'

Depth to Groundwater/Date: ≈8' BGS 12/15/08

Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
1 2 3 4	2.5' / 4.0	NA	NA	0.-0.8 ~~BLK, TOPSOIL,~~ GRAYISH BROWN, fill, SAND 0.8-1.7 BROWN, fill, SAND trace gravel, PG, friable, stiff 1.7-2.5 REDISH brown, silty SAND, PG, Friable. stiff		<0.1 ↓	NA	
5 6 7 8	1.4 / 4.0			0-0.9 BROWN, silty SAND, wet, FRIABLE, stiff. 0.9-1.4 GRAYISH brown, SAND, moist, trace gravel, friable loose Collected sample * DP040008		<0.1 ↓		*
9	0.9 / 1.0			0-0.9 BROWN, Silty fine SAND, wet, FRIABLE, stiff.		<0.1 ↓		
10 11 12				Bottom of boring = 9.0' BGS				

JR - 5/1/09

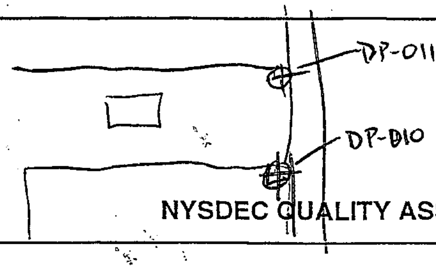

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project: Former Speedy's Cleaners Site
Boring/Well No.: DP-011
Project No.: 3612082109
Client: NYSDEC
Site: Former Speedy's Cleaners
Sheet No. 1 of 1
Logged By: C. Lyman
Ground Elevation: 485.7'
Start Date: 12/15/08
Finish Date: 12/15/08
Drilling Contractor: Nothnagle
Driller's Name: Jeff Schweitzer
Rig Type: Geoprobe 6610 DT
Drilling Method: Direct Push
Protection Level: D
P.I.D. (eV): 10.0 580 B
Casing Size: 2 1/8
Auger Size: —
Soil Drilled: 9.0'
Rock Drilled: — NA
Total Depth: 9.0'
Depth to Groundwater/Date: —
Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm)		Lab Tests ID Sample
						PI Meter Field Scan	PI Meter Head Space	
1 2 3	2.7'/4.0	NA	NA	0-0.6 DRK BROWN, loam, friable, 0.6-2.0 BROWN, Silty fine SAND, friable, stiff, Damp, 2.0-2.7' Lt BROWN, Silt, Trace gravel, friable, loose, Damp		<0.1	NA	NA
4 5 6 7	3.0/4.0			0-3.0' REDISH BROWN, Silty fine SAND, firm. stiff, Damp. Trace Gravel.		<0.1		
8	1.0/1.0			0-0.5 REDISH BROWN, Silty fine SAND, firm, Stiff wet 0.5-1.0 Lt GRAY, fine-Med SAND, Loose-Med DENSE DRY		<0.1		
9 10 11 12				Bottom of boring = 9.0' BGS				

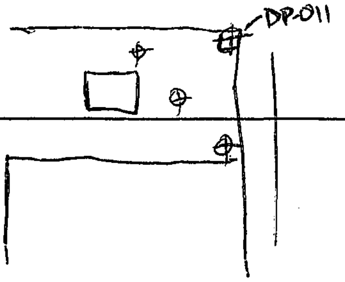

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-D12	Project No. 3612082109

Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1

Logged By C. Lyman	Ground Elevation 486.4'	Start Date 12/15/08	Finish Date 12/15/08

Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type Geoprobe 6610 DT

Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.0 580 B	Casing Size 2 1/8	Auger Size —

Soil Drilled 9'	Rock Drilled NA	Total Depth 9'	Depth to Groundwater/Date — 6' BGS 12/15/08 Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm)		Lab Tests ID Sample
						PI Meter Field Scan	PI Meter Head Space	
1 2 3 4	0.9 / 4'	NA	NA	0-0.9 fill, Brown, silty sand, trace gravel Brick debris, friable dry		<0.1 ↓	NA	
5 6 7 8	2.6' / 4'			0-1.5 Brown, silty sand, friable, Trace gravel. Moist. 1.5-2.6 Gray, med dense sand, firm. (2.3-2.6) fine-med loose sand, friable; Trace gravel Gray Sampled 6' to 8' (DP012008)		<0.1 ↓		*
9	1.8 / 1.0			0-1.0 Greenish Gray, silty fine sand, Trace Gravel Trace Brick Sampled 8-9' (DP012009)		<0.1 ↓		*
10 11 12	Refusal @ 9'			Bottom of boring = 9' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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PAGE 1 OF 1

GROUNDWATER GRAB SAMPLE FIELD RECORD

PROJECT: FORMER SPEEDY'S CLEANERS
JOB NUMBER: 3612082109
DATE: 12/15/08
FIELD SAMPLE NUMBER: 82812BDP012009
ACTIVITY TIME: START 1630 END 1700
BOTTLE TIME: 1650
QC SAMPLES COLLECTED: —

SAMPLE TYPE: GEOPROBE GRAB ☑ MICROWELL ☐ MONITORING WELL ☐ PORE WATER ☐

WATER LEVEL / WELL DATA

MEASURED WELL DEPTH: 9 FT (TOR)
HISTORICAL WELL DEPTH: — FT (TOR)
PROTECTIVE CASING STICKUP (FROM GROUND): NA FT
PROTECTIVE CASING / WELL DIFFERENCE: NA FT
DEPTH TO WATER: ~6 FT (TOR)
SCREEN LENGTH: 5 FT
WELL DIAMETER: 1" IN
WELL MATERIAL: PVC

* temporary well screen

HEIGHT OF WATER COLUMN: ~3 FT x
☐ 0.06 GAL/FT (1 IN)
☐ 0.16 GAL/FT (2 IN)
☐ 0.65 GAL/FT (4 IN) =
☐ 1.5 GAL/FT (6 IN)
GAL/VOL
ANNULUS
TOTAL VOLUME PURGED: 1 Liter GAL

PURGE DATA

TIME					
PURGE RATE (mLs)					
TEMPERATURE (degrees C)					
pH (units)					
TURBIDITY (ntu)					
SPEC. COND. (uhmos/cm)					
DISSOLVED OXYGEN (mg/L)					
REDOX-POTENTIAL (mV)					

SAMPLE OBSERVATIONS:
☐ CLEAR
☐ COLORED
☐ CLOUDY
☐ TURBID
☐ ODOR
☐ OTHER (see notes)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☐	☐	PERISTALTIC PUMP
☐	☐	SUBMERSIBLE PUMP
☐	☐	BLADDER PUMP
☐	☐	PVC/SILICON TUBING
☑	☑	TEFLON/SILICON TUBING
☑	☑	WATTERA
☐	☐	GEOPROBE SCREEN
☐	☐	

DECON FLUIDS USED
☑ LIQUINOX
☐ POTABLE WATER
☑ DEIONIZED WATER
☐

WATER LEVEL EQUIPMENT USED
☐ ELECTRIC COND. PROBE
☐ FLOAT ACTIVATED
☑ TAPE

NUMBER OF FILTERS USED
TYPE OF FILTER USED

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☑	VOLATILE ORGANIC COMPOUNDS	8260B.		HCL	40 mL	☑	
☐	SEMIVOLATILE ORGANIC COMPOUNDS			4 Degrees C	1000 mL	☐	
☐	INORGANICS			HNO3	500 Ml	☐	
☐						☐	
☐						☐	
☐						☐	
☐						☐	

NOTES: sample collected from DP-012.

B. Shaw / C. Lyman

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FIGURE 4-10
GROUNDWATER GRAB SAMPLE FIELD RECORD
NYSDEC QUALITY ASSURANCE PROJECT PLAN

SOIL BORING LOG

Project Former Speedy's Cleaners Site

Boring/Well No. DP-013

Project No. 3612082109

Client NYSDEC

Site Former Speedy's Cleaners

Sheet No. 1 of 1

Logged By C. Lyman

Ground Elevation 487.1'

Start Date 12/15/08

Finish Date 12/15/08

Drilling Contractor Nothnagle

Driller's Name Jeff Schweitzer

Rig Type Geoprobe 6600 DT

Drilling Method Direct Push

Protection Level D

P.I.D. (eV) 10.0 580 B

Casing Size 2 1/8

Auger Size —

Soil Drilled 10'

Rock Drilled NA

Total Depth 10'

Depth to Groundwater/Date —

Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm)		Lab Tests ID Sample
						PI Meter Field Scan	PI Meter Head Space	
1 2 3 4	2.4 / 4.0	NA	NA	0-1.4' BROWN, GRAVELY SAND, friable trace gravel, BRICK DEBRIS. WS/PG 1.4-2.4' BROWN, silty fine SAND, firm, moist, PG/WS		<0.1 ↓	NA	NA
5 6 7 8	3.3 / 4.0			0-2.1' BROWN, silty fine SAND, firm, moist (0-0.6) 2.1-3.3' BROWN, silty fine SAND, firm, moist. trace gravel		2.4 <0.1 ↓		
9 10	1.7 / 2.0			0-0.8 BROWN, silty fine SAND, firm, moist 0.8-1.7 grayish brown, fine SAND, DRY trace gravel		<0.1 ↓		
11 12	(Refusal.			Bottom of boring = 10.0' BGS	BRKN RKS			

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedy's Cleaners Site
Boring/Well No. DP-014
Project No. 3612082109

Client NYSDEC
Site Former Speedy's Cleaners
Sheet No. 1 of 1

Logged By C. Lyman
Ground Elevation 487.4'
Start Date 12/15/08
Finish Date 12/15/08

Drilling Contractor Nothnagle
Driller's Name Jeff Schweitzer
Rig Type Geoprobe 6610 DT

Drilling Method Direct Push
Protection Level D
P.I.D. (eV) 10.0 580 B
Casing Size 2 1/8
Auger Size —

Soil Drilled 10.5
Rock Drilled NA
Total Depth 10.5
Depth to Groundwater/Date —
Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
1 2 3	2.4 / 4'	NA	NA	0-1.5 Brown; silt trace fine sand, moist, firm. 1.5-2.4 Grayish brown, sand trace silt, moist. Friable, med dense trace gravel.		<0.1	NA	
4 5 6 7	2.7' / 4'			0-0.9' Brownish gray, silt trace fine sand firm 0.9-2.2 Grayish brown, sand trace silt, moist friable, med dense trace gravel. 2.2-2.7 Grayish brown, gravelly sand, loose friable.		<0.1		
8 9 10	2.5' / 2.5'			0-2.5 Brown, silt, trace fine sand firm, Dense, moist. Sampled @ (DP014000)		<0.1		*
11 12	10.5' Refusal.			Bottom of boring = 10.5' BGS / Refusal.				

JR 5/1/09

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedy's Cleaners Site
Boring/Well No. DP-015
Project No. 3612082109

Client NYSDEC
Site Former Speedy's Cleaners
Sheet No. 1 of 1

Logged By C. Lyman
Ground Elevation est 486.5'
Start Date 12/16/08
Finish Date 12/16/08

Drilling Contractor Nothnagle
Driller's Name J.H Schweitzer
Rig Type Geoprobe 6610 DT

Drilling Method Direct Push
Protection Level D
P.I.D. (eV) 10.0 580 B
Casing Size 2 1/8
Auger Size —

Soil Drilled 9'
Rock Drilled NA
Total Depth 9'
Depth to Groundwater/Date —
Piez ☐ Well ☐ Boring ☑

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1 @ 0815	1 2 3 4	2.5 / 4.0	NA	NA	0-1.0' GRAYISH BROWN, silty SAND, TRACE GRAVEL, FRIABLE, LOOSE, DRY 1-2.5' BROWN, Silt, FIRM, moist trace fine sand		<0.1	NA	
S2	5 6 7 8	2.3 / 4.0			0-0.4 BROWN, silty fine SAND, firm, moist 0.4-0.5= gravel/wood pavement. 0.4-1.6 Brown, sandy silt, firm, moist trace gravel 1.6-2.3 Brownish gray, SAND-Mud, moist medium Dense 2.0-2.3 gravel. Sample DP015008 *		<0.1		*
S3	9	1.0 / 1.0			0-0.5 - BROWN, Silty SAND, firm moist 0.5-1 GRAYISH BROWN, GRAVELLY SAND, firm, moist				
	10 11 12	Refusal @ 9'			Bottom of boring = 9.0' BGS / Refusal.				

Refusal @ 9'

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-16	Project No. 3612082109
Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1
Logged By C. Lyman	Ground Elevation est 485.7'	Start Date 12-16-08
Finish Date 12-16-08		
Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type Geoprobe 6610DT
Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 580 B
Casing Size 2 1/8"	Auger Size —	
Soil Drilled 9	Rock Drilled NA	Total Depth 9
Depth to Groundwater/Date ≈7' BGS 12/16/08	Piez ☐ Well ☐ Boring ☑	

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
1 2 3 4	3.1 / 4.0	NA	NA	0–0.5 Asphalt 0.5–1.2 DkOlive fine to coarse sandy silt, damp, SP, MDense/Frozen) 1.2–3.0 Reddish Brown fine sandy silt, frozen/damp PG, SP, Dense 3–4' Lt Brown Sandy silt w/ some bricks, PG, MDense;	Fill ↓ Bricks	<0.1 ↓	NA	
5 6 7 8	1.9 / 4.8			4–7' Brown Sandy silt, mstiff, PG, fines to coarse Sand, MP/HP, wet to saturated 7–8' Lt Brown coarse to fine sandy silt, MP/HP, wet/saturated, PG, mstiff,	Fill Brick SM	<0.1 ↓	7 8	
9	1.3 / 1.0			DkOlive loose, dry silty sand, WG, fines to fine gravel, NP, Slight/strong odor @ 8.2'-9' BGS.	SM	0.9 1.2 3.9		
10 11 12				Bottom of boring = 9.0' BGS				

2

S1 @ 0831

S2 @ 0836

S3 @ 0842

@0840
7–8 [illegible] DP16008
8.2
[illegible] DP16[illegible]
9.0 @ 0845

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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①

SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-017	Project No. 3612082109

Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1

Logged By C. Lyman	Ground Elevation ~~12/16/08~~ est 486.4	Start Date 12/16/08	Finish Date 12/16/08

Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type Geoprobe 6610 DT

Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.0 580 B	Casing Size 2 1/2	Auger Size —

Soil Drilled 10'	Rock Drilled NA	Total Depth 10'	Depth to Groundwater/Date ≈6' BGS 12/16/08	Piez ☐	Well ☐	Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
0–4	2.2/4.0	NA	NA	0-1.0' Grayish Brown, silt trace gravel, ~~loose~~ medium stiff, Dry. 1.0-2.2' Redish Brown, silt trace sand, med. stiff to stiff, RG, Moist		<0.1 ↓	NA	
4–8	2.3/4.0			0.0-0.9 Redish Brown, silt trace fine sand, trace gravel, Med stiff, Moist. PID hit 3.9 ppm @ 1.0' 0.9-2.3 Redish Brown, silt trace fine sand, med stiff, Moist ~~Sample 6-8' DP-017008~~ CL		3.9		
8–10	2.0/2.0			0-2.0' Brown, sandy silt, med stiff, moist, trace gravel 0.5-1.5 Samples max PID 1900 ppm. 0900		1900 (MAX)		*
10–12	Refusal (Rock frags observed in Probe tip)			Bottom of Boring = 10.0' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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PAGE 1 OF 1

GROUNDWATER GRAB SAMPLE FIELD RECORD

PROJECT: former Speedy's Cleaners
JOB NUMBER: 3612082110
DATE: 12/16/08
FIELD SAMPLE NUMBER: 828128DP017010
ACTIVITY TIME: START 0945 END 1005
BOTTLE TIME: 1000
QC SAMPLES COLLECTED: —

SAMPLE TYPE: GEOPROBE GRAB ☑ MICROWELL ☐ MONITORING WELL ☐ PORE WATER ☐

WATER LEVEL / WELL DATA

MEASURED WELL DEPTH: 10' FT (TOR)
HISTORICAL WELL DEPTH: NA FT (TOR)
PROTECTIVE CASING STICKUP (FROM GROUND): NA FT
PROTECTIVE CASING / WELL DIFFERENCE: NA FT
DEPTH TO WATER: ~6 FT (TOR)
SCREEN LENGTH: 5' FT
WELL DIAMETER: 1" IN
WELL MATERIAL: PVC
*temporary PVC w/ screen
HEIGHT OF WATER COLUMN: ~4 FT x
☐ 0.06 GAL/FT (1 IN)
☐ 0.16 GAL/FT (2 IN)
☐ 0.65 GAL/FT (4 IN) =
☐ 1.5 GAL/FT (6 IN)
GAL/VOL:
\+ ANNULUS:
TOTAL VOLUME PURGED: 1 Liter ~~GAL~~

PURGE DATA

TIME					
PURGE RATE (mLs)					
TEMPERATURE (degrees C)					
pH (units)					
TURBIDITY (ntu)					
SPEC. COND. (uhmos/cm)					
DISSOLVED OXYGEN (mg/L)					
REDOX POTENTIAL (mV)					

SD

SAMPLE OBSERVATIONS:
☐ CLEAR
☐ COLORED
☐ CLOUDY
☑ TURBID
☑ ODOR
☐ OTHER (see notes)

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☐	☐	PERISTALTIC PUMP
☐	☐	SUBMERSIBLE PUMP
☐	☐	BLADDER PUMP
☐	☐	PVC/SILICON TUBING
☑	☑	TEFLON/SILICON TUBING
☑	☑	WATTERA
☐	☐	GEOPROBE SCREEN
☐	☐	

DECON FLUIDS USED
☑ LIQUINOX
☐ POTABLE WATER
☑ DEIONIZED WATER
☐

WATER LEVEL EQUIPMENT USED
☐ ELECTRIC COND. PROBE
☐ FLOAT ACTIVATED
☑ Tape

NUMBER OF FILTERS USED
TYPE OF FILTER USED

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID NUMBERS
☑	VOLATILE ORGANIC COMPOUNDS	8260B		HCL	40 mL	☑	
☐	SEMIVOLATILE ORGANIC COMPOUNDS			4 Degrees C	1000 mL	☐	
☐	INORGANICS			HNO3	500 Ml	☐	
☐						☐	
☐						☐	
☐						☐	
☐						☐	

NOTES

GRAB Sample from DP-017

B. Shaw/C. Lyman

Purge water had fuel/chlorinated odor

\- PID headspace on water in container ~ 280ppm

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FIGURE 4-10
GROUNDWATER GRAB SAMPLE FIELD RECORD
NYSDEC QUALITY ASSURANCE PROJECT PLAN

SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-18	Project No. 3612082109
Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1
Logged By C. Lyman	Ground Elevation 486.6'	Start Date 12-16-08 / Finish Date 12/16/08
Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type Geoprobe 6610
Drilling Method Direct Push	Protection Level D / P.I.D. (eV) 10.0 580 B	Casing Size 2 1/8" / Auger Size /
Soil Drilled 10.5 / Rock Drilled NA	Total Depth 10.5	Depth to Groundwater/Date — Piez ☐ Well ☐ Boring ☑

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1 @ 0931	1 2 3 4	0.9 / 4.0	NA	NA	0-0.5 Asphalt 0.5-2. Dk olive silty sand, WG, loose, dry 2-3.5 Black sandy soil, slag 3.5-4 olive Brown sandy silt, MP, wet, PG	Fill ↓	<0.1 ↓	NA	
S2 @ 0939	5 6 7 8	2.0 / 4.0			4-4.8 Same as 3.5-4 4.8-8 Lt Reddish Brown to olive brown sandy silt MP, PC, stiff to soft, wet to moist -slight odor	Fill ↓	<0.1 ↓ 30 50 10 50 70 30 30		
S3 @ 0948	9 10	2.4 / 2.5			8-9 Same as 4.8-8 9-9.5 Black sandy soil w/ slag 9.5-10.5 Brown sandy silt, WG, fines to coarse sand, wet, MP/SP, stiff to soft, solvent odor	Fill SM SW	10 50 280 150 70 90	<25	* 128DP18D009 @ 0955
	11 12				Bottom of Boring = 10.5' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

SOIL BORING LOG

Project Former Speedy's Cleaners Site	Boring/Well No. DP-019	Project No. 3612082109

Client NYSDEC	Site Former Speedy's Cleaners	Sheet No. 1 of 1

Logged By C. Lyman	Ground Elevation 487.6	Start Date 12/16/08	Finish Date 12/16/08

Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type Geoprobe 6610DT

Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.0 580 B	Casing Size 2 1/2	Auger Size —

Soil Drilled 11.5'	Rock Drilled NA	Total Depth 11.5'	Depth to Groundwater/Date — Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm)		Lab Tests ID Sample
						PI Meter Field Scan	PI Meter Head Space	
		MA	MA	0-0.6 Pavement		<0.1	MA	
1				0.6-1.1 BRICK Debris	Fill	↓		
2	2.1 / 4.0			1.1-2.1 BROWN, SANDY silt, Friable, MED-DENSE trace gravel				
3								
4								
5				0-2.1 BROWN, SANDY silt, friable, MED-DENSE trace gravel 2.0-2.1 Dry		<0.1		
6	3.3' / 4.0'			2.1-3.3 BROWN, SANDY silt, friable MED DENSE Moist. trace gravel throughout.	SP/GP	↓		
7								
8								
9				0-0.5 BROWN, ~~silty~~ SANDY silt, friable, moist, MED-DENSE (BRICK DEBRIS 0.3-0.5)	SM	<0.1		
10	2.7' / 3.5'			0.5-2.3 BROWN, SANDY silt, Firm ~~moist~~ Dense trace gravel PG.		↓		Sampled 0.5-2.3 DP019081 (0940)
11				2.3-2.7 BROWN, GRAVELLY SAND, DRY, Friable MED DENSE. PS/WG	SP			
12	11.5'	Refusal						

AR 5/1/09

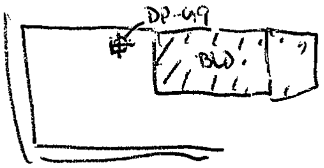

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project: Former Speedy's Cleaners Site
Boring/Well No. DP-20
Project No. 3612082109
Client: NYSDEC
Site: Former Speedy's Cleaners
Sheet No. 1 of 1
Logged By: C. Lyman B Shaw
Ground Elevation: 486.5'
Start Date: 12/16/08
Finish Date: 12/16/08
Drilling Contractor: Nothnagle
Driller's Name: Jeff Schweitzer
Rig Type: Geoprobe 6610DT
Drilling Method: Direct Push
Protection Level: D
P.I.D. (eV): 10.0 580 B
Casing Size: 2 1/8"
Auger Size: /
Soil Drilled: 10
Rock Drilled: NA
Total Depth: 10
Depth to Groundwater/Date: ? –
Piez ☐ Well ☐ Boring ☑

S1 @ 1015

S2 @ 1023

S3 @ 1027

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm)		Lab Tests ID Sample
						PI Meter Field Scan	PI Meter Head Space	
0 1 2 3 4	1.7 / 4.0	NA	NA	0-0.5 Aphalt 0.5-2.5 Olive Brown silty sand + gravel, dmp, NG, 2.5-4 Olive Brown fine sand/coarse sandy silty fG, moist, MP,	Fill ↓	<0.1 ppm ↓ 0.7 0.4 1.2	NA	NA
5 6 7 8	3.2 / 4.0			4-8 Lt Brown to olive Brown to reddish Brown sandy silt, fines to fine gravel, PG, MP/HP, wet to moist to saturated,	Fill ↓	1.2 1.2 4.1 4.6 2.2 4.7		
9 10	1.8 / 2.0			8-8.8 Same as 4-8, 8.8-9.8 Silty sand + gravel, strong solvent odor, WG, 1118, 9.8-10 rock chips, solvent odor, dk gray	SW GW	25 50 70 16 24		
11 12				Bottom of boring = 10' BGS.				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project: Former Speedy's Cleaners
Boring/Well No.: DP-21
Project No.: 3612082109
Client: NYSDEC
Site: Rochester, N.Y.
Sheet No. 1 of 1
Logged By: BAS (B. Shaw)
Ground Elevation: 485.2'
Start Date: 12-16-08
Finish Date: 12-16-08
Drilling Contractor: Nothnagle
Driller's Name: Jeff Schwietzer
Rig Type: 6610 DT
Drilling Method: Direct Push
Protection Level: D
P.I.D. (eV): 10.8
Casing Size: 2 7/8"
Auger Size: —
Soil Drilled: 10.5
Rock Drilled: NA
Total Depth: 10.5
Depth to Groundwater/Date: NA ~~NS~~
Piez ☐ Well ☐ Boring ☑

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1 @ 1031	1 2 3 4	2.1 / 4.0	NA	NA	0.5 - Asphalt 0.5 - 4 Lt Brown to Olive brown Sandy (fine to Coarse) Silt, PG/WG, damp to wet, M Dense	Fill Brick	<0.1 ↓	NA	NA
S2 @ 1035	5 6 7 8	3.7 / 4.0			4 - 8 Lt Reddish Brown Sandy Silt, Slag (black) @ ~6'	Fill Slag Fill	<0.1 ↓ 1.9 3.0 1.9 0.5		
S3 @ 1039	9 10	2.5 / 2.5			8 - 10.5 Silt/Sandy Gravel mix, rock chips @ ~10.3, Dense, dry, to wet	SW SM	0.3 <0.1 ↓ 0.2		
	11				Bottom of boring = 10.5' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project FORMER Speedys Cleaners	Boring/Well No. DP-20	Project No. 3612082109

Client NYSDEC	Site Former Speedys Cleaners	Sheet No. 1 of 1

Logged By C.Lyman/B. Shaw	Ground Elevation est. 486.3	Start Date 12/16/08	Finish Date 12/16/08

Drilling Contractor Nothnagle	Driller's Name Jeff Schweitzer	Rig Type 660 DT

Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.0	Casing Size 2 1/2	Auger Size —

Soil Drilled 9.5'	Rock Drilled NA	Total Depth 9.5'	Depth to Groundwater/Date —	Piez ☐	Well ☐	Boring ☒

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
		NA	NA		Fill	<0.1	NA	NA
4'				Screen soil w/ PID for delineation purposes				
8'								
	Refusal			Bottom of boring = 9.5' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedys Cleaners
Boring/Well No. DP-23
Project No. 3612082109
Client NYSDEC
Site Rochester, NY
Sheet No. 1 of 1
Logged By BShaw
Ground Elevation ~ +0.5'
Start Date 05-04-09 ~~05-05-09~~
Finish Date 05-04-09 ~~5-5-09~~
Drilling Contractor MACTEC
Driller's Name BShaw
Rig Type Geoprobe Handtools
Drilling Method Handdrill-Direct Push
Protection Level D
P.I.D. (eV) 10.8
Casing Size 1 1/2"
Auger Size
Soil Drilled 13.3 ~~13.8~~
Rock Drilled NA
Total Depth 13.3 ~~13.8~~
Depth to Groundwater/Date
Piez ☐ Well ☐ Boring ☑

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1	1 2	1.1/2.0	NA	NA	0-0.2 Black gravel 0.2-1.8 olive/reddish Brown silty gravel damp, MP, 1.8-2 cobbles, dry.		<0.1 ↓ 0.4	NA	
S2	3 4	1.8/2.0			2-4 Brown to reddish ~~brown~~ silty fine Sand, Dry to damp; SM ~~MP~~/SP, PS		0.5 1.7 4.5 6.8 5.1		
S3	5 6	0.9/2.0			4-6 Same as 2-4, Slight odor @ ~6'		0.9 1.3 1.8		
S4	7 8	1.1/2.0			6-7.2 reddish brown silty fine Sand, damp to wet, MP, WG. 7.2-8 Brown silty Sandy Gravel, wet, MP, WG		<0.1 ↓ 0.3		
S5	9 10	1.7/2.0			Brownish silty gravel, wet, SP, WG, Hard; Slight odor @ ~9.5'		<0.1 ↓ 2.9	*	* Collected Sample from ~9.6-10
S6	11 12	0.9/2.0			Same as above		<0.1 ↓		
S7	13.3	0.5/1.3			Same as S5 but saturated		<0.1 ↓		

*828128DP023010.
@ 2050.
- VOC
- % Moisture

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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checked CRS 6/1/09

SOIL BORING LOG

Project Former Speedys cleaners
Boring/Well No. DP-24
Project No. 3612072073
Client NYSDEC
Site Rochester, NY.
Sheet No. 1 of 2
Logged By BShaw
Ground Elevation +-0.5'
Start Date 05-05-09 RP ~~15-06-07~~
Finish Date 05-05-09 RP ~~05-06-07~~
Drilling Contractor MACTEC
Driller's Name BShaw
Rig Type Geoprobe Handtools
Drilling Method Handdrill-Direct Push
Protection Level D
P.I.D. (eV) 10.8
Casing Size 2 1/4"
Auger Size —
Soil Drilled 8'
Rock Drilled NA
Total Depth 8'
Depth to Groundwater/Date
Piez ☐ Well ☐ Boring ☑

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1	1 2	1.2/2.0	NA	NA	0.0.2 Asphalt 0.2-1.2 Reddish Brown silty Sand, wet, mp, PS 1.2-2 Rock fragments	↑	<0.1 1 0.9 1.1	NA	
S2	3 4	1.1/2.0			2-4 olive to brown fine sand/silt, damp, mp, PS, m Stiff, some clay.		<0.1 0.6 ~~18~~ 1.0 ~~0.6~~	1.3	
S3	5 6	1.0/2.0			4-6 Reddish brown sandy silt, dry PS, stiff, friable.	If ↓	1.3 1.8 1.4 0.6 0.8	~~1*XXXX~~ * Collected Sample @ 5 5/8	

828128DP024005
@ 2120 → VOU of moisture

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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Checked ces 6/1/09

SOIL BORING LOG

Project Former Speedy Cleaners
Boring/Well No. DP-24
Project No. 3612072073

Client NYSDEC
Site Rochester, NY
Sheet No. 2 of 2

Logged By BShaw
Ground Elevation
Start Date 05-05-09
Finish Date 05-05-09

Drilling Contractor MACTEC
Driller's Name BShaw
Rig Type Geoprobe Hand tools

Drilling Method Direct Push
Protection Level D
P.I.D. (eV) 10.8
Casing Size
Auger Size

Soil Drilled 8.0
Rock Drilled NA
Total Depth 8.0
Depth to Groundwater/Date
Piez ☐ Well ☐ Boring ☑

S4

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm)		Lab Tests ID Sample
						PI Meter Field Scan	PI Meter Head Space	
6	0.9/2.0			6-8 brown/brownish red; Silty Sandy gravel, wet, msoft, PWG, mp, *Drilling got v. Hard @ ~7.5'		1.8 0.6 0.4 1.4		
7								
8								
9	2.0	5						
10								
11								
12								

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

PORT2007022w.mac

SOIL BORING LOG

Project Former Speedy Cleaners
Boring/Well No. DP-25
Project No. 3612082109
Client NYSDEC
Site Rochester, NY
Sheet No. 1 of 2
Logged By BShaw
Ground Elevation +0.5'
Start Date 05-05-09
Finish Date 05-05-09
Drilling Contractor MACTEC
Driller's Name BShaw
Rig Type Geoprobe Hand tools
Drilling Method Direct Push
Protection Level D
P.I.D. (eV) 10.6
Casing Size 1.6"
Auger Size
Soil Drilled 8.6
Rock Drilled NA
Total Depth 8.6
Depth to Groundwater/Date
Piez ☐ Well ☐ Boring ☑

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S1 1 2	0.9/2.0	NA	NA	0-0.2 Asphalt 0.2-2 Olive brown fine sandy silt, PS, damp, MP, stiff.	Fill	0.1 0.8 1.8 3.7 4.7 5.7	NA	collected sample *828128DP025004 @2140 -VOCs % Moisture
S2 3 4	0.8/2.0			~~0~~2-2.8 same as 0.2-2 2.8-4. Lt brown sandy gravel mix, dry, PS, NP,		2.6 3.1 1.5 1.3 0.8		
S3 5 6	0.9/2.0			4-6 olive to Lt brown to grey, fine sandy silt, damp to wet, MP/SP. Stratified/well drained,		2.0 3.1 4.2 2.6 3.7 4.3 3.9 2.0		

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedys Cleaners	Boring/Well No DP-25	Project No. 3612082109
Client NYSDEC	Site Rochester, NY	Sheet No. 2 of 2
Logged By BShaw	Ground Elevation +0.5'	Start Date 05-05-09
Finish Date 05-05-09		
Drilling Contractor MACTEC	Driller's Name BShaw	Rig Type Geoprobe Handtools
Drilling Method Direct Push	Protection Level D	P.I.D. (eV) 10.8
Casing Size 1 1/2"	Auger Size —	
Soil Drilled 8.6	Rock Drilled NA	Total Depth 8.6
Depth to Groundwater/Date	Piez ☐ Well ☐ Boring ☑	

	Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
S4	6 7	1.2/2.0			Lt orange/brown, silty sandy gravel, wet, MP, WG, fines to fine gravel		2-2 4.3 2.9 2.7 3.8 2.1	NA	
S5	8 8.6	0.5/0.6			Lt Brown sandy gravel, w/ some fine dry, loose,		0.7 3.2 3.8 2.6	*collected sample @8.4'	
					*refusal @ 8.6; v. Hard			828128DP0250 0 9 @2155 -rout, % Moisture	

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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APPENDIX B.2

MONITORING WELL DATA LOGS

SOIL BORING LOG

Project ~~Carriage Cleaners Site~~ Former Speedy's Cleaners
Boring/Well No. MW-206
Project No. 3612082~~110~~ 09
Client NYSDEC
Site Speedy's ~~Carriage~~ Cleaners
Sheet No. 1 of 2
Logged By C. Lyman | B Shaw
Ground Elevation 486.83
Start Date 12-17-08
Finish Date 12-18-08
Drilling Contractor Nothnagle
Driller's Name Scott Breeds
Rig Type ~~Geoprobe~~ CME 55
Drilling Method HSA / Drive casing / HQ ~~Direct Push~~
Protection Level D
P.I.D. (eV) 10.0 580 B
Casing Size 4 1/4"
Auger Size 6 1/4 / 3 7/8" ID
Soil Drilled 10.8'
Rock Drilled 8.7
Total Depth 19.5' ~~19.5~~ (BR) 8
Depth to Groundwater/Date ~~unknown~~ 7.13' (TOC) 12/19/08
Piez ☐ Well ☑ Boring ☐

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
0–5		NA		Augered 5' into soil and began to sample until refusal · PID on soil cuttings = <0.1 ppm	Fill ↓			NA ↓
5–7	S1 @ 1315 0.1 / 2.0		9-5 4-4	reddish Brown Sandy (fine to coarse) silt, wet, MP, w/ some black slag, WG, - Pushed a cobble/gravel in shoe	Fill ↓		<0.1 ↓	↓
7–9	S2 @ 1320 1.8 / 2.0		9-11 22-27	7-7.2 Black slag/soil 7.2-7.9 Lt Brown to Reddish Brown Sandy silt, WG, MP, moist 7.9-8.1 cobble gravel, loose 8.1-9 DK olive silty sand & gravel, dry to damp, V Dense, NP/SP, WG	↓	Brick frags	<0.1 ↓	↓
9–10.8	S3 @ 1330 1.7 / 1.8		25-33 44 50/0.3	9-9.4 olive Sandy silt, PG, Sat, MP/HP 9.4-9.6 Black Sandy gravel - Fill Asphalt-like material 9.6-10.5 Same as 8.1-9, but wet, 10.5-10.8 fragmented rock chips and sandy silt, Sat, loose, rock is DK grey.	Fill 1 Smp ~~Rock~~ ?		<0.1 ↓	↓
11–12				Bottom of boring = 19.5' BGS Top of rock = 10.8' BGS				

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

ROCK CORING LOG

Project: Speedy's Cleaners
Site: Made You Look Salon
Exploration/Well No.: MW-206
Project No.: 3612082109
Client: NYSDEC
Driller's Name: Scott Breeds
Logged by: BAS
Checked by: JKR 5/1/09
Ground Elev.: 486.83
Drilling Contractor: Geologic NY
Protection Level: D
Rig Type: CME 55
Start Date: 12/17/08
Finish Date: 12-18-08
Drilling Method: Drive / HSA / HQ core
P.I.D. (eV): 10/580B
Casing Size: 4"
Auger Size: N/A
Bit type/size: HQ - 3 7/8"
Bit Use: Core
Core Interval (to/from)(ft): (bgs) 10.8' to 19.5'

Depth (feet) Below GRD Sort.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Core Breaks		Weathered Condition	Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition		Total 4" Core	RQD (%)	Rock Quality Description			
10.8 11	1.9 / 2.0		Low angle near flat Low angle High angle -		Highly weathered mechanical breaks, highly weathered						Start first 2.5' run 1520 & Stop run @ 1537 Run#1
12			near flat Black stained fracture (odor)								DK grey; fine grained
12.8 Sample											
13			near flat, white; highly weathered;								Start Run: 1551 Stop run: 1607 Run #2
14	4.4 / 5.0		} Highly fractured, highly weathered zone							DK grey Lt grey DK grey	
15											
16			} highly fractured, some mechanical brakes							Lt grey	
17			highly fractured, weathered,								Stained rock frags
17.8 18 Took Sample	1.6 / 1.7		} many near flat stained fractures, strong odor,						18.1 19	Stained	18 (12-18-08) Start Run: 0836 Stop Run: 0843 Run#3
19			} near flat						19.2 19.3	19.4	} v. strong odor; black staining on rock fractures
19.5											
20			Bottom of boring = 19.5' BCS								

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B. Shaw

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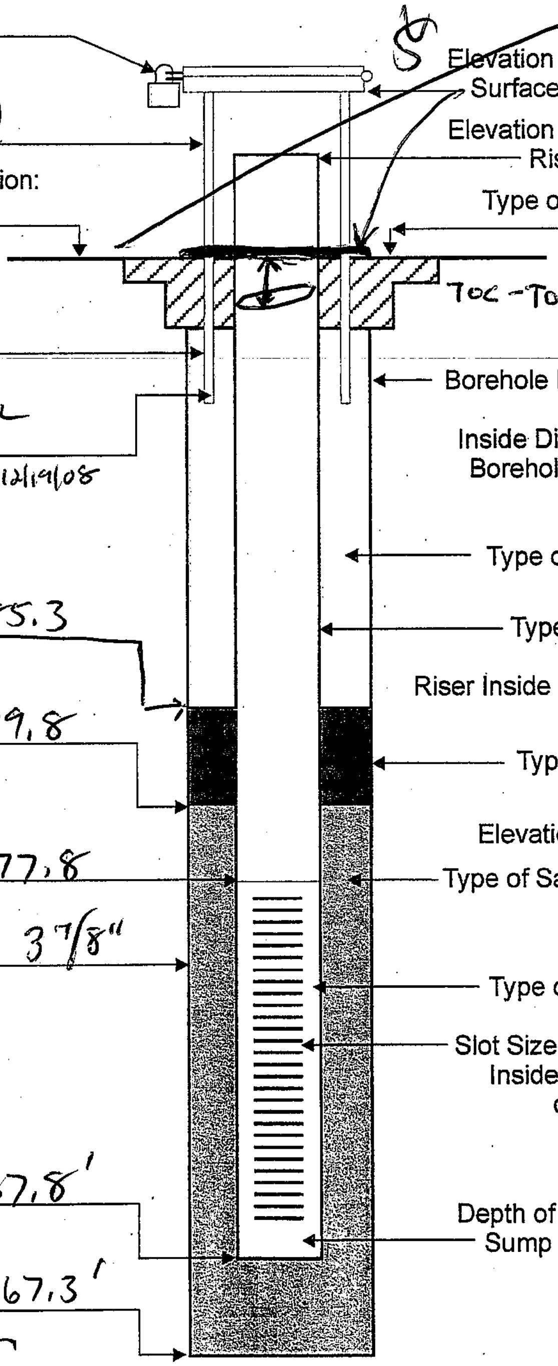
FIGURE 4-5
ROCK CORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

Bedrock Well Construction Diagram

Well No.: MW-206

Project No.: 3612082109	Project Name: Former Speedys Cleaners		
	Project Area: Rochester, NY		
Contractor: GeologiZNY	Driller: Scott Breeds	Method: HSA (3 7/8"); Drive Casing (4"); HQ core	
Logged By: Brandon Shaw		Date Started: 12-17-08	Completed: 12-18-08
Checked By: JKR	Date: 01/07/08	Well Development Date: 12-19-2008.	

Not To Scale



TOC - TOR: 0.35'

Lock Identification:

Surface Casing Type: Flushmount steel

Ground Surface Elevation: 486.83

Surface Casing Diameter: UNK

Inside Diameter of Surface Casing: UNK

GW = 7.13' TOR 12/19/08

Depth/Elevation of Top of Well Seal: 1.5' BGS / 485.3

Depth/Elevation of Top of Sand: 7' BGS / 479.8

Depth/Elevation of Top of Screen: 9.0 BGS / 477.8

Diameter of Corehole: 3 7/8" HQ

Depth/Elevation of Bottom of Screen: 19.0 BGS / 467.8'

Depth/Elevation of Bottom of Corehole: 19.5' BGS / 467.3'

Elevation of top of Surface Casing: 486.83

Elevation of top of Riser Pipe: 486.49

Type of Surface Seal: Blacktop Patch / Cement

Borehole Diameter: ~~4" to 3 7/8"~~ 6"

Inside Diameter of Borehole Casing: N/A (4")

Type of Backfill: Soil cuttings

Type of Riser: Sch 40 PVC.

Riser Inside Diameter: 2"

Type of Seal: Bentonite Chips

Bedrock Elevation/Depth: / 10-8'

Type of Sand Pack: # 0 Industrial Quartz

Type of Screen: Sch 40 PVC;

Slot Size x Length: 0.010" x 10'

Inside Diameter of Screen: 2"

Depth of Sediment Sump with Plug: 19.5' BGS (0.48')

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FIGURE 4-8
BEDROCK MONITORING WELL CONSTRUCTION DIAGRAM
NYSDEC QUALITY ASSURANCE PROJECT PLAN

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WELL DEVELOPMENT RECORD

Project: Former Speedy's Cleaners	Well Installation Date: December 18, 2008		Project No. 3612084009
Client: NYSDEC	Well Development Date: 12-19-2008	Logged by: BAS	Checked by: JKR
Well/Site I.D.: MW-206	Weather: 21° F, Snowing	Start Date: 12/19/08	Finish Date: 12/19/08
		Start Time: 1030	Finish Time: 1215

Well Construction Record Data:

Well Diameter: 2 in.

Bottom of Screen: 19.0 ft.

Sediment Sump/Plug: 19.5 ft.

From Ground Surface ☑ From Top of Riser ☐

Screen Length: 9.9 ft.

Fluids Lost during Drilling: ~450 gal.

Protective Casing Stick-up: 0.0 ft.

Protective Casing/Well Diff. 0.35 ft.

PID Readings: Ambient Air <0.1 ppm; Well Mouth 3.8 ppm

Well Levels:

Initial: 7.13 ft.

End of Development (after pump off): 7.13 ft.

24 Hours after Development: na ft.

Sediment:

Well Depth before Development: 18.20 ft. (from top of PVC)

Well Depth after Development: 18.95 ft.

Sediment Depth Removed: ~0.7 ft.

HT of Water Column: 11.8 ft. x ☐ 1.68* gal./ft. ☑ 0.63/ft = ~9 gal./vol. + Sandpack

*for 4" HSA Installed Wells

Equipment:

- ☐ Dedicated Submersible Pump
- ☑ Surge Block + whale pump
- ☐ Bailer ☐ 2" ☐ ______
- ☐ Grundfos Pump 2" _____ 4" _____

Approximate Recharge Rage: 1.0 gpm

Total Gallons Removed: ~70 gal.

Well Development Criteria Met:

	Yes	No
Well water clear to unaided eye	☑	☐
Sediment thickness remaining in well is <1.0% of screen length	☑	☐
Total water removed = a minimum of 5x calculated well volume plus 5x drilling fluid lost	☐	☑
Turbidity < 5NTUs	☑	☐
10% change in field parameters	☐	☑

Notes: Pump on @ MW-206 @1058

- purge water has petroleum odor.

End of Well Development Sample (1 pint) Collected? Yes ☐ No ☑

Water Parameter Measurements

Record at start, twice during and at the end of development (minimum):

DTW (TOR)	Time	Volume	Total Gallons	pH	Temp.	Conductance (ms/cm)	Turbidity	Pumping Rate	PID
7.41	1126	~3.1	~28	6.8	12.9	1.05	7	~1.95 l/min	<0.1
7.41	1142	~4.9	~44	6.6	13.2	0.99	4	↓	↓
7.41	1158	~5.5	~60	6.5	14.1	0.91	5		
7.41	1209	~7	~70	6.5	14.6	0.86	3		
	1210	Pump off	@ MW-206						

Well Developer's Signature

B. Shaw

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FIGURE 4-9
WELL DEVELOPMENT RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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SOIL BORING LOG

Project Former Speedy's Cleaner Site
Boring/Well No. MW-210
Project No. 3612082109

Client NYSDEC
Site F. Speedy's Cleaners
Sheet No. 1 of 1

Logged By W. Swinehart
Ground Elevation 487.03
Start Date 12/23/08
Finish Date 12/23/08

Drilling Contractor Geologic, NY
Driller's Name ~~Scott~~ Dave
Rig Type CME 55

Drilling Method HSA / Roller bit
Protection Level D
P.I.D. (eV) 580B
Casing Size 4 1/4
Auger Size 6"

Soil Drilled 8'
Rock Drilled 10'
Total Depth 18.5'
Depth to Groundwater/Date 6.9' 1/20/09
Piez ☐ Well ☒ Boring ☐

Depth(Feet)	Sample No. & Penetration/ Recovery (Feet)	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Sample Description	USCS Group Symbol	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests ID Sample
		NA		Augered to 8 ft bgs - no sampling Roller bit rock from 8' to 18.5' bgs. No Rock cores collected. - set well MW-10 w/ screen from 8 to 18' bgs.				

Notes from W. Swinehart
Checked by CRS 2/9/09

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FIGURE 4-4
SOIL BORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

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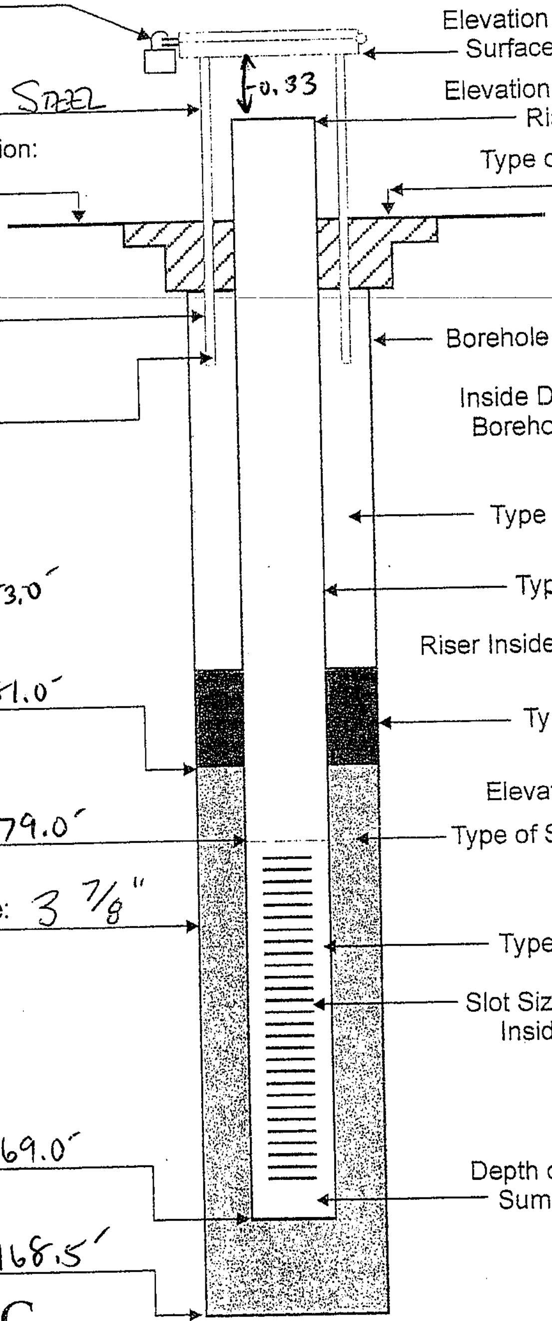
Bedrock Well Construction Diagram

Well No.: MW-210

Project No.: 3612082109.02.01
Project Name: FORMER SPEEDY'S CLEANERS
NYSDEC
Project Area: Rochester, N.Y.
Contractor: GEOLOGIC
Driller: DAVE
Method: 3.5" ROLLERBIT
Logged By: W. Swinehart
Date Started: 12-23-08
Completed: 12-23-08
Checked By: C. Staples
Date: 12/9/09
Well Development Date: 12-23-08

Not To Scale

Lock Identification:
Surface Casing Type: FLUSH MOUNTED STEEL
Ground Surface Elevation: 487.03
Surface Casing Diameter: 6"
Inside Diameter of Surface Casing: ≈6"
Depth/Elevation of Top of Well Seal: 4 FT-BGS / 483.0'
Depth/Elevation of Top of Sand: 6 FT-BGS / 481.0'
Depth/Elevation of Top of Screen: 8 FT-BGS / 479.0'
Diameter of Corehole: 3 7/8"
Depth/Elevation of Bottom of Screen: 18 FT BGS / 469.0'
Depth/Elevation of Bottom of Corehole: 18.5 FT BGS / 468.5'



Elevation of top of Surface Casing: 487.03
Elevation of top of Riser Pipe: 486.70
Type of Surface Seal: CEMENT
Borehole Diameter: 6"
Inside Diameter of Borehole Casing: - None
Type of Backfill: BENTONITE
Type of Riser: 2" PVC SCH 40
Riser Inside Diameter: 2"
Type of Seal: BENTONITE
Bedrock Elevation/Depth: 8 FT-BGS /
Type of Sand Pack: #0 QUARTZ
Type of Screen: 2" SLOTTED PVC SCH 40
Slot Size x Length: 0.010 x 10'
Inside Diameter of Screen: 2"
Depth of Sediment Sump with Plug: 0.5'

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FIGURE 4-8
BEDROCK MONITORING WELL CONSTRUCTION DIAGRAM
NYSDEC QUALITY ASSURANCE PROJECT PLAN

PORT2007022g.cdr

WELL DEVELOPMENT RECORD

Project: Former Speedy's Cleaners	Well Installation Date: 12/23/08		Project No. 3612082109
Client: NYSDEC	Well Development Date: 12/23/08	Logged by: W. Swinhart	Checked by: C. Staples
Well/Site I.D.: MW-210	Weather: Cloudy 20° F	Start Date: 12/23/08	Finish Date: 12/23/08
		Start Time: 1500	Finish Time: 1600

Well Construction Record Data:

Well Diameter 2" in.

Bottom of Screen 18.0 ft.

Sediment Sump/Plug 0.5 ft.

Screen Length 10.0 ft.

From Ground Surface ☒ From Top of Riser ☐

Fluids Lost during Drilling NA gal.

Protective Casing Stick-up Flush ft.

Protective Casing/Well Diff. 0.33 ft.

PID Readings: Ambient Air NA ppm; Well Mouth NA ppm

Well Levels:

Initial ft.

End of Development ft.

24 Hours after Development ft.

NA

Sediment:

Well Depth before Development ft. (from top of PVC)

~~Well Depth~~ after Development ft.

Sediment Depth Removed 0 ft.

HT of Water Column 11 ft. x ☐ 1.68* gal./ft. ☒ 0.16 = 1.76 gal./vol.

*for 4" HSA Installed Wells

Equipment:

☒ ~~Dedicated~~ Submersible Pump

☒ Surge Block

☐ Bailer ☐ 2" ☐ ________

☐ Grundfos Pump 2" _____ 4" _____

Approximate Recharge Rage NA gpm

Total Gallons Removed ~50 gal.

Well Development Criteria Met:

Notes: Yes – No visual/odor sign of contamination

	Yes	No
■ Well water clear to unaided eye	☒	☐
■ Sediment thickness remaining in well is <1.0% of screen length	☒	☐
■ Total water removed = a minimum of 5x calculated well volume plus 5x drilling fluid lost	☐	☐
■ Turbidity < 5NTUs	☐	☐
■ 10% change in field parameters	☐	☐

End of Well Development Sample (1 pint) Collected? Yes ☐ No ☒

Water Parameter Measurements

Record at start, twice during and at the end of development (minimum):

Time	Volume	Total Gallons	pH	Temp.	Conductance	Turbidity	Pumping Rate
NA							

Well Developer's Signature ____________________

– copied from log book by CRS 2/9/09

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FIGURE 4-9
WELL DEVELOPMENT RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

PORT2007022h.mac

ROCK CORING LOG

Project: Former Speedy's Cleane	Site: Rochester, NY	Exploration/Well No.: MW-211	Project No.: 3612082109
Client: NYSDEC	Driller's Name: Scott Breeds	Logged by: BAS Checked by: JRR 5/1/09	Ground Elev.: 486.5
Drilling Contractor: Geologic, NY	Protection Level: D	Rig Type: CME 55 Start Date: 12-18-08	Finish Date: 12-18-08
Drilling Method: Drive + wash, Tricone Bit		P.I.D. (eV): 10.8 Casing Size: 4"	Auger Size: NA
Bit type/size: 3 7/8"	Bit Use: grind, chip	Core Interval (to/from)(ft): NA	

9.2

Depth (feet) Below GRD Surf.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Core Breaks		Weathered Condition	Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition		Total 4" Core	RQD (%)	Rock Quality Description			
		8									Start Tricone Bit @ 9.2' : 1325 Stop/finished @ 18.5' : 1538. Rock chips: Dk grey, fine grained, wash water: Lt Brown w/ strong petroleum odor; - contained in 2 drums.

18.5

JRR 5/1/09

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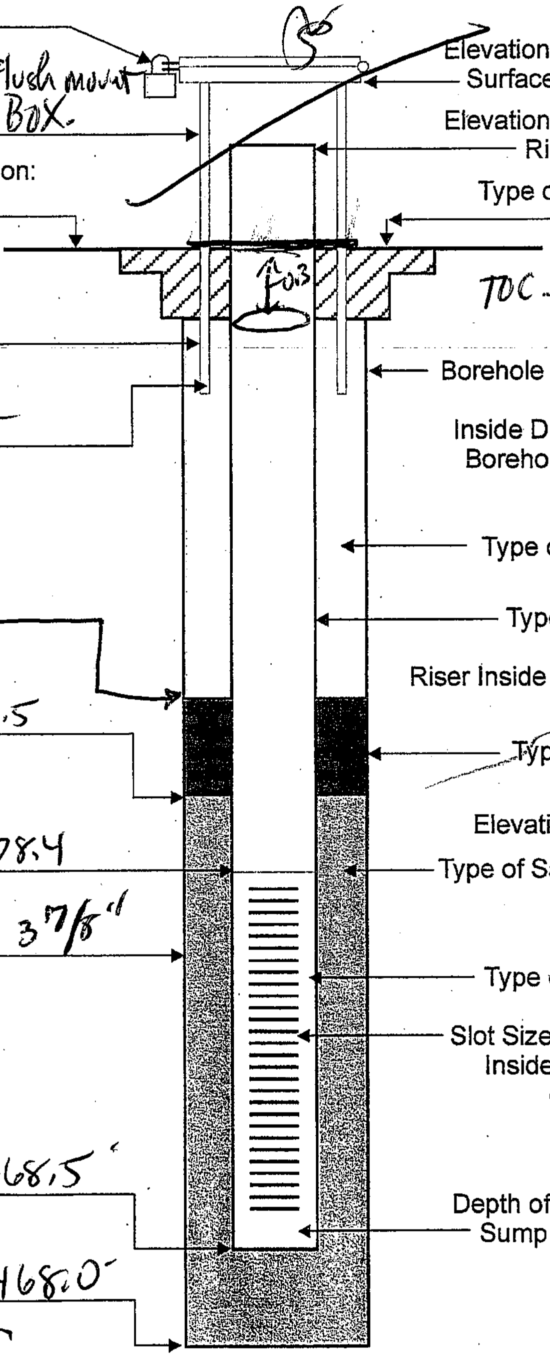
FIGURE 4-5
ROCK CORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

Bedrock Well Construction Diagram

Well No.: MW-211

Project No.: 3612082169
NYSDEC
Project Name: Former Speedy's Cleaners
Project Area: Rochester, New York
Contractor: GeologicNY
Driller: Scott Breeds
Method: Drive + wash, Rollerbit
Logged By: Brandon Shaw
Date Started: 12-18-08
Completed: 12-18-08
Checked By: JKR
Date: 01/07/09
Well Development Date: 12/23/08

Not To Scale



Lock Identification:
Surface Casing Type: Flush mount Steel Road Box.
Ground Surface Elevation: 486.5
Surface Casing Diameter: UNK
Inside Diameter of Surface Casing: UNK
Depth/Elevation of Top of Well Seal: 2' /
Depth/Elevation of Top of Sand: 6.0' / 480.5
Depth/Elevation of Top of Screen: 8.1' bgs 478.4
Diameter of Corehole: 3 7/8"
Depth/Elevation of Bottom of Screen: 18.0' bgs / 468.5'
Depth/Elevation of Bottom of Corehole: 18.5' bgs / 468.0'

Elevation of top of Surface Casing: 486.54
Elevation of top of Riser Pipe: 486.25
Type of Surface Seal: Grout - cement
TOC - TOR: ~~0.21~~ JR
Borehole Diameter: 6"
Inside Diameter of Borehole Casing: NA
Type of Backfill: NA - Sand
Type of Riser: Sch 40 PVC
Riser Inside Diameter: 2"
Type of Seal: Bentonite Chips
Bedrock Elevation/Depth: ~9.2 /
Type of Sand Pack: #0 Industrial Quartz
Type of Screen: Sch 40 PVC, slotted
Slot Size x Length: 0.010" x 10'
Inside Diameter of Screen: 2"
Depth of Sediment Sump with Plug: 18.5' bgs (0.48')

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FIGURE 4-8
BEDROCK MONITORING WELL CONSTRUCTION DIAGRAM
NYSDEC QUALITY ASSURANCE PROJECT PLAN

PORT2007022g.cdr

WELL DEVELOPMENT RECORD

Project: Former Speedy's Cleaners	Well Installation Date: 12/18/08		Project No. 3612082109
Client: NYSDEC	Well Development Date: 12/23/08	Logged by: W. Swinehart	Checked by: CRS
Well/Site I.D.: MW-211	Weather: 20°F overcast	Start Date: 12/23/08	Finish Date: 12/23/08
		Start Time: 0900	Finish Time: 1100

Well Construction Record Data:

Well Diameter 2" in.

Bottom of Screen	18.0 ft.	From Ground Surface ☒ From Top of Riser ☐
Sediment Sump/Plug	18.5 ft.	
Screen Length	10 ft.	Fluids Lost during Drilling NA gal.

Protective Casing Stick-up Flush ft. Protective Casing/Well Diff. 0.30 ft. PID Readings: Ambient Air NA ppm Well Mouth NA ppm

Well Levels:		**Sediment:**		
Initial	ft.	Well Depth before Development	ft.	(from top of PVC)
End of Development	NA ft.	Well Depth after Development	ft.	
24 Hours after Development	ft.	Sediment Depth Removed	0 ft.	

HT of Water Column 10.5 ft. x ☐ 1.68* gal./ft. ☒ 0.16 = 1.6 gal./vol.
*for 4" HSA Installed Wells

Equipment:

- ☒ ~~Dedicated~~ Submersible Pump
- ☒ Surge Block
- ☐ Bailer ☐ 2" ☐ ________
- ☐ Grundfos Pump 2" _____ 4" _____

Approximate Recharge Rage NA gpm

Total Gallons Removed ≈ 50 gal.

Well Development Criteria Met:

Notes: Surged during development
water clear to eye

	Yes	No
■ Well water clear to unaided eye	☒	☐
■ Sediment thickness remaining in well is <1.0% of screen length	☒	☐
■ Total water removed = a minimum of 5x calculated well volume plus 5x drilling fluid lost	☐	☐
■ Turbidity < 5NTUs	☐	☐
■ 10% change in field parameters	☐	☐

End of Well Development Sample (1 pint) Collected? Yes ☐ No ☐

Water Parameter Measurements

Record at start, twice during and at the end of development (minimum):

Time	Volume	Total Gallons	pH	Temp.	Conductance	Turbidity	Pumping Rate
		NA					

Well Developer's Signature ____________________

Notes from W. Swinehart

Checked by CRS 2/9/09

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FIGURE 4-9
WELL DEVELOPMENT RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

ROCK CORING LOG

Project: Former Speedy's Cleaners
Site: Rochester, NY
Exploration/Well No.: MW-212
Project No.: 3612082109
Client: NYSDEC
Driller's Name: Scott Breeds
Logged by: BTS
Checked by: JKR
Ground Elev.:
Drilling Contractor: Geologic, NY
Protection Level: D
Rig Type: 55 CME
Start Date: 12-19-08
Finish Date: 12-19-08.
Drilling Method: HSA, Drive & wash, HQ core
P.I.D. (eV): 10.6
Casing Size: 4"
Auger Size: 6"
Bit type/size: HQ; 3 7/8" OD
Bit Use: core
Core Interval (to/from)(ft): 10.0 to 15.0

PID reading	Depth (feet) Below GRD Sort.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Core Breaks: Type/Dip	Natural Core Breaks: Surface Condition	Weathered Condition	Rock Quality: Total 4" Core	Rock Quality: RQD (%)	Rock Quality: Rock Quality Description	Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
	* Augered to 5' bgs; Drove casing (4") to top of rock @ 10.0; Began core w/ HQ											
											Dk gray	RUN#1 Start Run @: 1005
312	10											Stop Run @ ~~12~~ 11.0: 1012
170		0.9 / 1.0										* water coming up casing
216 42.1	11											Start Run again: 1052 Stop run: 1121 ← RUN#2
185												- Strong odor on rock core;
160	12											
40.8	13	3.1 / 4.0										
32.6	14											
31.7												
17.6	15											

B. Shaw

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BS 5/1/09

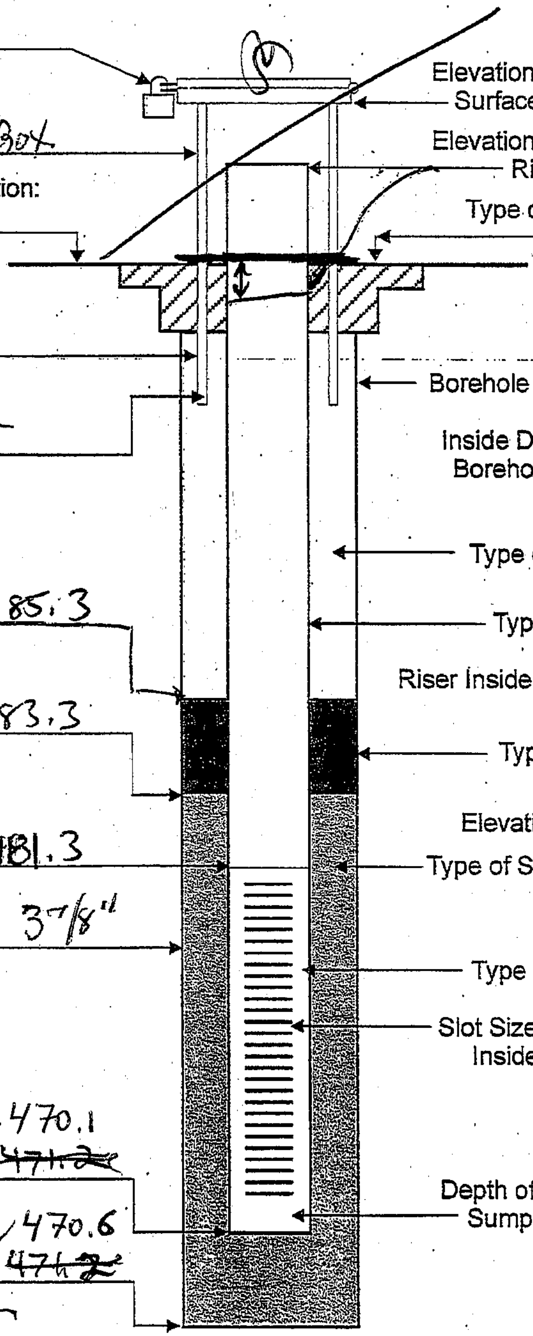
FIGURE 4-5
ROCK CORING LOG
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

Bedrock Well Construction Diagram

Well No.: MW-22

Project No.: 3612082109
NYSDEC
Project Name: Former Speedy's Cleaners
Project Area: Rochester, NY
Contractor: GeologicNY
Driller: Scott Breeds
Method: HSA, Drive + Wash, HQ core
Logged By: Brandon Shaw
Date Started: 12-19-08
Completed: 12-19-08
Checked By: JRR
Date: 5/1/09
Well Development Date: 12/23/08

Not To Scale



Lock Identification:
Surface Casing Type: Steel Road Box
Ground Surface Elevation: 486.75'
Surface Casing Diameter: UNK
Inside Diameter of Surface Casing: UNK
Depth/Elevation of Top of Well Seal: 1.5' bgs / 485.3
Depth/Elevation of Top of Sand: 3.5' bgs / 483.3
Depth/Elevation of Top of Screen: 5.5' bgs / 481.3
Diameter of Corehole: 3 7/8"
Depth/Elevation of Bottom of Screen: 14.5 ~~15.6~~' bgsl / 470.1 ~~471.2~~
Depth/Elevation of Bottom of Corehole: 15.0 15.0' bgsl / 470.6 ~~471.2~~

Elevation of top of Surface Casing: 486.75
Elevation of top of Riser Pipe: 486.40'
Type of Surface Seal: Grout -
Borehole Diameter: 6"
Inside Diameter of Borehole Casing: na
Type of Backfill: Sand
Type of Riser: Sch 40 PVC
Riser Inside Diameter: 2"
Type of Seal: Bentonite Chips
Bedrock Elevation/Depth: ~ 10' /
Type of Sand Pack: #0 Industrial Quartz
Type of Screen: Slotted Sch 40 PVC
Slot Size x Length: 0.010" x 10'
Inside Diameter of Screen: 2"
Depth of Sediment Sump with Plug: 15.0 bgs (0.48')

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JR 5/1/09

FIGURE 4-8
BEDROCK MONITORING WELL CONSTRUCTION DIAGRAM
NYSDEC QUALITY ASSURANCE PROJECT PLAN

PORT2007022g.cdr

WELL DEVELOPMENT RECORD

Project: Former Speedy's Cleaners	Well Installation Date: 12/19/08		Project No. 3612082109
Client: NYSDEC	Well Development Date: 12/23/08	Logged by: W. Swinehart	Checked by: CRS
Well/Site I.D.: MW-212	Weather: 20° F overcast	Start Date: 12/23/08	Finish Date: 12/23/08
		Start Time: 1100	Finish Time: 1300

Well Construction Record Data:

Well Diameter 2" in.

Bottom of Screen 14.5 ft.

Sediment Sump/Plug 15.0 ft.

Screen Length 10' ft.

From Ground Surface ☒ From Top of Riser ☐

Fluids Lost during Drilling NA gal.

Protective Casing Stick-up Flush ft.

Protective Casing/Well Diff. 0.25 ft.

PID Readings: Ambient Air NA ppm; Well Mouth NA ppm

Well Levels:

Initial ft.

End of Development ft.

24 Hours after Development ft.

Sediment:

Well Depth before Development ft. (from top of PVC)

Well Depth after Development ft.

Sediment Depth Removed ft.

NA

HT of Water Column 7.1 ft. x ☐ 1.68* gal./ft. ☒ 0.16 = 1.1 gal./vol.

*for 4" HSA Installed Wells

Equipment:

- ☒ ~~Dedicated~~ Submersible Pump
- ☒ Surge Block
- ☐ Bailer ☐ 2" ☐ ________
- ☐ Grundfos Pump 2" _____ 4" _____

Approximate Recharge Rage NA gpm

Total Gallons Removed ≈50 gal.

Well Development Criteria Met:

Notes: Surged during development

water clear to eye

	Yes	No
■ Well water clear to unaided eye	☒	☐
■ Sediment thickness remaining in well is <1.0% of screen length	☒	☐
■ Total water removed = a minimum of 5x calculated well volume plus 5x drilling fluid lost	☐	☐
■ Turbidity < 5NTUs	☐	☐
■ 10% change in field parameters	☐	☐

End of Well Development Sample (1 pint) Collected? Yes ☐ No ☐

Water Parameter Measurements

Record at start, twice during and at the end of development (minimum):

Time	Volume	Total Gallons	pH	Temp.	Conductance	Turbidity	Pumping Rate

NA

Well Developer's Signature ____________________

Notes from W. Swinehart

Checked by CRS 2/19/09

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FIGURE 4-9
WELL DEVELOPMENT RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

APPENDIX B.3

LOW FLOW GROUNDWATER SAMPLING RECORDS

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage Cleaners
EXPLORATION ID: HA-104
TIME START 1625 END 1710
SAMPLE I.D. NUMBER: 828120HA104015
SITE: NYSDEC
JOB NUMBER: 3612082109
SAMPLE TIME: 1700
DATE: 01/21/09
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

INITIAL DEPTH TO WATER: 6.75 FT
FINAL DEPTH TO WATER: 6.75 FT
DRAWDOWN VOLUME: <0.1 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: ~3.1 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 18.0 FT
SCREEN LENGTH: unknown FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PID AMBIENT AIR: — PPM
PID WELL MOUTH: — PPM
PRESSURE TO PUMP: — PSI
REFILL TIMER SETTING: — SECONDS

PROTECTIVE CASING / WELL DIFFERENCE: 0.35 FT
WELL DIAMETER: 4 IN

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1626	Pump on								~15'	Pump on
1627	6.75	350	7.7	0.564	8.4	1.8	37.1	-90		purge water has
1632	6.75	350	7.3	0.570	8.4	3.8	56.3	-100		iron flock in
1637	6.75	350	7.5	0.573	8.4	6.7	40.2	-100		it
1642	6.75	350	7.6	0.577	8.4	8.4	36.4	-110		
1647	6.75	350	7.4	0.579	8.4	8.5	25.1	-110		
1652	6.75	350	7.3	0.574	8.4	8.4	24.8	-120		
1657	6.75	350	7.4	0.572	8.4	8.3	25.6	-120		
1700	Sample time @ HA-104									Sample time
1709	pump off									
			7	0.572	8.4	8.3	25.6	-120		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER None

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER None

ANALYTICAL PARAMETERS

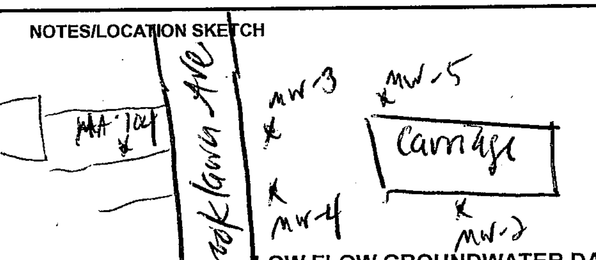
To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~3.1

Signature: ______

NOTES/LOCATION SKETCH



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✓ MJW 1/27/09

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage Cleaners
SAMPLE I.D. NUMBER: 828D01HA105012
SAMPLE TIME: 1600
EXPLORATION ID: HA-105
SITE: NYSDEC
DATE: 1/21/09
TIME START 1525 END 1615
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.4 FT

INITIAL DEPTH TO WATER: 8.70 FT
WELL DEPTH (TOR): 15.5 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: (2? 4?) IN

FINAL DEPTH TO WATER: 8.79 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: / PPM

WELL INTEGRITY: YES / NO / N/A
CAP ☑ YES
CASING ☑ YES
LOCKED ☑ YES ☑ NO
COLLAR ☑ YES

DRAWDOWN VOLUME: 0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~2.6 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: / SECONDS
DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1527	pump on in MA-105								~12'	
1529	8.75	300	9.2	0.433	8.9	7.0	58.7	-70		Strong petr. odor
1534	8.79	300	9.8	0.435	9.0	7.1	22.8	-120		
1539	8.79	300	10.6	0.436	9.1	7.0	10.5	-140		
1544	8.79	300	10.7	0.431	9.1	6.8	9.8	-160		
1549	8.79	300	10.7	0.429	9.1	6.2	7.3	-160		
1554	8.79	300	10.8	0.427	9.1	6.1	6.2	-160		
1600	Sample	time	@ HA 105							Sample time
1604	pump off									
			11	0.427	9.1	6.1	6.2	-160		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~2.6

Signature:

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1/22/09

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NOTES/LOCATION SKETCH

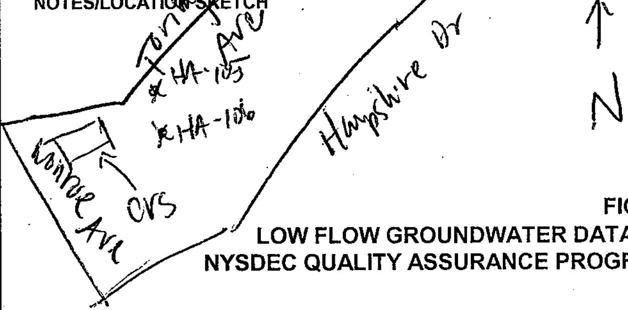

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: ~~HA-106~~ Carnegie Cleaners
SAMPLE I.D. NUMBER: 828123-HA-111014R1
SAMPLE TIME: 1655
EXPLORATION ID: HA-106 Carnegie
SITE: NYSDEC
DATE: 1/21/09
TIME: START 1620 END 1700
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): ___ FT
PROTECTIVE CASING / WELL DIFFERENCE: ___ FT
INITIAL DEPTH TO WATER: 9.10 FT
WELL DEPTH (TOR): 14.9 FT
PID AMBIENT AIR: ___ PPM
WELL DIAMETER: 2 IN
FINAL DEPTH TO WATER: 9.12 FT
SCREEN LENGTH: unk FT
PID WELL MOUTH: ___ PPM
DRAWDOWN VOLUME: ___ GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: ___
PRESSURE TO PUMP: ___ PSI
TOTAL VOL. PURGED: 1.96 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: ___ SECONDS
DISCHARGE TIMER SETTING: 2 SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1620	Began	Purge								
1625	9.12	350	11.1	0.425	7.5	10.47	48.4	-160	14	
1630	9.12	350	11.1	0.432	7.5	<0.1	41.7	-171		
1635	9.12	350	11.1	0.430	7.6	<0.1	30.9	-158		
1640	9.12	350	11.1	0.453	7.6	<0.1	19.9	-165		
1645	9.12	350	11.1	0.461	7.5	<0.1	10.1	-173		
1650	9.12	350	11.0	0.473	7.6	<0.1	9.66	-175		
1655	9.12	350	11.1	0.481	7.6	<0.1	8.79	-179		
			11	0.481	7.6	<0.1	8.8	-180		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☐ OTHER ______
NA

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______
NA

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 2.0

Signature:

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✓ BAS 01/26/2009

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NOTES/LOCATION SKETCH

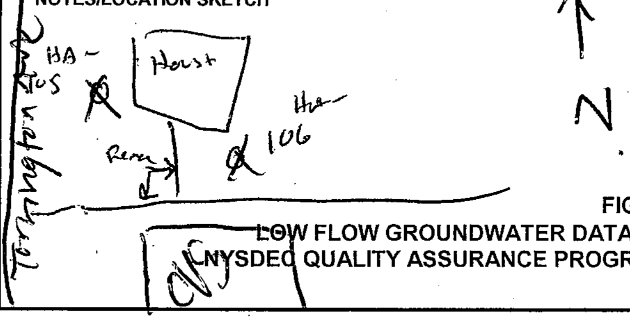

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Speedy's/Carriage
EXPLORATION ID: HA-108
TIME START: 1140 END: 1240
SAMPLE I.D. NUMBER: F2B120-HA-108009
SITE: NYSDEC
JOB NUMBER: 3612082110
SAMPLE TIME: 1240
DATE: 1/20/09
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

INITIAL DEPTH TO WATER: 5.81 FT
FINAL DEPTH TO WATER: 5.89 FT
DRAWDOWN VOLUME: 0.0128 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: 1.92 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 14.4 FT
SCREEN LENGTH: unknown FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.007

PROTECTIVE CASING STICKUP (FROM GROUND): — FT
PID AMBIENT AIR: — PPM
PID WELL MOUTH: — PPM
PRESSURE TO PUMP: — PSI
REFILL TIMER SETTING: — SECONDS

PROTECTIVE CASING / WELL DIFFERENCE: — FT
WELL DIAMETER: 2 IN
DISCHARGE TIMER SETTING: — SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1200	Began	Purge								
1205	5.90	200	6.56	1.74	8.30	7.78	70.3	100	9	
1210	5.90	200	7.08	1.70	8.25	5.57	36.9	86		
1215	5.90	200	7.01	1.66	8.25	7.00	21.9	80		
1220	5.89	200	7.01	1.66	8.24	6.52	19.5	76		
1225	5.89	200	6.93	1.65	8.29	6.27	12.9	72		
1230	5.89	200	6.94	1.62	8.24	6.12	13.1	69		
1235	5.89	200	6.93	1.61	8.24	6.20	12.5	67		
			7	1.61	8.2	6.2	12.5	70		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☐ OTHER ______
NA

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 1.8

Signature: ______

NOTES/LOCATION SKETCH

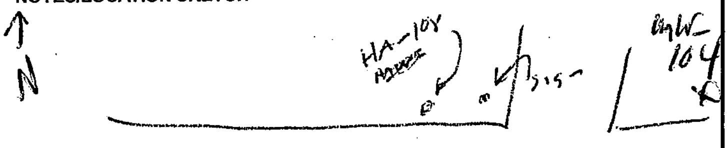

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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Broadway Carriage
SAMPLE I.D. NUMBER: 8DB120-HA-11104
SAMPLE TIME: 1755
EXPLORATION ID: HA-111
SITE: NYSDEC
DATE: 1/21/09
TIME START 1715 END 1800
JOB NUMBER: 3612082109
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

INITIAL DEPTH TO WATER: 8.27 FT
FINAL DEPTH TO WATER: 8.27 FT
DRAWDOWN VOLUME: — GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: ______ GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 15.8 FT
SCREEN LENGTH: unk FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: —

PROTECTIVE CASING STICKUP (FROM GROUND): — FT
PID AMBIENT AIR: — PPM
PID WELL MOUTH: — PPM
PRESSURE TO PUMP: — PSI
REFILL TIMER SETTING: — SECONDS

PROTECTIVE CASING / WELL DIFFERENCE: — FT
WELL DIAMETER: 2 IN
DISCHARGE TIMER SETTING: — SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1725	begin	Purge								
1730	8.27	250	7.8	0.454	7.5	<0.1	15.0	-144	~~-149~~ 14	
1735	8.27	250	8.2	0.445	7.5	<0.1	9.28	-161	~~-164~~ 14	
1740	8.27	250	8.0	0.426	7.6	<0.1	6.61	-172	14	
1745	8.27	250	8.0	0.426	7.6	<0.1	5.60	-176	↓	
1750	8.27	250	8.1	0.416	7.6	<0.1	5.21	-180	↓	
			8	0.416	7.6	<0.1	5.2	-180		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ______

Signature: ______

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NOTES/LOCATION SKETCH

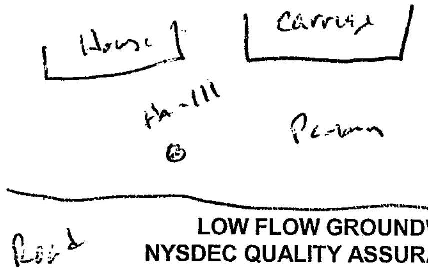


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

828128-

PROJECT: Carriage Cleaners / Speedys
SAMPLE I.D. NUMBER: HA-112.150 R1
SAMPLE TIME: 1230
EXPLORATION ID: HA-112
SITE: Carriage / Speedy
DATE: 1-21-09
TIME START: 1150 END: ~1240
JOB NUMBER: 3612082104
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: — FT

INITIAL DEPTH TO WATER: 7.15 FT
WELL DEPTH (TOR): 15.5 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.21 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: — PPM

WELL INTEGRITY: YES NO N/A
CAP
CASING
LOCKED
COLLAR

DRAWDOWN VOLUME: <0.1 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: ~1.4 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1200	7.21	150	~~6.6~~	~~0.000~~	~~3.27~~	~~7.40~~	~~26.1~~	~~276~~	15	
1205	7.21	150	~~6.2~~	~~0.000~~	~~3.30~~	~~7.14~~	~~26.8~~	~~275~~	15	
1210	7.21	150	~~5.6~~	~~0.000~~	~~3.33~~	~~6.74~~	~~11.6~~	~~275~~	15	
1215	7.21	150	~~6.4~~	~~0.000~~	~~3.25~~	~~6.67~~	~~15.6~~	~~275~~	15	
1220	7.21	150	~~6.6~~	~~0.000~~	~~3.26~~	~~6.70~~	~~18.1~~	~~275~~	15	
1225	7.21	150	~~6.9~~	~~0.000~~	~~3.28~~	~~6.73~~	~~21.9~~	~~275~~	15	
1230										→ SAMPLE COLLECTED @ 1230 FOR VOCs
			~~7~~	~~0.000*~~	~~3.3~~	~~6.7~~	~~21.9~~	~~270~~		
* 1550	7.37	150	6.6	2.78	7.4	4.0	~~345~~ 1327 BJS	277		readings from 02/03/09
* 1555	7.37	150	6.7	2.78	7.4	4.7	66	214		
* 1600	7.37	150	6.8	2.88	7.4	4.4	33	204		
* 1605	7.37	150	6.9	2.90	7.4	4.3	36	203		

The arp was inadvertently left on U-22 unit; readings are not indicative of subsurface conditions

EQUIPMENT DOCUMENTATION

* E/C probe not functioning correctly

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☒ GEOPUMP

TYPE OF TUBING
☒ SILASTIC
☒ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☒ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☒ OTHER ______

ANALYTICAL PARAMETERS

*reading were recorded on 02-03-2009; by Mark Maggoire - BJS

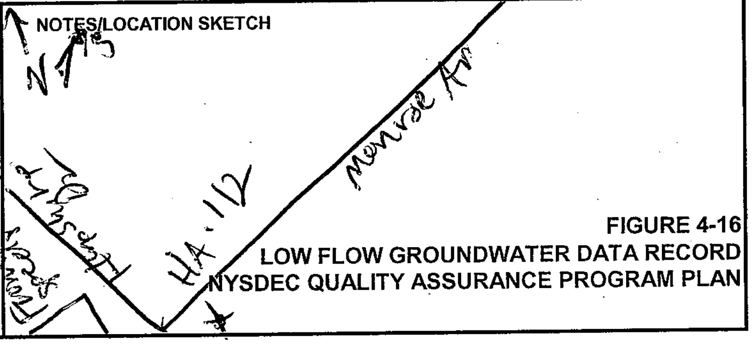
To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☒ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~1.4

Signature:

NOTES/LOCATION SKETCH



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BJS 01/26/2009
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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT Former Speedy Cleaners Site
EXPLORATION ID: HA-112
TIME START 15:45 END 16:05
SAMPLE I.D. NUMBER —
SITE —
JOB NUMBER 3612082109
SAMPLE TIME —
DATE 2-3-09
FILE TYPE —

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☐ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND) ______ FT
PROTECTIVE CASING / WELL DIFFERENCE ______ FT

INITIAL DEPTH TO WATER ______ FT
WELL DEPTH (TOR) ______ FT
PID AMBIENT AIR ______ PPM
WELL DIAMETER ______ IN

FINAL DEPTH TO WATER ______ FT
SCREEN LENGTH ______ FT
PID WELL MOUTH ______ PPM

	YES	NO	N/A
WELL INTEGRITY: CAP			
CASING			
LOCKED			
COLLAR			

DRAWDOWN VOLUME ______ GAL
(initial - final x 0.16 (2-inch) or x 0.65 (4-inch))

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED ______

PRESSURE TO PUMP ______ PSI

TOTAL VOL. PURGED ______ GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING ______ SECONDS
DISCHARGE TIMER SETTING ______ SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
15:50	7.37	150	6.59	2.78	7.42	4.00	215	217		
15:55	7.37	150	6.66	2.78	7.41	4.65	60	214		
16:00	7.37	150	6.84	2.86	7.43	4.37	33	204		
16:05	7.37	150	6.93	2.90	7.43	4.3	30	203		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected

NA

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☐ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED <1

Signature: MAM

NOTES/LOCATION SKETCH

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/BTF 07/03/2009
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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Speedy's / carriage

SAMPLE I.D. NUMBER: B28128-HA-114 12M

SAMPLE TIME: 1535

EXPLORATION ID: HA-114.

SITE: NYSDEC

DATE: 1/21/09

TIME START 1440 END 1545

JOB NUMBER: 3612082169

FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

INITIAL DEPTH TO WATER: 8.26 FT

FINAL DEPTH TO WATER: 9.61 FT

DRAWDOWN VOLUME: 0.216 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

TOTAL VOL. PURGED: 1.138 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 14.5 FT

SCREEN LENGTH: unk FT

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.190

PROTECTIVE CASING STICKUP (FROM GROUND): FT

PID AMBIENT AIR: PPM

PID WELL MOUTH: PPM

PRESSURE TO PUMP: PSI

REFILL TIMER SETTING: SECONDS

PROTECTIVE CASING / WELL DIFFERENCE: FT

WELL DIAMETER: 2 ~~NA~~ IN

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DISCHARGE TIMER SETTING: SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1450	Started Purge									
1455	9.45	125	9.7	0.589	7.3	10.03	31.3	-132	12	
1500	9.53	125	9.5	0.589	7.3	10.68	14.7	-139		
1505	9.59	125	9.7	0.590	7.3	10.22	15.8	-144		
1510	9.60	125	10.0	0.592	7.3	9.81	10.1	-149		
1515	9.61	125	10.1	0.600	7.3	9.22	4.82	-150		
1520	9.61	125	9.9	0.604	7.3	8.93	9.57	-152		
1525	9.61	125	9.9	0.615	7.3	8.87	8.99	-149		
			10	0.615	7.3	8.9	10	-150		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER ______
NA

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______
NA

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☑ TAL INORGANICS
☑ Other MNA parameters	varies	varies	" MNA	☑ MNA parameters

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]

NUMBER OF GALLONS GENERATED 1.1

Signature:

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BAS 1/26/2009

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NOTES/LOCATION SKETCH

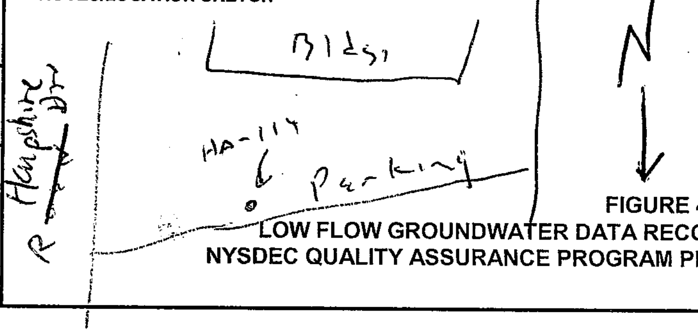


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: CARRIAGE CLEANERS

EXPLORATION ID: HA-115

TIME START 0920 END 1000

SAMPLE I.D. NUMBER: 828128-HA-11515.5 RI

SITE: CARRIAGE

JOB NUMBER: 3612082104

SAMPLE TIME: 1000

DATE: 1-21-09

FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

PUMP INTAKE 15.5

MEASUREMENT POINT
☒ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0 FT

PROTECTIVE CASING / WELL DIFFERENCE: — FT

INITIAL DEPTH TO WATER: 6.80 FT

WELL DEPTH (TOR): 15.80 FT

PID AMBIENT AIR: — PPM

WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 6.82 FT

SCREEN LENGTH: unknown FT

PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED	X		
COLLAR	X		

DRAWDOWN VOLUME: <0.1 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01

PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: ~1.4 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING: — SECONDS

DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	ORP REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0930	6.82	150	0.1	0.003	3.86	6.64	6.99	282	15.5	
0935	6.82	150	0.8	0.004	3.71	6.30	7.86	276	15.5	
0940	6.82	150	4.4	0.000	4.01	5.57	4.61	263	15.5	
0945	6.82	150	5.2	0.000	4.23	6.54	4.20	256	15.5	
0950	6.82	150	7.0	0.000	4.25	5.53	4.25	258	15.5	
0955	6.82	150	7.4	0.000	4.26	5.55	4.21	261	15.5	SAMPLE COLLECTED @
1000										1000 FOR VOC
			~~7~~	~~0.000*~~	~~4.3~~	~~5.6~~	~~4.2~~	~~260~~		

The cover was inadvertadly left on the U-22; readings are not indicative of subsurface conditions.

BAS 01/27/2009

1623	7.90	400	8.8	0.440	8.2	3.1	16.3	-129		readings from 02/13/09
1626	7.90	400	9.2	0.428	8.1	0.5	6.3	-138		

* E/C probe was not functioning correctly

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☒ GEOPUMP

TYPE OF TUBING
☒ SILASTIC
☒ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☒ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☒ OTHER ______

ANALYTICAL PARAMETERS
To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ VOC	[✓ 8260B]	[✓ HCL / 4 DEG. C]	[✓ 3 X 40 mL]	☒ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

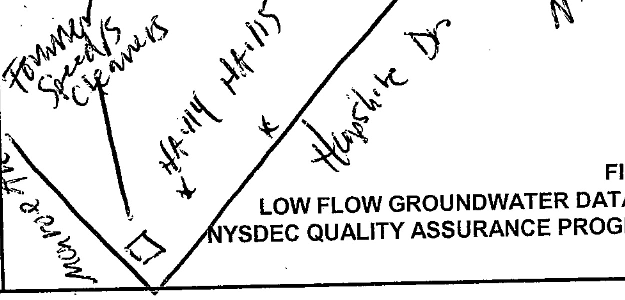
PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]

NUMBER OF GALLONS GENERATED: ~1.4

Signature:

NOTES/LOCATION SKETCH



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BAS 01/26/2009

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedy Cleaners Site
SAMPLE I.D. NUMBER: —
SAMPLE TIME: —
EXPLORATION ID: HA-11S
SITE: Former Speedy
DATE: 2/13/09
TIME START 16:20 END 16:30
JOB NUMBER: 3612082109
FILE TYPE: —

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☐ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): FT
PROTECTIVE CASING / WELL DIFFERENCE: FT
INITIAL DEPTH TO WATER: FT
WELL DEPTH (TOR): FT
PID AMBIENT AIR: PPM
WELL DIAMETER: IN
FINAL DEPTH TO WATER: FT
SCREEN LENGTH: FT
PID WELL MOUTH: PPM

WELL INTEGRITY:	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

DRAWDOWN VOLUME: GAL
(initial - final x 0.16 (2-inch) or x 0.65 (4-inch))
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED:
PRESSURE TO PUMP: PSI
TOTAL VOL. PURGED: GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: SECONDS
DISCHARGE TIMER SETTING: SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
16:23	7.9	400	8.75	0.440	8.18	3.19	16.3	-129		
16:26	7.9	400	9.16	0.428	8.14	0.49	6.29	-138		
			0							

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ MARSCHALK BLADDER	☒ SILASTIC	☐ POLYVINYL CHLORIDE	☐ TEFLON
☐ SIMCO BLADDER	☒ HIGH DENSITY POLYETHYLENE	☐ STAINLESS STEEL	☐ OTHER ______
☑ GEOPUMP	☐ OTHER ______	☐ OTHER ______	

ANALYTICAL PARAMETERS
To Be Collected

NA

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☐ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: <1

Signature: MAM

NOTES/LOCATION SKETCH

MACTEC
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√ BAS 03/03/2009

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

828128

PROJECT: CARRIAGE CLEANERS

SAMPLE I.D. NUMBER: HA-117014R1

SAMPLE TIME: 1130

EXPLORATION ID: HA-117

SITE: CARRIAGE

DATE: 1-21-09

TIME: START 1015 END ~1145

JOB NUMBER: 3612082109

FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☒ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0 FT

PROTECTIVE CASING / WELL DIFFERENCE: 0 FT

INITIAL DEPTH TO WATER: 8.58 FT

WELL DEPTH (TOR): 14.5 FT

PID AMBIENT AIR: — PPM

WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 8.77 FT

SCREEN LENGTH: unknown FT

PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED	X		
COLLAR	X		

DRAWDOWN VOLUME: 0.03 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.02

PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: ~1.6 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING: — SECONDS

DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	ORP ~~REDOX~~ (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1055	8.68	150	7.6	0.000	3.48	7.82	25.2	277	14	*NOTE: TURBIDITY READINGS
1100	8.72	150	7.1	0.000	3.47	7.71	14.4	277	14	RECORDED USING HORIBA
1105	8.75	150	7.5	0.000	3.47	7.10	18.9	277	14	U-22.
1110	8.77	150	7.6	0.000	3.49	6.95	17.9	277	14	
1115	8.77	150	7.9	0.000	3.47	6.91	20.1	277	14	
1120	8.77	150	8.1	0.000	3.43	7.11	21.6	276	14	
1125	8.77	150	8.2	0.000	3.44	7.26	22.7	275	14	→ SAMPLE COLLECTED @
1130	—									1130 FOR VOC
			~~8.2~~	~~*0.000~~	~~3.4~~	~~7.3~~	~~22.7~~	~~270~~		
1639	8.48	300	~~7.9~~ ~~1.408~~ 7.9	~~7.5~~ 1.408	~~7.3~~ 7.5	1.3	47.4	108		readings
1643	8.40	300	~~1.408~~ 7.9	~~7.5~~ 1.408	~~7.47~~ 7.5	0.4	16.8	88		from 02/03/09

The cover was left on U-22; readings are not indicative of subsurface conditions

BAS 01/27/2009

* E/C value is not working

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☒ GEOPUMP

TYPE OF TUBING
☒ SILASTIC
☒ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☒ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS
To Be Collected

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☒ VOC
☐ SVOC	CLP	4 DEG. C	~~2 X 1~~ L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______				☐

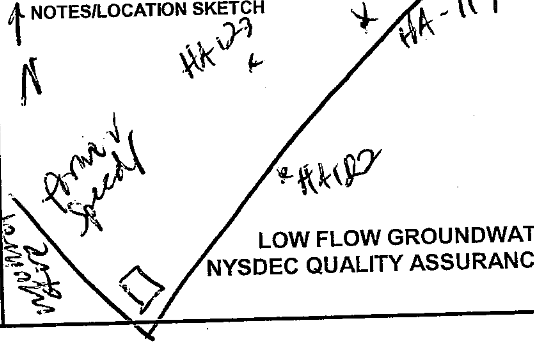
PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]

NUMBER OF GALLONS GENERATED: ~1.6

Signature:

NOTES/LOCATION SKETCH



MACTEC

BAS 01/26/2009

511 Congress Street, Portland, Maine 04101

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedy's Cleaners Site
SAMPLE I.D. NUMBER: —
SAMPLE TIME: —
EXPLORATION ID: HA-117
SITE: Former Speedy
DATE: 2/3/09
TIME: START 16:38 END 16:45
JOB NUMBER: 3612082109
FILE TYPE: —

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☐ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ____

PROTECTIVE CASING STICKUP (FROM GROUND): ____ FT
PROTECTIVE CASING / WELL DIFFERENCE: ____ FT
INITIAL DEPTH TO WATER: 8.41 FT
WELL DEPTH (TOR): 16.5 FT
PID AMBIENT AIR: ____ PPM
WELL DIAMETER: ____ IN
FINAL DEPTH TO WATER: ____ FT
SCREEN LENGTH: ____ FT
PID WELL MOUTH: ____ PPM
DRAWDOWN VOLUME: ____ GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: ____
PRESSURE TO PUMP: ____ PSI
TOTAL VOL. PURGED: ____ GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: ____ SECONDS
DISCHARGE TIMER SETTING: ____ SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
16:39	8.41	300	7.91	1.408	7.45	1.31	47.4	100		
16:43	8.4	300	7.93	1.408	7.40	0.38	168	88		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ MARSCHALK BLADDER	☒ SILASTIC	☐ POLYVINYL CHLORIDE	☐ TEFLON
☐ SIMCO BLADDER	☒ HIGH DENSITY POLYETHYLENE	☐ STAINLESS STEEL	☐ OTHER ____
☒ GEOPUMP	☐ OTHER ____	☐ OTHER ____	

ANALYTICAL PARAMETERS

To Be Collected

NA

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☐ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ____				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: <1

Signature: Mel Mazzeo MAM

NOTES/LOCATION SKETCH

MACTEC
✓ BJB 03/03/2009
511 Congress Street, Portland, Maine 04101

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedy's Cleaners
SAMPLE I.D. NUMBER: 828128HA118012R1
SAMPLE TIME: 1800
EXPLORATION ID: HA-118
SITE: NYSDEC
DATE: 01/20/09
TIME START: 1655 END: 1810
JOB NUMBER: 3612082169
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ____________

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.4 FT

INITIAL DEPTH TO WATER: 7.64 FT
WELL DEPTH (TOR): 15.3 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 8.03 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: / PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: ~0.06 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: ~0.02
PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~2.8 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: / SECONDS
DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
									~12'	
1707	Pump on									
1710	7.86	200	5.4	0.589	7.5	8.9	81.8	90		
1715	7.95	200	5.9	0.591	7.4	7.1	46.3	90		
1720	7.98	200	6.8	0.602	7.3	6.5	21.7	100		
1725	8.02	200	7.0	0.614	7.2	6.1	16.8	90		
1730	8.02	200	7.3	0.625	7.2	5.5	14.5	90		
1735	8.02	200	7.1	0.634	7.2	6.2	12.5	93		
1740	8.03	200	7.0	0.644	7.2	7.1	11.4	93		
1745	8.03	200	7.2	0.638	7.2	6.7	13.7	90		
1750	8.03	200	7.3	0.641	7.2	7.0	13.1	90		
1755	8.03	200	7.3	0.644	7.2	6.9	13.4	96		
1800	Sample time @ ~~A~~ HA-118									
1806	Pump off @ HA-118									
			7	0.644	7.2	6.9	13.4	90		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ____________

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ____________				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~2.8

Signature:

MACTEC
511 Congress Street, Portland, Maine 04101

MJW 1/27/09

NOTES/LOCATION SKETCH

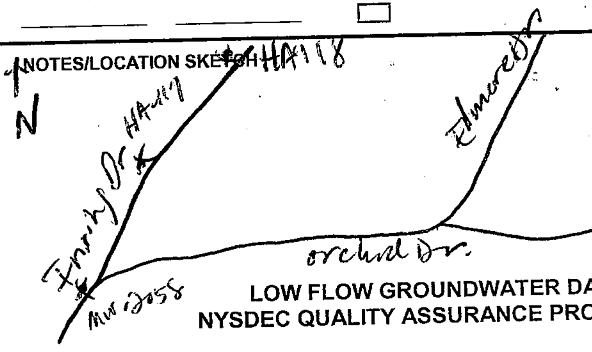


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Speedys/Carvinks

SAMPLE I.D. NUMBER: 828128-HA-1190013RM $XD.

SAMPLE TIME: 1255

EXPLORATION ID: HA-119

SITE: NYSDEC

DATE: ~~12~~ 1/21/09

TIME: START 1190 END 1320

JOB NUMBER: 3612082109

FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): ____ FT

PROTECTIVE CASING / WELL DIFFERENCE: ____ FT

INITIAL DEPTH TO WATER: 7.24 FT

WELL DEPTH (TOR): 14.5 FT

PID AMBIENT AIR: ____ PPM

WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.31 FT

SCREEN LENGTH: UNK FT

PID WELL MOUTH: ____ PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.008 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.002

PRESSURE TO PUMP: ____ PSI

REFILL TIMER SETTING: ____ SECONDS

DISCHARGE TIMER SETTING: ____ SECONDS

TOTAL VOL. PURGED: 3.28 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1200	start up purge									
1205	7.29	280	9.8	0.617	7.2	0.25	2.12	-207	13	
1210	7.31	280	9.9	0.615	7.2	<0.1	0.71	-225		
1215	7.31	280	9.8	0.614	7.2	0.90	0.51	-241		
1220	7.31	280	10.0	0.611	7.2	0.88	0.47	-250		
1225	7.31	280	10.1	0.610	7.1	0.87	0.31	-259		
1230	7.31	280	9.9	0.610	7.1	0.31	0.27	-262		
1235	7.31	280	9.8	0.610	7.1	<0.1	0.25	-265		
1240	7.31	280	10.0	0.610	7.1	<0.1	0.19	-267		
1245	7.31	280	9.8	0.608	7.1	<0.1	0.41	-269		
			10	0.608	7.1	<0.1	0.4	-270		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☑ STAINLESS STEEL
☐ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected

DUP

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☑ TAL INORGANICS	CLP	HNO3 to pH <2	1 X 1 L P	☐ TAL INORGANICS
☐ Other MNA parameters	Varies	Varies		☑ MNA parameters

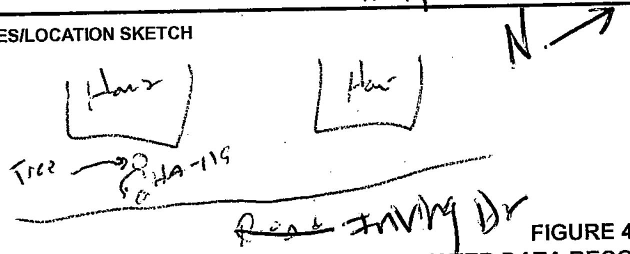
PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]

NUMBER OF GALLONS GENERATED: 3.28

Signature:

NOTES/LOCATION SKETCH



MACTEC
✓ BAJ 01/26/2009
511 Congress Street, Portland, Maine 04101

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedy's
SAMPLE I.D. NUMBER: 828128HA122012AA
SAMPLE TIME: 1245
EXPLORATION ID: HA-122
SITE: NYSDEC
DATE: 01/21/09
TIME START: 1210 END: 1255
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.3 FT

INITIAL DEPTH TO WATER: 7.14 FT
WELL DEPTH (TOR): 15.3 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.18 FT
SCREEN LENGTH: Unknown FT
PID WELL MOUTH: / PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: <0.1 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: /
PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~2.5 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: / SECONDS
DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1217	Pump on @ ~~HA~~ HA-122								~12'	
1219	7.18	325	8.9	0.881	8.4	6.4	12.9	-20	↓	Slight odor - petroleum
1224	7.18	325	9.8	0.895	8.6	5.0	1.7	-70		
1229	7.18	325	9.9	0.897	8.6	4.0	0.9	-100		
1234	7.18	325	9.9	0.898	8.6	3.8	1.3	-110		
1239	7.18	325	9.7	0.898	8.6	<0.1	0.9	-130		
1244	7.18	325	9.8	0.898	8.6	<0.1	1.1	-130		
1245	Sample time @ HA-122									Sample time
1250	Pump off @ HA-122									
			10	0.898	8.6	<0.1	1.1	-130		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER

ANALYTICAL PARAMETERS
To Be Collected

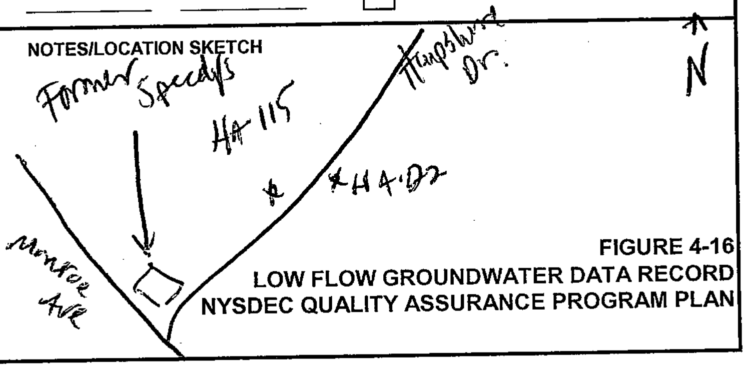
To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~2.5

Signature:

NOTES/LOCATION SKETCH



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✓ MJW 1/27/09

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

328108HA123155R1

PROJECT: Carriage Cleaners / Speedy's
SAMPLE I.D. NUMBER: HA-123 15.5
SAMPLE TIME: 1330
EXPLORATION ID: HA-123
SITE: Carriage / Speedy's
DATE: 1-21-09
TIME START 1250 END ~1345
JOB NUMBER: 3612082109
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): — FT
PROTECTIVE CASING / WELL DIFFERENCE: — FT
INITIAL DEPTH TO WATER: 9.68 FT
WELL DEPTH (TOR): 15.8 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 2 IN
FINAL DEPTH TO WATER: ~9.71 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: — PPM
DRAWDOWN VOLUME: <0.1 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: — PSI
TOTAL VOL. PURGED: ~1 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP			—
CASING			
LOCKED			
COLLAR			

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	ORP ~~REDOX~~ (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1300	9.71	150	5.6	0.000	3.24	7.08	31.0	~~273~~	15.5	* TURBIDITY MEASURED
1305	9.71	150	5.4	0.000	3.28	7.01	28.0	273	15.5	FROM U-22.
1310	9.71	150	5.2	0.000	3.31	6.89	20.6	273	15.5	
1315	9.71	150	5.2	0.000	3.32	6.65	19.8	273	15.5	
1320	9.71	150	5.2	0.000	3.32	6.63	19.1	273	15.5	
1325	9.71	150	5.2	0.000	3.33	6.59	18.9	273	15.5	
1330										SAMPLE COLLECTED @
			~~5~~	~~*0.000~~	~~3.3~~	~~6.6~~	~~15.9~~	~~270~~		1330 FOR VOC.

The cover was inadvertently left on the U-22 unit, readings are not indicative of subsurface conditions

BAS 01/27/2009

EQUIPMENT DOCUMENTATION

E/C probe was not functioning correctly

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☒ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☒ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~1

Signature:

MACTEC

✓ BAS 01/26/2009

511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH

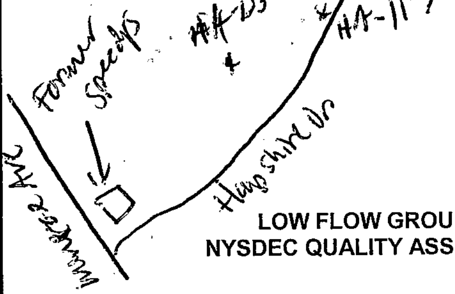

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Speedys/Carriage
SAMPLE I.D. NUMBER: 828124-DEC-well014
SAMPLE TIME: 1335
EXPLORATION ID: DEC-well
SITE: NYSDEC
DATE: 1/21/09
TIME START: 1240 END: 1340
JOB NUMBER: 3612082109
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): ______ FT
PROTECTIVE CASING / WELL DIFFERENCE: ______ FT

INITIAL DEPTH TO WATER: 9.18 FT
WELL DEPTH (TOR): 15.2 FT
PID AMBIENT AIR: ______ PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 9.24 FT
SCREEN LENGTH: unk FT
PID WELL MOUTH: ______ PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.0096 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.0046
PRESSURE TO PUMP: ______ PSI

TOTAL VOL. PURGED: 2.08 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: ______ SECONDS
DISCHARGE TIMER SETTING: ______ SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1250	started purge									
1255	9.24	200	10.3	1.42	7.0	9.76	27.1	-213	14	
1300	9.24	200	10.2	1.21	7.0	9.68	21.3	-207	↓	
1305	9.24	200	10.3	1.07	7.1	9.85	16.5	-198	↓	
1310	9.24	200	10.3	0.95	7.2	9.12	11.4	-197	↓	
1315	9.24	200	10.2	0.91	7.2	9.23	8.74	-185	↓	
1320	9.24	200	10.3	0.617	7.2	9.66	10.91	-179	↓	
1325	9.24	200	10.2	0.608	7.2	9.72	5.67	-178	↓	
1330	9.24	200	10.0	0.592	7.3	9.94	4.81	-177	↓	
			10	0.592	7.3	9.9	4.8	-180		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE N/A
☐ STAINLESS STEEL
☑ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 2.1

Signature: ______

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VBAS 01/26/2009
511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH

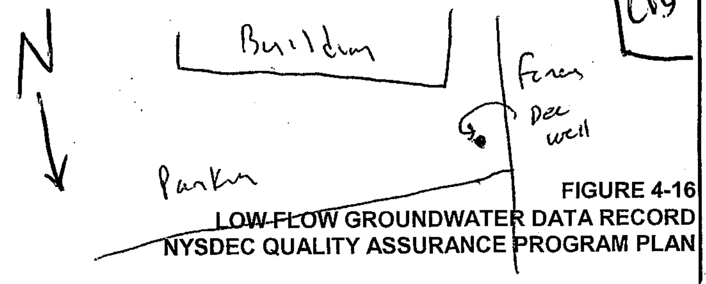


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

828120EW001020D

PROJECT: Carriage Cleaners
SAMPLE I.D. NUMBER: 828120EW001020
SAMPLE TIME: 1245
EXPLORATION ID: ~~OW~~ EW-1
SITE: NYSDEC
DATE: 1-19-09
TIME START: 1208 END: 1325
JOB NUMBER: 3612082100
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☐ TOP OF WELL RISER
☑ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.2 FT
INITIAL DEPTH TO WATER: 8.60 FT
WELL DEPTH (TOR): 28.2 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: 6 IN
FINAL DEPTH TO WATER: 8.60 FT
SCREEN LENGTH: none FT
PID WELL MOUTH: / PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: <0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: / PSI
TOTAL VOL. PURGED: ~3.6 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: / SECONDS
DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1205	Pump on	@ EW-1							~20	Pump on
1206	8.68	350	10.8	0.837	8.3	4.6	2.9	-20	↓	
1211	8.66	350	11.6	0.847	8.5	5.3	2.1	-70		
1216	8.66	350	12.1	0.857	8.6	6.0	1.7	-100		
1221	8.66	350	12.5	0.861	8.8	6.1	1.0	-120		
1226	8.66	350	12.6	0.863	8.8	4.1	1.7	-120		
1231	8.66	350	12.4	0.865	8.8	0.4	1.2	-110		
1236	8.66	350	12.4	0.866	8.8	<0.1	0.7	-110		
1241	8.66	350	12.3	0.864	8.8	<0.1	0.6	-120		
1245	Sample time	@ EW-1								Sample time
1314	Pump off									
			12	0.864	8.8	<0.1	0.6	-120		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☑ SVOC	CLP	4 DEG. C	2 X 1 L AG	☑ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______				☐

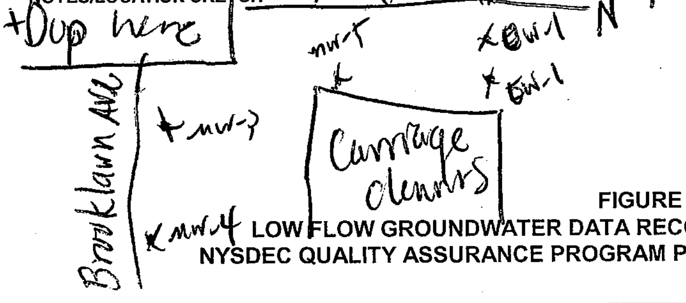
PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~3.6

Signature:

NOTES/LOCATION SKETCH

+Dup here



MACTEC

1/27/09

511 Congress Street, Portland, Maine 04101

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedy's Cleaners Site / Carriage Cleaners

SAMPLE I.D. NUMBER: 82120 - EW-001R 025

SAMPLE TIME: 14:50

EXPLORATION ID: EW-101

SITE: EW-101

DATE: 2/3/09

TIME: START 14:20 END ~1510

JOB NUMBER: 3612082110

FILE TYPE: —

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☒ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): — FT

PROTECTIVE CASING / WELL DIFFERENCE: — FT

INITIAL DEPTH TO WATER: 8.6 FT

WELL DEPTH (TOR): 27.9 FT

PID AMBIENT AIR: — PPM

WELL DIAMETER: 6 IN

FINAL DEPTH TO WATER: 8.6 FT

SCREEN LENGTH: ? FT

PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED		✓	
COLLAR	✓		

DRAWDOWN VOLUME: <0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01

PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: ~1.6 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING: — SECONDS

DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
14:30	8.60	300	10.28	0.735	8.12	1.01	9	-24	25.9	
14:33	8.60	300	10.41	0.651	8.23	0.21	7	-39	↓	
14:36	8.60	300	10.41	0.645	8.27	0.24	5	-98		
14:39	8.60	300	10.41	0.643	8.30	0.25	4	-105		
14:42	8.60	300	10.41	0.640	8.30	0.27	4	-112		
14:45	8.60	300	10.38	0.640	8.31	0.21	4	-113		
14:50	Sample	well								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ MARSCHALK BLADDER	☒ SILASTIC	☐ POLYVINYL CHLORIDE	☐ TEFLON
☐ SIMCO BLADDER	☒ HIGH DENSITY POLYETHYLENE	☐ STAINLESS STEEL	☑ OTHER NA
☑ GEOPUMP	☐ OTHER ______	☒ OTHER NA	

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☐ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☐ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☑ Other Disposal parameters	various	various		☑ Disposal parameters

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]

NUMBER OF GALLONS GENERATED: ~1.6

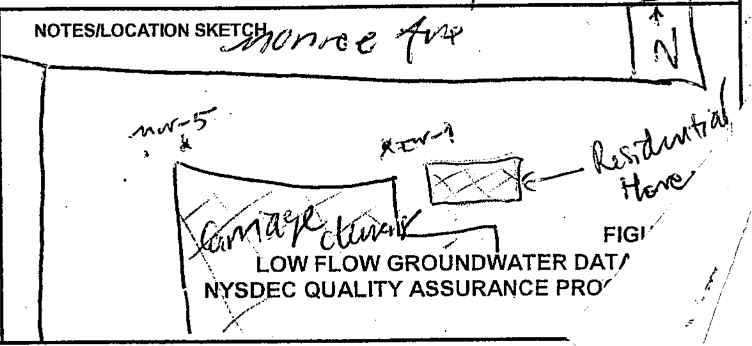
Signature: Mh [illegible] / MAM

MACTEC

✓ BAS 02/03/2009

511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH



FIG

LOW FLOW GROUNDWATER DATA

NYSDEC QUALITY ASSURANCE PRO

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage Cleaners
EXPLORATION ID: OW-1
TIME START: 1615 END: 1720
SAMPLE I.D. NUMBER: 828120OW001025
SITE: NYSDEC
JOB NUMBER: 3612082110
SAMPLE TIME: 1710
DATE: 1-19-09
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER

INITIAL DEPTH TO WATER: 8.58 FT
FINAL DEPTH TO WATER: 9.26 FT
DRAWDOWN VOLUME: 0.11 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: ~2.6 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 28' FT
SCREEN LENGTH: — FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.04

PROTECTIVE CASING STICKUP (FROM GROUND): 0.6 FT
PID AMBIENT AIR: — PPM
PID WELL MOUTH: — PPM
PRESSURE TO PUMP: — PSI
REFILL TIMER SETTING: — SECONDS

PROTECTIVE CASING / WELL DIFFERENCE: 0.3 FT
WELL DIAMETER: 2 IN
DISCHARGE TIMER SETTING: — SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING			
LOCKED	✓		
COLLAR			

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1621	Pump	on							25'	Pump on
1624	9.01	300	10.5	0.92	13.9	4.3	38.6	-100	↓	
1629	9.17	250	10.9	0.94	14.0	<0.1	17.8	-190		
1634	9.22	250	11.6	0.94	14.2	<0.1	15.9	-220		
1639	9.26	250	11.5	0.93	14.2	<0.1	12.1	-230		
1644	9.26	250	11.4	0.92	14.1	<0.1	10.3	-240		
1649	9.26	250	11.4	0.897	14.0	<0.1	10.6	-240		
1654	9.26	250	11.4	0.890	13.9	<0.1	9.8	-250		
1659	9.26	250	11.4	0.913	13.9	<0.1	6.3	-240		
1704	9.26	250	11.4	0.907	13.9	<0.1	7.4	240		
1710	Sample time									Sample time
1715	Pump	off								
			11	0.907	13.9	<0.1	7.4	240		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~2.6

Signature:

MACTEC
✓ mjw 1/27/09
511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH

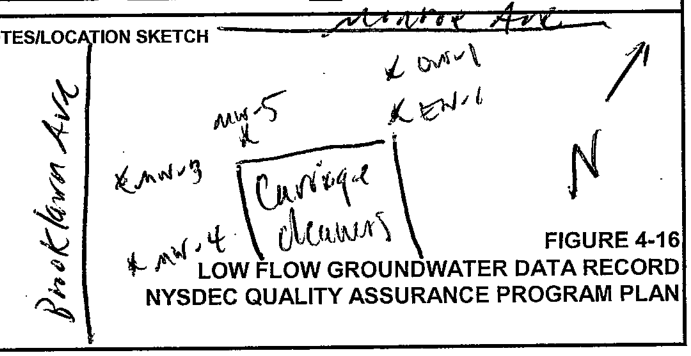


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage cleaners
SAMPLE I.D. NUMBER: 828120 MW001009
SAMPLE TIME: 1310
EXPLORATION ID: MW-1
SITE: NYSDEC
DATE: 01/19/09
TIME START: 1230 END: 1325
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 1.4 FT
PROTECTIVE CASING / WELL DIFFERENCE: NA FT
INITIAL DEPTH TO WATER: 9.05 FT
WELL DEPTH (TOR): 11.7 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 1 IN
FINAL DEPTH TO WATER: 9.10 FT
SCREEN LENGTH: Unknown FT
PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: — PSI
TOTAL VOL. PURGED: ~1.8 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1238	Pump on @ MW-1								~9	pump on
1240	9.09	225	8.1	0.98	7.1	5.8	21.7	150		
1245	9.10	225	17.3	1.00	7.1	4.0	12.3	76		
1250	9.10	225	11.1	1.01	7.1	<0.1	16.3	40		
1255	9.10	225	11.9	1.02	7.0	<0.1	8.1	30		
1300	9.10	225	12.1	1.03	7.0	<0.1	3.0	30		
1305	9.10	225	12.3	1.05	7.0	<0.1	2.1	30		
1310	Sample time		@ MW-1							Sample time
1315	Pump off									
			12	1.05	7.0	<0.1	2.1	30		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~1.8

Signature:

MACTEC
1/22/09
511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH

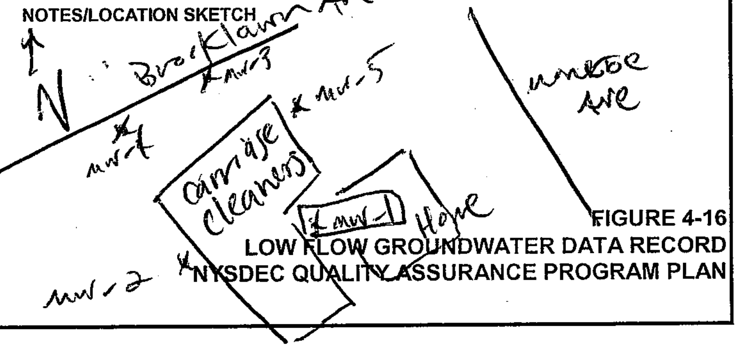


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage Cleaners
SAMPLE I.D. NUMBER: 828120MW0020
SAMPLE TIME: 1900
EXPLORATION ID: MW-2
SITE: NYSDEC
DATE: 01/19/09
TIME START 1815 END 1915
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER

PROTECTIVE CASING STICKUP (FROM GROUND): 1.3 FT
PROTECTIVE CASING / WELL DIFFERENCE: NA FT

INITIAL DEPTH TO WATER: 8.68 FT
WELL DEPTH (TOR): 11.8 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: 1 IN

FINAL DEPTH TO WATER: 8.74 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: / PPM

WELL INTEGRITY:	YES	NO	N/A
CAP		✓	
CASING			✓
LOCKED		✓	
COLLAR			✓

DRAWDOWN VOLUME: 0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~2-3 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: / SECONDS
DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1819	Pump on @ MW-2								~9'	pump on
1820	8.74	225	8.1	0.94	8.6	5.3	19.3	100		
1825	8.74	225	8.4	0.93	8.6	1.9	15.4	90		
1830	8.74	225	8.6	0.92	8.5	<0.1	12.3	100		
1835	8.74	225	8.6	0.91	8.4	<0.1	10.0	100		
1840	8.74	225	8.7	0.90	8.4	<0.1	9.8	90		
1845	8.74	225	8.5	0.91	8.3	<0.1	4.3	100		
1850	8.74	225	8.6	0.91	8.4	<0.1	2.1	100		
1855	8.74	225	8.5	0.90	8.4	<0.1	1.8	90		
1900	Sample time									Sample time
1905	Pump off									
			9	0.90	8.4	<0.1	1.8	90		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~2-3

Signature:

NOTES/LOCATION SKETCH

* No cap on microwell -

Brooklawn
* MW-1
Carriage Cleaners
* MW-2
drive way

MACTEC
✓ HW 1/27/09
511 Congress Street, Portland, Maine 04101

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT 5 ~~Former~~ Speedy Carriage
SAMPLE I.D. NUMBER 828120MW0040009
SAMPLE TIME 1400
EXPLORATION ID: MW-4
SITE NYSDEC
DATE 01/21/09
TIME START 1305 END 1415
JOB NUMBER 3612082110
FILE TYPE DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND) 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE 0.2 FT

INITIAL DEPTH TO WATER 6.76 FT
WELL DEPTH (TOR) 10.1 FT
PID AMBIENT AIR PPM
WELL DIAMETER 1 IN

FINAL DEPTH TO WATER 8.41 FT
SCREEN LENGTH unknown FT
PID WELL MOUTH PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓	✓	
CASING	✓		
LOCKED		✓	
COLLAR		✓	

DRAWDOWN VOLUME 0.26 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED 0.1
PRESSURE TO PUMP PSI

TOTAL VOL. PURGED ~2.5 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING SECONDS
DISCHARGE TIMER SETTING SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1311	Pump on @ mw-4								~9'	
1315	8.38	200	7.2	15.1	8.6	8.4	873	30		
1320	8.68	200	8.3	1.92	8.6	6.3	291	10		
1325	8.56	206	8.6	1.06	8.6	8.8	133	0		
1330	8.56	200	8.8	1.47	8.6	8.6	81.2	0		
1335	8.51	206	8.8	1.49	8.5	8.1	50.7	0		
1340	8.47	200	8.9	1.52	8.5	8.0	41.8	0		
1345	6.49	200	8.9	1.51	8.5	2.9	40.3	0		
1350	8.51	200	8.9	1.50	8.5	2.7	39.1	0		
1355	8.47	200	8.9	1.51	8.5	2.7	38.6	0		
1400	Sample time @ mw-4									Sample time
1405	Pump off									
			9	1.51	8.5	2.7	38.6	0		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ MARSCHALK BLADDER	☑ SILASTIC	☐ POLYVINYL CHLORIDE	☐ TEFLON
☐ SIMCO BLADDER	☑ HIGH DENSITY POLYETHYLENE	☐ STAINLESS STEEL	☑ OTHER none
☑ GEOPUMP	☐ OTHER ______	☑ OTHER none	

ANALYTICAL PARAMETERS
To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~2.5

Signature: ______

MACTEC
✓ mjw 1/22/09
511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH

* well was damaged by snow plow; cap is broken, no lid, riser bent

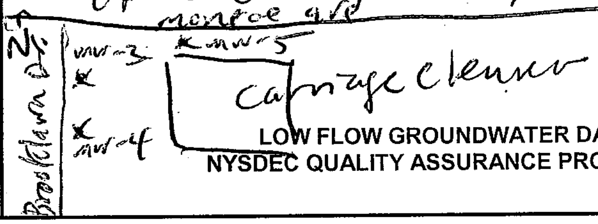


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage Cleaners
SAMPLE I.D. NUMBER: 828120 MW0050091
SAMPLE TIME: 1215
EXPLORATION ID: MW-5
SITE: NYSDEC
DATE: 9-19-08
TIME START: 1130 END: 1230
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.1 FT

INITIAL DEPTH TO WATER: 8.24 FT
WELL DEPTH (TOR): ~11 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: 1 IN

FINAL DEPTH TO WATER: 8.25 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: / PPM

DRAWDOWN VOLUME: <0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~2.3 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: / SECONDS
DISCHARGE TIMER SETTING: / SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	✓	✓	
CASING	✓		
LOCKED		✓	
COLLAR	✓		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1140	Pump on @ MW-5								~9'	pump on
1142	8.25	250	3.5	0.294	7.7	7.5	68.3	210	↓	
1147	8.25	250	4.7	0.287	7.7	6.4	20.4	166		
1152	8.25	250	5.0	0.279	7.7	6.1	4.6	76		
1157	8.25	250	5.1	0.274	7.6	5.9	3.1	60		
1202	8.25	250	5.2	0.269	7.5	5.7	3.8	46		
1207	8.25	250	5.2	0.268	7.5	5.6	2.8	40		
1212	8.25	250	5.3	0.266	7.5	5.7	1.7	40		
1215	Sample time @ MW-5									Sample time
1220	Pump off @ MW-5									
			5	0.266	7.5	5.7	1.7	40		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

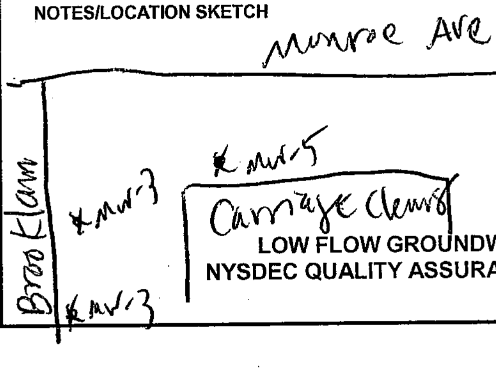
To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~2.3

Signature: ______

NOTES/LOCATION SKETCH



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1/22/09
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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage Cleaners
SAMPLE I.D. NUMBER: 828120MW0060rg
SAMPLE TIME: 1435
EXPLORATION ID: MW-6
SITE: NYSDEC
DATE: 1-19-09
TIME START 1340 END 1445
JOB NUMBER: 3612082116
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 2.3 FT
INITIAL DEPTH TO WATER: 7.33 FT
WELL DEPTH (TOR): 10.2 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 1 IN
FINAL DEPTH TO WATER: 7.60 FT
SCREEN LENGTH: 5' FT
PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED		✓	
COLLAR	✓		

DRAWDOWN VOLUME: 0.04 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.02
PRESSURE TO PUMP: — PSI
TOTAL VOL. PURGED: ~2.1 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1353	Pump	on @	mw-6						~4'	Pump on
1355	7.49	200	7.5	1.16	7.1	4.0	257	110		
1400	7.56	200	7.9	1.16	7.1	3.6	112	110		
1405	7.58	200	8.9	1.15	7.1	1.4	37.2	110		
1410	7.60	200	9.1	1.14	7.1	1.4	30.1	120		
1415	7.60	200	9.4	1.13	7.1	1.4	22.4	130		
1420	7.60	200	9.5	1.12	7.1	1.4	17.8	140		
1425	7.60	200	9.6	1.12	7.1	1.3	16.8	150		
1430	7.60	200	9.7	1.11	7.1	1.3	16.0	150		
1435	Sample time	@ mw-6								Sample time
1438	Pump	off								
			10	1.11	7.1	1.3	16.0	150		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

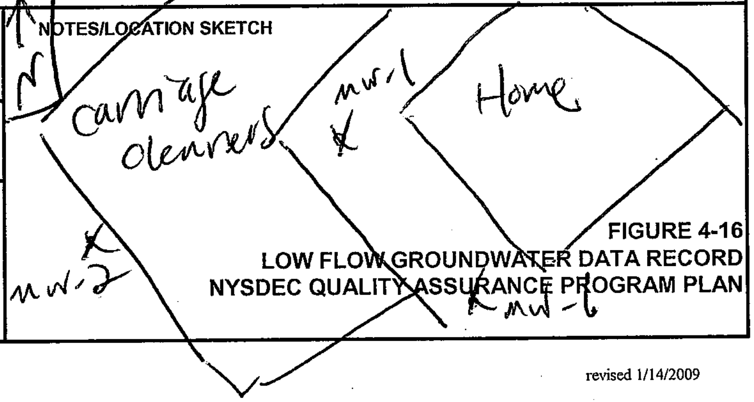
To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~2.1

Signature:

NOTES/LOCATION SKETCH



MACTEC
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✓ MJW 1/22/09

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Carriage Cleaners
SAMPLE I.D. NUMBER: 828120MW111I025P1
SAMPLE TIME: 1740
EXPLORATION ID: MW-111I
SITE: NYSDEC
DATE: 9-14-09
TIME START: 1615 END: 1808
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ____________

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.3 FT

INITIAL DEPTH TO WATER: 10.28 FT
WELL DEPTH (TOR): 29.2 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 10.63 FT
SCREEN LENGTH: — FT
PID WELL MOUTH: / PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.06 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.06
PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~3.3 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: / SECONDS
DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1650	Pump on								~25'	Pump on
1653	10.49	250	9.5	0.423	7.5	1.1	123	-90		
1658	10.53	250	10.1	0.430	7.4	<0.1	97.1	-100		
1703	10.58	250	10.0	0.421	7.4	<0.1	48.2	-120		
1708	10.60	250	10.0	0.410	7.4	<0.1	20.4	-130		
1713	10.63	250	10.7	0.410	7.4	<0.1	12.3	-140		
1718	10.63	250	10.9	0.409	7.4	<0.1	10.7	-140		
1723	10.63	250	11.0	0.411	7.4	<0.1	10.1	-140		
1728	10.63	250	11.2	0.414	7.4	<0.1	9.0	-140		
1733	10.63	250	11.3	0.417	7.4	<0.1	8.1	-140		
1738	10.63	250	11.2	0.416	7.4	<0.1	7.0	-150		
1740	~~10~~	~~250~~	sample time @ mw-111I							Sample time
1750	Pump off @ mw-111I									
		S	11	0.416	7.4	<0.1	7.0	-150		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ____________

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ____________	____________	____________	____________	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~3.3

Signature: ____________

MACTEC
Vmgw 6/22/09
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NOTES/LOCATION SKETCH Monroe Ave

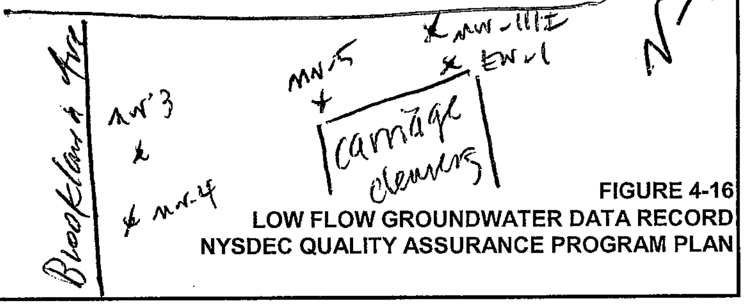


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

828128-MW-201017R1

PROJECT: Former Speedy's Cleaners site

SAMPLE I.D. NUMBER: ~~[illegible]~~ MAM 2/2/09

SAMPLE TIME: 17:30

EXPLORATION ID: MW-201

SITE: MW-201

DATE: 02/02/09

TIME: START 16:50 END 17:55

JOB NUMBER: 3612082109.02.1

FILE TYPE: —

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☒ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.3 FT

PROTECTIVE CASING / WELL DIFFERENCE: NA FT.

INITIAL DEPTH TO WATER: 7.75 FT

WELL DEPTH (TOR): 19.70 FT

PID AMBIENT AIR: NA PPM

WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.90 FT

SCREEN LENGTH: ? unknown FT

PID WELL MOUTH: NA PPM

WELL INTEGRITY: YES NO N/A — CAP, CASING, LOCKED, COLLAR

DRAWDOWN VOLUME: 0.02 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.01

PRESSURE TO PUMP: NA PSI

TOTAL VOL. PURGED: ~1.6 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING: NA SECONDS

DISCHARGE TIMER SETTING: NA SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
16:55	7.90	175	8.53	0.91	7.65	6.42	201	79	17.70	
17:05	7.90	175	8.41	0.804	7.81	6.81	184	-40	17.30	
17:08	7.90	175	8.33	0.784	7.83	6.41	80	-40	17.30	
17:11	7.90	175	9.59	0.815	7.82	6.19	95	-44	17.50	
17:14	7.90	175	9.65	0.832	7.81	6.18	38	-47	17.50	
17:17	7.96	175	7.77	0.814	7.81	6.00	26	-49	17.50	
17:21	7.90	175	9.83	0.812	7.80	6.35	20	-58	17.50	
17:26	7.90	175	9.92	0.823	7.78	6.10	19	-52	17.50	
17:29	7.90	175	9.91	0.821	7.75	6.25	17	-53		
17:30 -	Sample	well								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☒ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER NA

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER NA

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ ~~VOC~~ VOC
☒ ~~SVOC~~ MEE	~~CLP~~ RSK-175	" ~~4 DEG. C~~ "	" ~~2 X 1 L AG~~ "	☑ ~~SVOC~~ MEE
☑ ~~PEST / PCBs~~ TOC	~~CLP~~ 9.15.1	" 4 DEG. C "	" ~~2 X 1 L AG~~ "	☑ ~~PEST / PCBs~~ TOC
☒ ~~TAL INORGANICS~~ metals	~~CLP~~ 6010B	HNO3 to pH <2	~~1 x 1 L~~ P 250 mL Poly	☑ ~~TAL INORGANICS~~ metals
☒ Other Sulfide	376.2	NaoH	500 ml Poly	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]

NUMBER OF GALLONS GENERATED: ~1.6

Signature: Mark Maggiore / Mark Maggiore

MACTEC

511 Congress Street, Portland, Maine 04101

✓ BTS 03/03/2009

NOTES/LOCATION SKETCH

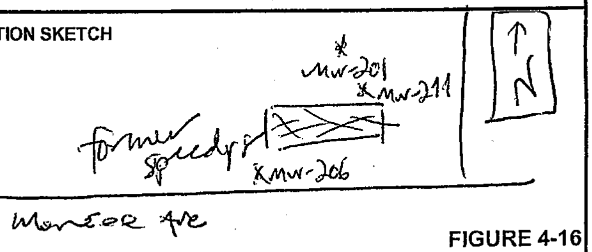


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Speedys/Carriage
SAMPLE I.D. NUMBER: 828128-MW202012R
SAMPLE TIME: 0820
EXPLORATION ID: MW-202
SITE: NYSPEC
DATE: 1/22/09
TIME START: 0720 END: 825
JOB NUMBER: 36120821170
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): ______ FT
PROTECTIVE CASING / WELL DIFFERENCE: ______ FT

INITIAL DEPTH TO WATER: 7.32 FT
WELL DEPTH (TOR): 14.4 FT
PID AMBIENT AIR: ______ PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.40 FT
SCREEN LENGTH: unk FT
PID WELL MOUTH: ______ PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.0128 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.0082
PRESSURE TO PUMP: ______ PSI

TOTAL VOL. PURGED: 1.56 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: ______ SECONDS
DISCHARGE TIMER SETTING: ______ SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0745	Begin	Purge								
0750	7.40	200	10.6	1.08	6.6	1.15	3.90	-107	12	
0755	7.40	200	10.6	1.04	6.6	<0.1	2.44	-119		
0800	7.40	200	10.8	1.03	6.8	<0.1	1.92	-120		
0805	7.40	200	10.8	1.02	6.9	<0.1	1.22	-123		
0810	7.40	200	10.8	1.03	7.0	<0.1	0.94	-124		
0815	7.40	200	10.9	1.03	7.1	<0.1	0.87	-123		
			11	1.03	7.1	<0.1	0.9	-120		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
NA
☐ POLYVINYL CHLORIDE
☑ STAINLESS STEEL
☑ OTHER ______

TYPE OF BLADDER MATERIAL
NA
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected

DUP

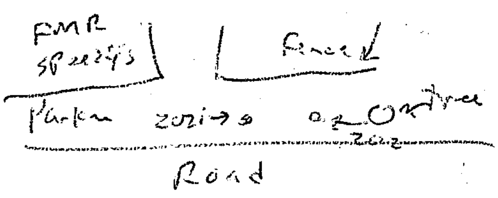
	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☑ SVOC	CLP	4 DEG. C	2 X 1 L AG	☑ SVOC
☑ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☑ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 1.5

Signature:

NOTES/LOCATION SKETCH



MACTEC
✓ RAS 01/26/09
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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Speedy's) / Carriage ✓
SAMPLE I.D. NUMBER: ~~[illegible]~~ 828128-MW2021i 045M
SAMPLE TIME: 0840
EXPLORATION ID: MW-~~[illegible]~~ 2021
SITE: NYSDEC
DATE: 1/21/09
TIME: START 0800 END 0850
JOB NUMBER: 3612082109
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): — FT
PROTECTIVE CASING / WELL DIFFERENCE: — FT

INITIAL DEPTH TO WATER: 37.12 FT
WELL DEPTH (TOR): 50.2 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 37.47 FT
SCREEN LENGTH: UNK FT
PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.056 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.0431
PRESSURE TO PUMP: 40. ~~5~~ PSI

TOTAL VOL. PURGED: 1.3 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: 10 ~~5~~ SECONDS
DISCHARGE TIMER SETTING: ~~X~~ 5 SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0805	Begin	Purge	—	—	—	—	—	—	—	→
0810	37.49	200	10.4	1.96	6.43	<0.1	4.20	-223	45	
0815	37.47	200	10.8	1.96	6.72	<0.1	1.72	-291	↓	
0820	37.47	200	11.0	1.95	6.84	<0.1	1.32	-304	↓	
0825	37.47	200	10.8	1.95	6.89	<0.1	1.21	-310	↓	
0830	37.47	200	11.0	1.95	6.90	<0.1	1.01	-311	↓	
		—	11	1.95	6.9	<0.1	1.0	-310		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☑ MARSCHALK BLADDER
☐ SIMCO BLADDER
☐ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☑ STAINLESS STEEL
☐ OTHER ______

TYPE OF BLADDER MATERIAL
☑ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☑ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☑ TAL INORGANICS
☑ Other MNA parameters	Various	Various		☑ MNA parameters

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 1.3

Signature:

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NOTES/LOCATION SKETCH

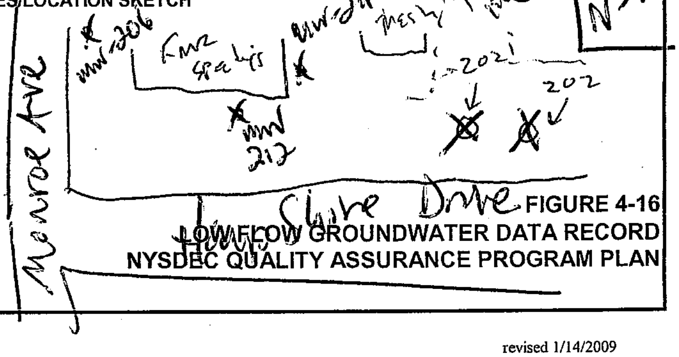

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

S BAS

PROJECT: Speedy Cleaners
SAMPLE I.D. NUMBER: 328120-MW-203S 8012[illegible]
SAMPLE TIME: 1435
EXPLORATION ID: ~~MW-2033~~ MW-203S
SITE: NYSDEC
DATE: 1/20/09
TIME: START 1255 END ~1445
JOB NUMBER: 3612082109
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): — FT
PROTECTIVE CASING / WELL DIFFERENCE: — FT

INITIAL DEPTH TO WATER: 8.03 FT
WELL DEPTH (TOR): 14.5 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 10.41 FT
SCREEN LENGTH: Unknown FT
PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.38 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.195
PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: 1.95 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1310	Began	Purge								
1315	8.94	100	6.74	0.992	8.52	<0.1	~~0.05~~ 46.2	87	12	
1320	9.02	100	6.41	0.999	8.54	<0.1	96.8	83		
1325	9.20	100	6.66	0.90	8.46	<0.1	52.4	79		
1335	9.48	100	7.17	0.92	8.53	<0.1	37.9	42		
1340	9.82	100	7.20	0.92	8.51	<0.1	31.8	20		
1345	9.89	100	7.10	0.91	8.49	<0.1	25.5	-6		
1350	9.99	100	7.77	0.90	8.51	<0.1	22.1	-24		
1355	10.06	100	7.96	~~.88~~ 0.90	8.51	<0.1	20.4	-46		
1400	10.17	100	7.83	0.91	8.48	<0.1	19.4	-63		
1405	10.29	100	7.55	0.91	8.49	<0.1	16.1	-77		
1410	10.37	100	7.48	0.90	8.49	0.22	14.6	-86		
1415	10.39	100	7.49	0.90	8.48	0.20	13.1	-94		
1420	10.41	100	7.16	0.999	8.48	0.19	12.1	-99		DO test kit:
1425	10.41	100	7.12	0.999	8.56	0.18	12.2	-99		4.3 mg/L
	S		7.1	0.999	8.6	0.2	12.2	-100		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☐ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☑ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☑ TAL INORGANICS
☑ Other TOC, pH, N, Sulfide, Alk (MNA parameters)		various		☑ MNA parameters

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~2

Signature:

NOTES/LOCATION SKETCH

Hinz well O2 - 4.3 mg/L

MW-203S

✓ BAS 01/26/09

MACTEC

✓ BAS 01/26/09

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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Queens Cleaners

SAMPLE I.D. NUMBER: 828128-MW-2045 012 M

SAMPLE TIME: 1015

EXPLORATION ID: MW-2045

SITE: NYSDEC

DATE: 1/21/09

TIME START: 0910 END: 1015

JOB NUMBER: 3612082109

FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): ______ FT

PROTECTIVE CASING / WELL DIFFERENCE: ______ FT

INITIAL DEPTH TO WATER: 7.01 FT

WELL DEPTH (TOR): 15.2 FT

PID AMBIENT AIR: ______ PPM

WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.24 FT

SCREEN LENGTH: UNK FT

PID WELL MOUTH: ______ PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING			
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.368 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.204

PRESSURE TO PUMP: ______ PSI

TOTAL VOL. PURGED: 1.8 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING: ______ SECONDS

DISCHARGE TIMER SETTING: ______ SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0920	Begin	Purge								
0925	7.22	150	7.0	0.750	7.0	8.35	3.46	-250	12	
0930	7.22	150	8.1	0.745	7.1	8.20	4.85	-256		
0935	7.23	150	8.7	0.756	6.9	8.00	16.2	-274		
0940	7.23	150	8.6	0.753	7.0	8.15	14.5	-269		
0940	7.24	150	8.4	0.724	7.0	9.80	5.62	-249		
0950	7.24	150	8.3	0.690	7.1	10.63	1.96	-221		
0955	7.24	150	8.2	0.678	7.1	11.39	1.47	-205		
1000	7.24	150	8.0	0.676	7.1	10.80	1.51	-200		
1005	7.27	150	8.2	0.670	7.1	11.05	1.27	-196		
			8.2	0.670	7.1	11.1	1.3	-200		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC MS/MSD
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]

NUMBER OF GALLONS GENERATED: 1.8

Signature: ______

NOTES/LOCATION SKETCH

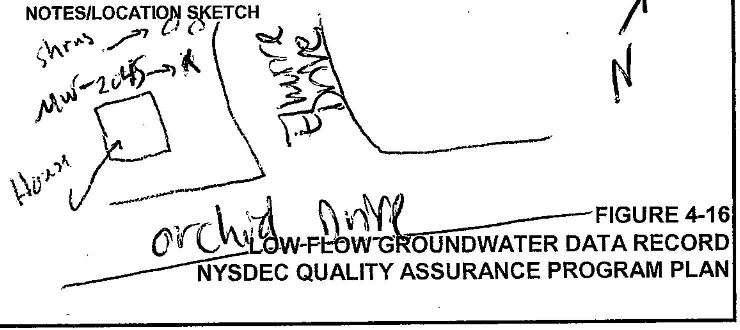

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FIGURE 4-16
LOW-FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT	Former Speedys	SAMPLE I.D. NUMBER	828128MW205801201	SAMPLE TIME	1445
EXPLORATION ID:	MW-2058	SITE	NYSDEC	DATE	01/20/09
TIME	START 1330 END 1505	JOB NUMBER	3612082109	FILE TYPE	DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT

PROTECTIVE CASING / WELL DIFFERENCE: 0.35 FT

INITIAL DEPTH TO WATER: 7.11 FT

WELL DEPTH (TOR): 14.7 FT

PID AMBIENT AIR: / PPM

WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.22 FT

SCREEN LENGTH: unknown FT

PID WELL MOUTH: / PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.02 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01

PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~3.3 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING: / SECONDS

DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1354	Pump on @ MW-2055								~12	pump on
1357	7.20	225	8.1	1.965	7.1	5.3	11.3	-40		
1402	7.22	250	8.5	0.884	7.0	5.1	16.8	-70		
1407	7.22	250	8.7	0.943	7.0	0.6	8.8	-80		
1412	7.22	250	8.8	0.99	7.0	1.4	7.1	-90		
1417	7.22	250	8.7	1.36	7.0	0.8	6.8	-90		
1422	7.22	250	8.8	1.57	7.0	0.7	4.9	-100		
1427	7.22	250	8.9	1.74	7.0	0.7	3.2	-100		
1432	7.22	250	8.8	1.81	7.0	1.4	2.8	-100		
1437	7.22	250	8.9	1.85	7.00	1.1	2.9	-110		DO Reading from
1442	7.22	250	8.9	1.89	7.0	1.6	2.1	-110		testing kit.
1445	Sample time @ MW-2055									4-8mg/L
1501	Pump off									
			8.9	1.89	7.0	1.6	2.1	-110		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 X 1 L P	☐ TAL INORGANICS
☑ Other MNA parameters	various	various		☑ MNA parameters

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]

NUMBER OF GALLONS GENERATED ~3.3

Signature:

NOTES/LOCATION SKETCH

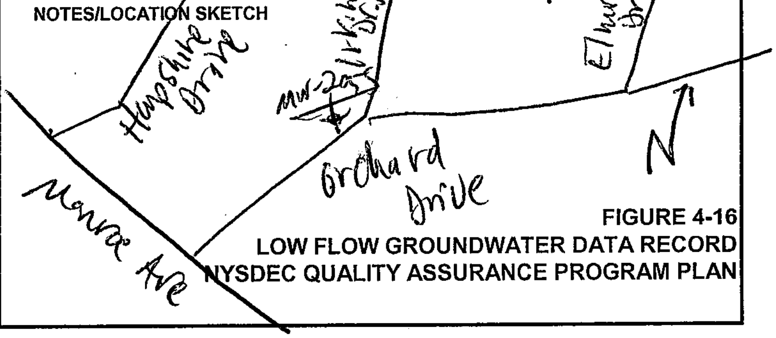

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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedy's Cleaners
SAMPLE I.D. NUMBER: 828128mw206S010R1
SAMPLE TIME: 0945
EXPLORATION ID: MW-206
SITE: NYSDEC
DATE: 1-19-09
TIME START 0725 END 1000.
JOB NUMBER: 3612082119
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ____

PROTECTIVE CASING STICKUP (FROM GROUND): 0.6 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.3 FT

INITIAL DEPTH TO WATER: 7.18 FT
WELL DEPTH (TOR): 11.99 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.41 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓	✓	
COLLAR	✓		

DRAWDOWN VOLUME: 0.04 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: ~4.6 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0841	pump on.								~10'	
0843	7.30	275	6.3	1.31	6.46	4.8	46.5	120		
0848	7.33	275	7.9	1.23	6.7	1.5	48.4	90		
0853	7.37	275	8.2	1.26	6.7	1.1	39.6	90		
0858	7.41	275	8.4	1.39	6.8	0.7	31.7	90		
0903	7.41	275	8.5	1.42	6.8	0.6	29.6	90		
0908	7.41	285	8.5	1.49	6.9	0.4	36.8	80		
0913	7.41	275	8.6	1.54	6.9	0.2	30.7	80		
0918	7.41	275	8.7	1.67	7.0	0.2	24.6	70		
0923	7.41	275	8.7	1.69	7.0	0.2	13.9	60		
0928	7.41	275	8.8	1.66	7.0	0.1	12.1	70		
0933	7.41	275	8.8	1.73	7.6	0.1	9.8	60		
0938	7.41	275	8.9	1.79	7.0	<0.1	9.7	70		
0943	7.41	275	8.9	1.81	7.0	<0.1	8.3	60		
0945	Sample time @ mw-206									
0949	Pump off									
			8.9	1.80	7.0	<0.1	8.3	60		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ____

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER None

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER None

ANALYTICAL PARAMETERS
To Be Collected

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ____	____	____	____	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~4.6

Signature:

NOTES/LOCATION SKETCH

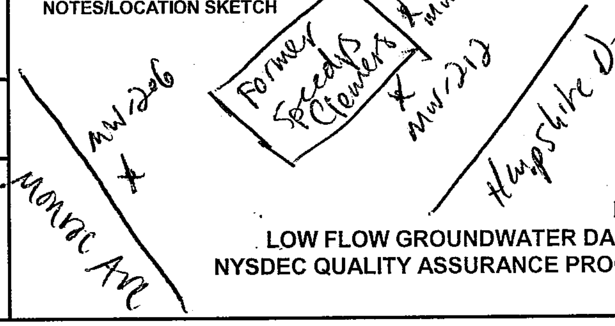

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FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT Former Speedys

SAMPLE I.D. NUMBER 828128MW206097RI

SAMPLE TIME 0935

EXPLORATION ID: mw-206

SITE NYSDEC

DATE 01/28/09

TIME START 0845 END 1120

JOB NUMBER 3612082109

FILE TYPE DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND) 0.0 FT

PROTECTIVE CASING / WELL DIFFERENCE 0.35 FT

INITIAL DEPTH TO WATER 7.04 FT

WELL DEPTH (TOR) 19.5 FT

PID AMBIENT AIR / PPM

WELL DIAMETER 2 IN

FINAL DEPTH TO WATER 7.06 FT

SCREEN LENGTH 10' FT

PID WELL MOUTH / PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED		✓	
COLLAR	✓		

DRAWDOWN VOLUME <0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED <0.01

PRESSURE TO PUMP / PSI

TOTAL VOL. PURGED ~2.7 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING / SECONDS

DISCHARGE TIMER SETTING / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0905	Pump	on	@mw-206						~17	Pump on
0907	7.06	300	8.7	0.49	6.7	8.3	61.9	-30	-	
0912	7.06	300	10.3	1.00	6.8	10.3	23.4	-40		
0917	7.06	300	11.7	1.01	6.9	10.7	2.3	-50		
0922	7.06	300	11.8	0.99	7.1	10.9	1.6	-60		
0927	7.06	300	11.9	0.99	7.1	11.1	0.7	-60		
0932	7.06	300	11.5	0.99	7.1	10.9	0.3	-60		DO Test Kit
0935	Sample	time	@mw-206							reading: 1.4 mg/L
1050	Dup	ff	@mw-206							
			12	0.99	7.1	10.9	0.3	-60		(DRO 890).

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☑ SVOC	CLP	4 DEG. C	2 X 1 L AG	☑ SVOC
☑ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☑ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☑ TAL INORGANICS
☑ Other MNA parameters	various	various		☑ MNA parameters

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]

NUMBER OF GALLONS GENERATED ~2.7

Signature:

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1/22/09

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NOTES/LOCATION SKETCH

MS/MSD @ MW-206

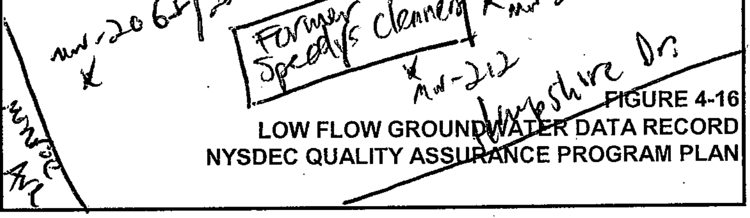

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedys
SAMPLE I.D. NUMBER: 828128MW2075012R1
SAMPLE TIME: 1150
EXPLORATION ID: MW-2075
SITE: NYSDEC
DATE: 01/21/09
TIME START: 1050 END: 1200
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.1 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.25 FT
INITIAL DEPTH TO WATER: 10.03 FT
WELL DEPTH (TOR): 15.6 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 2 IN
FINAL DEPTH TO WATER: 10.61 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: — PPM

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

DRAWDOWN VOLUME: 0.09 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.2
PRESSURE TO PUMP: — PSI
TOTAL VOL. PURGED: ~3.8 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1050	Pump on @								~12	Pump on
1110	10.55	250	7.3	0.999	8.1	1.7	228	190		
1115	10.61	250	7.9	0.994	8.2	<0.1	98.8	190		
1120	10.61	250	8.1	0.982	8.2	0.3	159	180		
1125	10.61	250	8.3	0.968	8.2	0.5	7.4	180		
1130	10.61	250	8.3	0.947	8.2	1.6	3.2	180		
1135	10.61	250	8.4	0.943	8.2	2.9	2.1	180		
1140	10.61	250	8.3	0.941	8.2	3.4	9.8	180		
1145	10.61	250	8.3	0.936	8.2	3.5	9.7	180		
1150	sample time @ mw-2075									Sample time
1154	pump off									
			8.3	0.936	8.2	3.5	9.7	180		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]
NUMBER OF GALLONS GENERATED ~3.8

Signature: ______

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[illegible] 1/27/09

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NOTES/LOCATION SKETCH

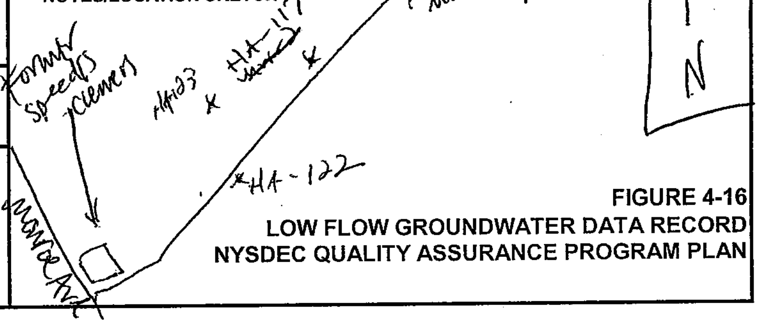


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Speedsps / Carriage
EXPLORATION ID: MW-209S
TIME START 1035 END 1125
SAMPLE I.D. NUMBER: B28120-MW-209S 0121
SITE: NYSDEC
JOB NUMBER: 3612082409
SAMPLE TIME: 1125
DATE: 1/21/09
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): / FT
PROTECTIVE CASING / WELL DIFFERENCE: / FT

INITIAL DEPTH TO WATER: 10.56 FT
FINAL DEPTH TO WATER: 11.23 FT
DRAWDOWN VOLUME: 0.107 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: 1.04 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 15.2 FT
SCREEN LENGTH: UNK FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.103

PID AMBIENT AIR: / PPM
PID WELL MOUTH: / PPM
PRESSURE TO PUMP: / PSI
REFILL TIMER SETTING: / SECONDS

WELL DIAMETER: 2 IN
DISCHARGE TIMER SETTING: / SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		
COLLAR	✓		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1040	Begin	Purge								
1050	10.94	100	7.6	0.573	7.0	11.00	16.7	-17	14	
1055	11.04	100	7.6	0.599	7.0	9.05	17.7	-8		
1100	11.11	100	7.7	0.606	7.0	10.79	9.65	10		
1105	11.17	100	7.8	0.614	7.0	10.71	5.92	20		
1110	11.22	100	8.0	0.622	7.0	10.90	5.56	29		
1115	11.23	100	8.2	0.636	7.0	11.12	4.21	35		
1120	11.23	100	8.2	0.646	7.0	10.51	3.89	39		
			8	0.646	7.0	10.5	3.9	40		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☐ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______
NA

ANALYTICAL PARAMETERS

To Be Collected

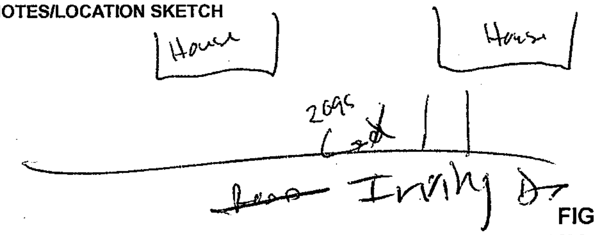
	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______	______	______	______	☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 1.04

Signature: ______

NOTES/LOCATION SKETCH



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✓ BAS 01/26/2009

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: SPEEDYS / CARRAGE
SAMPLE I.D. NUMBER: 828128-MW-2100121
SAMPLE TIME: 0910
EXPLORATION ID: MW-210
SITE: NYSDEC
DATE: 1/21/09
TIME: START 0750 END 0915
JOB NUMBER: 3612082110
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☒ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): NA FT
PROTECTIVE CASING / WELL DIFFERENCE: — FT

INITIAL DEPTH TO WATER: 6.92 FT
WELL DEPTH (TOR): 17.5 FT
PID AMBIENT AIR: — PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 6.96 FT
SCREEN LENGTH: unknown FT
PID WELL MOUTH: — PPM

DRAWDOWN VOLUME: 0.0064 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.0033
PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: 1.95 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: — SECONDS
DISCHARGE TIMER SETTING: — SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED	X		
COLLAR	X		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0815	Begin	Pump								
0820	6.94	150	8.60	0.99	7.83	<0.1	404	1	15	
0825	6.94	150	8.82	0.96	8.01	<0.1	326	-27	15	
0830	6.95	150	8.81	0.96	8.14	<0.1	241	-46		
0835	6.95	150	8.61	0.96	8.23	<0.1	174	-56		
0845	6.95	150	8.70	0.95	8.34	<0.1	137	-64		
0850	6.96	150	8.95	0.94	8.37	<0.1	106	-68		
0855	6.96	150	9.12	0.94	8.38	<0.1	76.1	-70		
0900	6.96	150	9.52	0.94	8.38	<0.1	75.2	-72		
0905	6.96	150	9.53	0.94	8.40	<0.1	70.1	-74		
			9.10	0.94	8.4	<0.1	70.1	-70		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☒ GEOPUMP

TYPE OF TUBING
☐ SILASTIC
☒ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☐ OTHER ______

NA

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

NA

ANALYTICAL PARAMETERS
To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☒ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other ______				☐

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 1.95

Signature:

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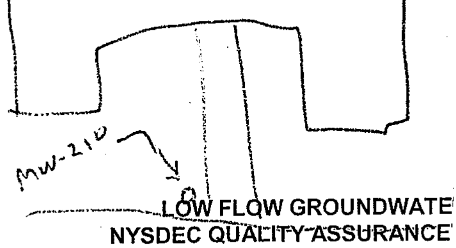
BAS 01/26/09

NOTES/LOCATION SKETCH



LOW FLOW GROUNDWATE
NYSDEC QUALITY ASSURANCE

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: Former Speedys Cleaners
SAMPLE I.D. NUMBER: 828128MW211015R1
SAMPLE TIME: 1215
EXPLORATION ID: MW-211
SITE: NYSDEC
DATE: 01/20/09
TIME START: 1125 END: 1235
JOB NUMBER: 3612082109
FILE TYPE: DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT
PROTECTIVE CASING / WELL DIFFERENCE: 0.3 FT

INITIAL DEPTH TO WATER: 7.87 FT
WELL DEPTH (TOR): 18.2 FT
PID AMBIENT AIR: / PPM
WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.90 FT
SCREEN LENGTH: ~10' FT
PID WELL MOUTH: / PPM

WELL INTEGRITY:

	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED		✓	
COLLAR	✓		

DRAWDOWN VOLUME: <0.01 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01
PRESSURE TO PUMP: / PSI

TOTAL VOL. PURGED: ~3.5 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
REFILL TIMER SETTING: ✓ SECONDS
DISCHARGE TIMER SETTING: / SECONDS

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1127	Pump	on	@ MW-211.						~15'	
1130	7.89	300	12.0	1.01	7.1	4.5	138	-30		+ Iron floc in well
1135	7.88	300	11.6	1.03	7.2	7.1	328	-50		
1140	7.89	300	12.8	0.99	7.2	10.0	254	-50		
1145	7.90	300	13.1	0.99	7.2	11.3	70.5	-50		
1150	7.90	300	13.5	0.99	7.2	10.1	15.3	-60		
1155	7.90	300	13.9	1.00	7.1	10.5	2.1	-60		
1200	7.90	300	14.1	1.00	7.2	10.7	1.6	-60		
1205	7.90	300	14.1	1.00	7.1	10.3	0.7	-70		DO testing kit:
1210	7.90	300	14.0	1.00	7.1	10.1	1.3	-70		2.4 mg/L
1215	Sample time		@ MW-211							
1224	Pump off									
			14	1.00	7.1	10.1	1.3	-70		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☑ GEOPUMP

TYPE OF TUBING
☑ SILASTIC
☑ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☑ OTHER none

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER none

ANALYTICAL PARAMETERS

To Be Collected	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☑ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 LP	☑ TAL INORGANICS
☑ Other MNA Parameters	various	various		☑ MNA parameters

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: ~3.5

Signature:

MACTEC
JMJW 1/22/09
511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH

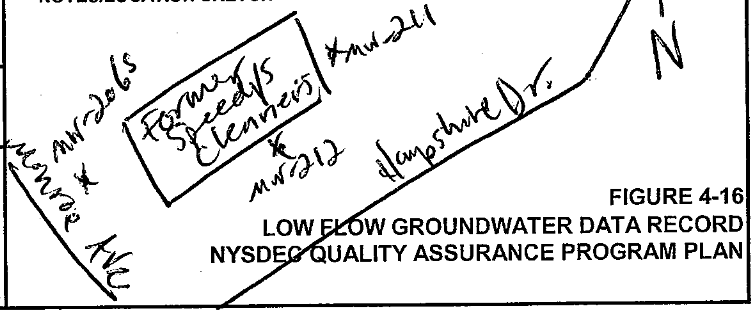


FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT	Former Speedys	SAMPLE I.D. NUMBER	828128MW21201WR1	SAMPLE TIME	0815
EXPLORATION ID:	MW-212	SITE	NYSDEC	DATE	01/21/09
TIME	START 0705 END 0900	JOB NUMBER	3612082109	FILE TYPE	DEC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☑ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ____

PROTECTIVE CASING STICKUP (FROM GROUND): 0.0 FT

PROTECTIVE CASING / WELL DIFFERENCE: 0.3 FT

INITIAL DEPTH TO WATER: 7.85 FT

WELL DEPTH (TOR): 14.8 FT

PID AMBIENT AIR: — PPM

WELL DIAMETER: 2 IN

FINAL DEPTH TO WATER: 7.98 FT

SCREEN LENGTH: ~10' FT

PID WELL MOUTH: — PPM

DRAWDOWN VOLUME: <0.1 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.01

PRESSURE TO PUMP: — PSI

TOTAL VOL. PURGED: ~2.1 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

REFILL TIMER SETTING: — SECONDS

DISCHARGE TIMER SETTING: — SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED		✓	
COLLAR	✓		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
742	Pump	on @	MW	-212					~10'	pump on
745	7.92	250	11.3	1.51	7.5	1.2	11.5	230		
750	7.92	250	9.9	1.46	7.7	<0.1	10.2	210		
755	7.92	250	10.3	1.46	7.9	<0.1	6.8	200		
800	7.92	250	10.9	1.45	7.9	<0.1	3.4	200		
805	7.92	250	11.1	1.50	8.0	<0.1	2.8	196		
810	7.92	250	11.3	1.52	8.0	<0.1	1.7	180		
0815	Sample	time	@ MW-212							Sample time
0838	Pump	off								
			11	1.52	8.0	<0.1	1.7	180		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	TYPE OF TUBING	TYPE OF PUMP MATERIAL	TYPE OF BLADDER MATERIAL
☐ MARSCHALK BLADDER	☑ SILASTIC	☐ POLYVINYL CHLORIDE	☐ TEFLON
☐ SIMCO BLADDER	☑ HIGH DENSITY POLYETHYLENE	☐ STAINLESS STEEL	☑ OTHER none
☑ GEOPUMP	☐ OTHER ____	☑ OTHER none	

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCL / 4 DEG. C	3 X 40 mL	☑ VOC
☑ SVOC	CLP	4 DEG. C	2 X 1 L AG	☑ SVOC
☑ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☑ PEST / PCBs
☑ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☑ TAL INORGANICS
☑ Other MNA parameters	various	various		☑ MNA parameters

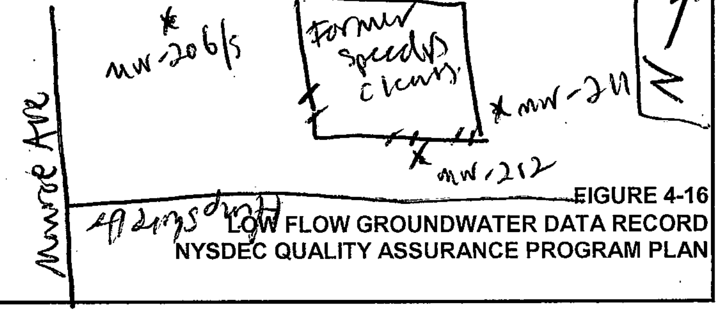
PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED YES [✓ NO]

NUMBER OF GALLONS GENERATED ~2.1

Signature:

NOTES/LOCATION SKETCH



MACTEC
511 Congress Street, Portland, Maine 04101

✓ MJW 1/27/09

FIGURE 4-16
LOW FLOW GROUNDWATER DATA RECORD
NYSDEC QUALITY ASSURANCE PROGRAM PLAN

revised 1/14/2009

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT: NYSDEC
SAMPLE I.D. NUMBER: 828120-MW003008
SAMPLE TIME: 1450
EXPLORATION ID: MW-3
SITE: Carriage Cleaners
DATE: 3/12/09
TIME START: 1300 END: 1500
JOB NUMBER: 3612082110
FILE TYPE: —

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
☒ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING
☐ OTHER ______

INITIAL DEPTH TO WATER: 6.74 FT
FINAL DEPTH TO WATER: 6.78 FT
DRAWDOWN VOLUME: <0.1 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: ~4.5 GAL
(purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 11.1 FT
SCREEN LENGTH: UNK FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: <0.1

PROTECTIVE CASING STICKUP (FROM GROUND): 0 FT
PID AMBIENT AIR: — PPM
PID WELL MOUTH: — PPM
PRESSURE TO PUMP: — PSI
REFILL TIMER SETTING: — SECONDS

PROTECTIVE CASING / WELL DIFFERENCE: ≈0.15 FT
WELL DIAMETER: 1 IN
DISCHARGE TIMER SETTING: — SECONDS

WELL INTEGRITY:	YES	NO	N/A
CAP		X	
CASING	X		
LOCKED		X	
COLLAR	X		

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (ml/m)	TEMP. (deg. c)	SPECIFIC CONDUCTANCE (ms/cm)	pH (units)	DISS. O2 (mg/L)	TURBIDITY (ntu)	REDOX (mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1305	6.74	Start pump and set rate								
1316	6.77	≈175	5.4	3.00	7.5	4.1	18	-23	≈10.8	
1320	6.78	|	5.4	2.94	7.5	1.6	7.3	-36		
1325	6.78	↓	5.5	2.67	7.4	1.0	4.4	-50	|	
1330	6.78	≈175	5.3	2.37	7.4	0.5	2.2	-63	|	
1335	6.78	|	5.2	2.10	7.4	<0.1	1.0	-72	|	
1340	6.78	↓	5.2	2.03	7.4	<0.1	1.0	-76	|	
1345	6.78	≈175	5.2	1.92	7.4	<0.1	0.9	-80	|	
1350	6.78	|	5.1	1.84	7.4	<0.1	0.9	-82	|	
1355	6.78	|	5.2	1.77	7.4	<0.1	0.9	-86	|	
1400	6.78	↓	5.1	1.72	7.4	<0.1	1.0	-87	|	
1405	6.78	≈175	5.1	1.69	7.4	<0.1	1.6	-89	|	
1410	6.78	|	5.0	1.66	7.4	<0.1	6.1	-92	|	
1415	6.78	↓	5.1	1.60	7.4	<0.1	4.0	-87	|	
1420	6.78	≈200	5.2	1.54	7.4	<0.1	3.2	-90	|	
1425	6.78	|	5.4	1.51	7.5	<0.1	2.9	-95	|	
1430	6.78	|	5.3	1.49	7.5	<0.1	2.5	-97	|	
1435	6.78	↓	5.4	1.46	7.4	<0.1	2.2	-98	↓	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ MARSCHALK BLADDER
☐ SIMCO BLADDER
☒ GEOPUMP

TYPE OF TUBING
☒ SILASTIC
☒ HIGH DENSITY POLYETHYLENE
☐ OTHER ______

TYPE OF PUMP MATERIAL
☐ POLYVINYL CHLORIDE
☐ STAINLESS STEEL
☐ OTHER ______

TYPE OF BLADDER MATERIAL
☐ TEFLON
☐ OTHER ______

ANALYTICAL PARAMETERS

To Be Collected

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☒ VOC + Dup	8260B	HCL / 4 DEG. C	3 X 40 mL	☒ VOC
☐ SVOC	CLP	4 DEG. C	2 X 1 L AG	☐ SVOC
☐ PEST / PCBs	CLP	4 DEG. C	2 X 1 L AG	☐ PEST / PCBs
☐ TAL INORGANICS	CLP	HNO3 to pH <2	1 x 1 L P	☐ TAL INORGANICS
☐ Other______				☐

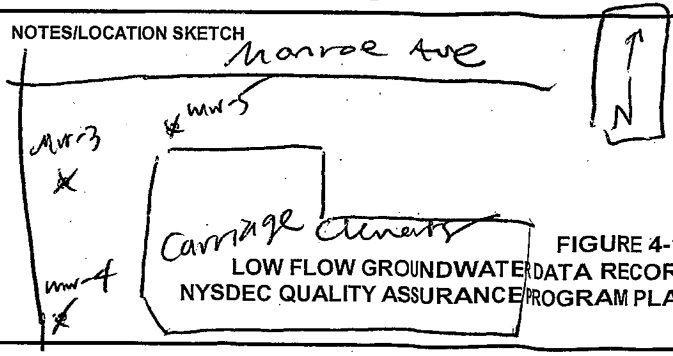
PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓ NO]
NUMBER OF GALLONS GENERATED: 4.5

Signature:

MACTEC
V BAS 03/18/2009
511 Congress Street, Portland, Maine 04101

NOTES/LOCATION SKETCH



LOW FLOW GROUNDWATE
NYSDEC QUALITY ASSURANCE

FIGURE 4-16
DATA RECORD
PROGRAM PLAN

revised 3/6/2009

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT Carriage Cleaners
FIELD SAMPLE ID 828120-DP01809 12
STUDY AREA / AOC —
SITE ID Carriage
SITE TYPE NYSDEC
DATE 3-12-09
ACTIVITY START 0900 END 1300
JOB NUMBER 3612082110
FILE TYPE DEC
SAMPLE TIME 1245
WEATHER —

WATER LEVEL / WELL DATA

MEASURED WELL DEPTH FT (TOR)
HISTORICAL WELL DEPTH FT (TOR)
PROTECTIVE CASING STICKUP (FROM GROUND) FT
PROTECTIVE CASING / WELL DIFFERENCE FT
DEPTH TO WATER 8 FT (TOR)
SCREEN LENGTH FT
WELL DIAMETER IN
WELL MATERIAL
HEIGHT OF WATER COLUMN FT
PURGE ** VOLUME GAL/VOL
PID AMBIENT AIR PPM
PID WELL MOUTH PPM
TOTAL VOLUME PURGED GAL

WELL INTEGRITY:	YES	NO	N/A
CAP	___	___	___
CASING	___	___	___
COLLAR	___	___	___
LOCKED	___	___	___

PURGE DATA

TIME						
PURGE VOLUME (gallons)						
PURGE RATE (gal/min)						
WATER LEVEL (feet)						
TEMPERATURE (degreesC)						
pH (units)						
DISSOLVED OXYGEN (mg/L)		8				
SPEC. COND. (ms/cm)						
TURBIDITY (ntu)						
REDOX POTENTIAL (+/- mv)						

SAMPLE OBSERVATIONS:
☑ CLEAR
☐ COLORED ______
☐ TURBID ______
☐ ODOR ______
☐ OTHER (see notes)

PURGE WATER CONTAINERIZED ?
✓ YES ___ NO
NO.OF DRUMS USED:
COMBINED WITH:

EQUIPMENT DOCUMENTATION

PURGING	SAMPLING	
☐	☑	SUBMERSIBLE PUMP
☑	☑	DEDICATED HDPE TUBING
☑	☑	Mill Slot Sampler

DECON FLUIDS USED
☐ POLAND SPRING
☐ DISTILLED WATER
OTHER ______

NUMBER OF FILTERS USED ______
WATER LEVEL EQUIPMENT USED
☐ ELECTRIC COND. PROBE
☐ OTHER ______

ANALYTICAL PARAMETERS

ANALYTE	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	SAMPLE BOTTLE ID LETTERS
VOC	8260	HCl/4°C	(3) 40 ml VOAs	✓	

NOTES
GW grab from beneath the buildings slab
– parameters could not be collected

SIGNATURE:

MACTEC,Inc.

W2003009c

APPENDIX C

HYDRAULIC CONDUCTIVITY DATA

Table 3.2: Groundwater Hydraulic Data

Summary of Hydraulic Conductivity (Slug) Tests January 2008

Well Identification	Well Type	Hvorslev (cm/sec) FHT	Hvorslev (cm/sec) RHT	Bouwer-Rice (cm/sec) FHT	Bouwer-Rice (cm/sec) RHT	Geometric mean (cm/sec)	K values (ft/day)
MW-206	OB/BR	0.008	0.011	0.005	0.008	0.008	21.4
MW-210	OB/BR	0.003	0.004	0.003	0.002	0.0027	7.7
MW-211	OB/BR	0.004	0.006	0.004	0.004	0.0044	12.6
MW-212	OB/BR		0.003		0.002	0.0020	5.5

Well Identification	V = Ki/n (ft/day) (n=0.05)	V (ft/year)	Geometric mean	
MW-206	3.4	1250	**604**	**=V (ft/year)**
MW-210	1.2	448		
MW-211	2.0	734		
MW-212	0.9	324		

Well Identification	V = Ki/n (ft/day) (n=0.20)	V (ft/year)	Geometric mean	
MW-206	0.9	312	**151**	**=V (ft/year)**
MW-210	0.3	112		
MW-211	0.5	184		
MW-212	0.2	81		

Notes
FHT = Falling Head Slug Test
RHT = Rising Head Slug Test
cm/sec = centimeters per second
ft/day = feet per day
ft/year = feet per year
K = hydraulic conductivity
V = velocity (in either ft/day or ft/year)
i = hydraulic gradient (feet per foot); hydraulic gradient calculated at .008
n = porosity, assumed porosity of 0.05 for the bedrock wells, and 0.25 for the overburden wells.
Because well screens cross the overburden/bedrock interface, porosity of both 0.05 and 0.2 maybe present within the screened interval; therefore velocities using porosity values of both 0.05 and 0.2 are presented above.

Created by: CRS 4/10/09
Checked by: RAL 4/15/09

Former Speedy's Cleaners Site, Brighton, NY
Hydraulic Gradient Calculations

$$i = \frac{\text{(Change in Head)}}{\text{(Shortest distance between observed or interpreted heads)}}$$

Hydraulic Gradient (i) calculations from 3/2009 contour data.

Interface Zone

MW-206 to HA-119

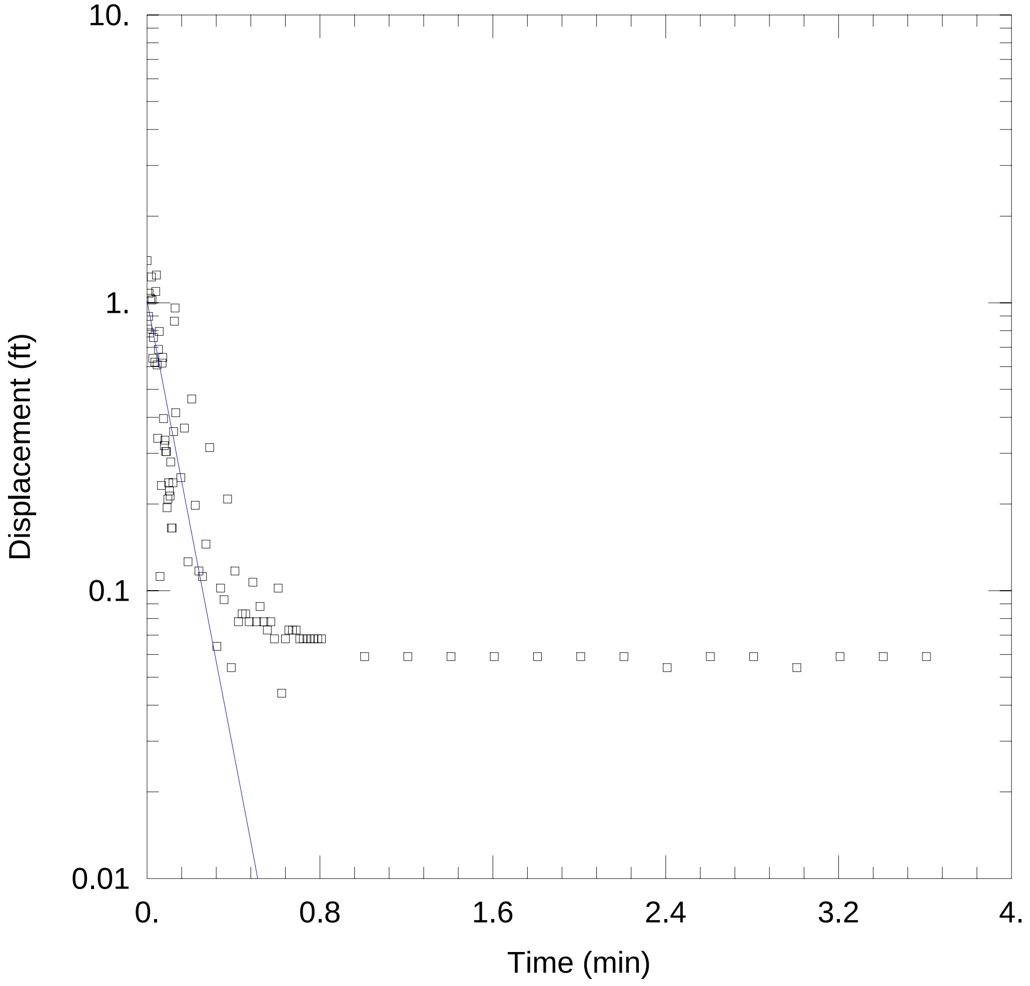
5.2 = difference in head
550 = distance between locations (feet)
i = 0.009455

HA-104 to HA-122

5.4 = difference in head
750 = distance between wells (feet)
i = 0.0072

0.008327 = Arithmetic mean Interface Zone hydraulic gradient.
0.008 feet/foot

Created by: CRS 4/10/09
Checked by: RAL 4/15/09



MW-206 T8 FALLING HEAD TEST

Data Set: P:\...\MW-206 T8 FHT.aqt
Date: 04/15/09 Time: 16:18:22

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/3/09

AQUIFER DATA

Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

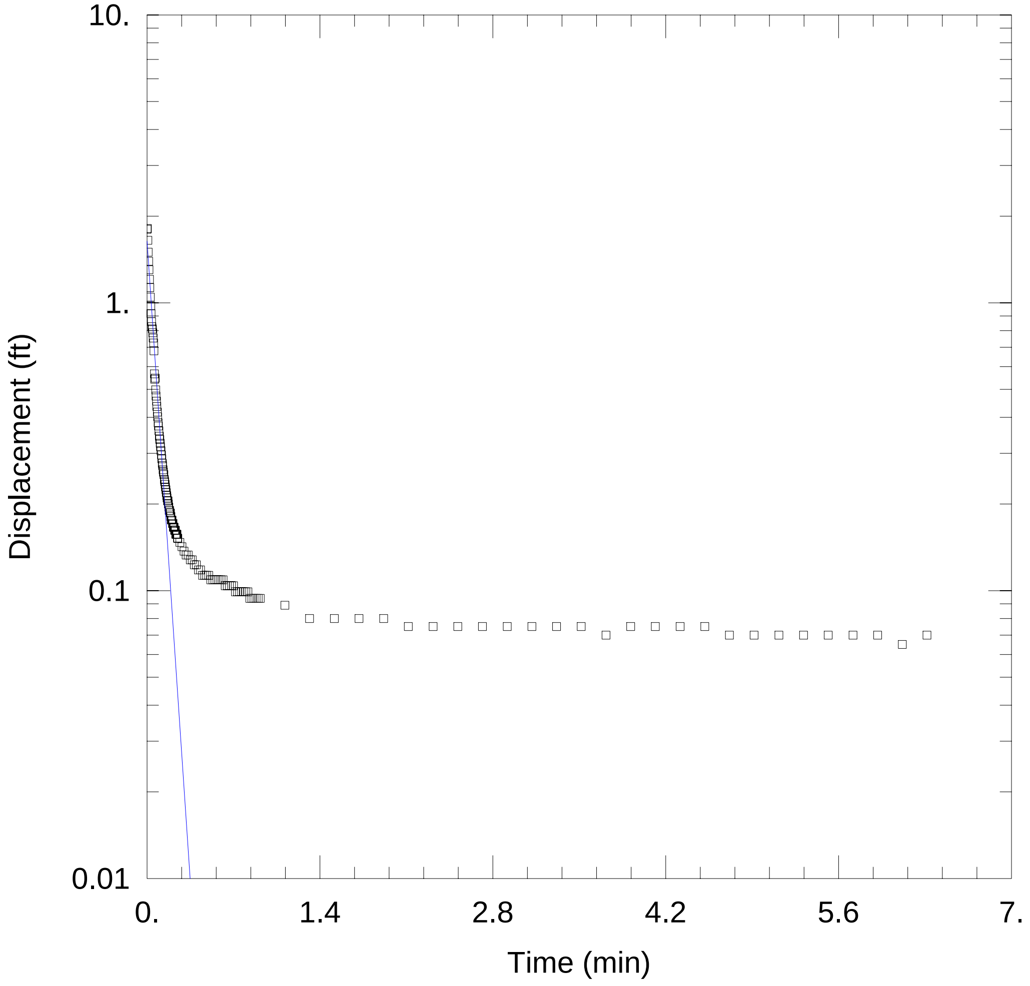
WELL DATA (MW-206)

Initial Displacement: 1.4 ft
Static Water Column Height: 12.5 ft
Total Well Penetration Depth: 12.5 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.004703 cm/sec
y0 = 1.015 ft



MW-206 T9 RISING HEAD TEST

Data Set: P:\...\MW-206 T9 RHT.aqt
Date: 04/15/09 Time: 15:54:05

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/3/09

AQUIFER DATA

Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

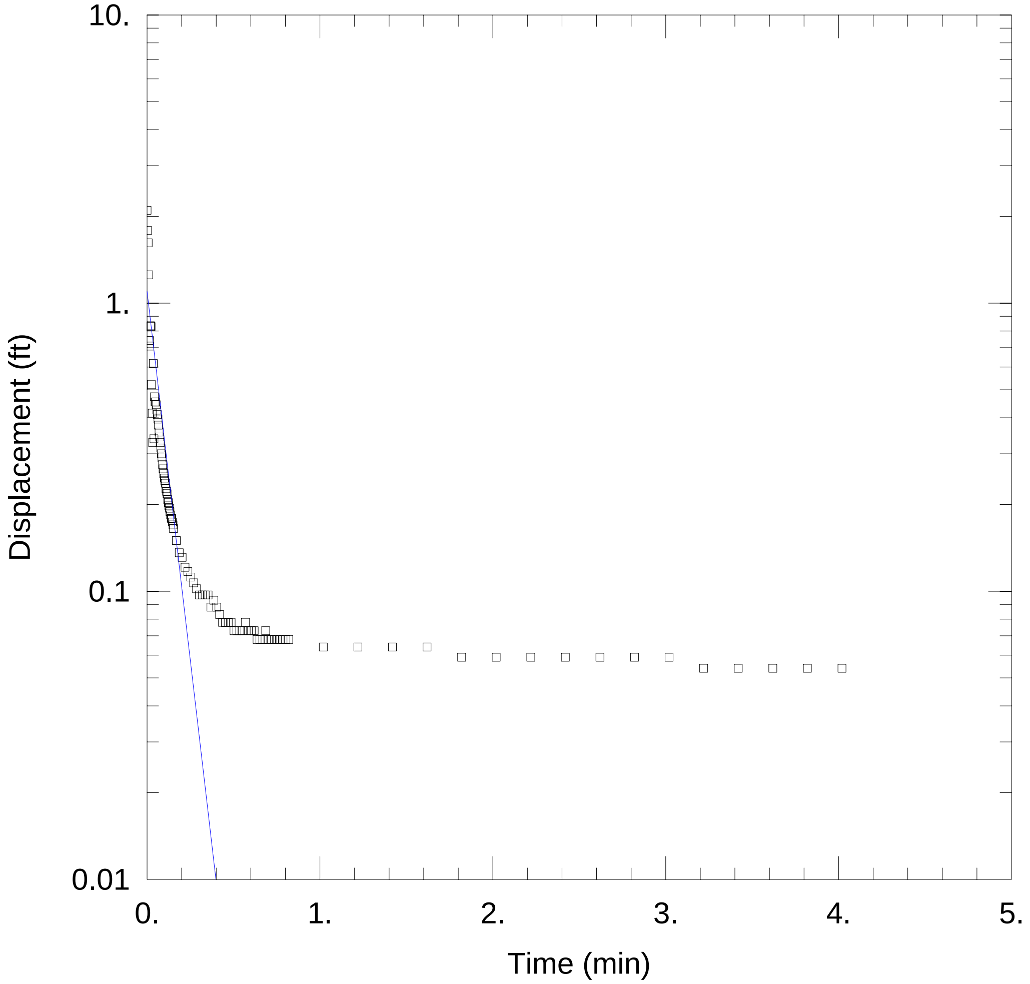
WELL DATA (MW-206)

Initial Displacement: 1.8 ft
Static Water Column Height: 12.5 ft
Total Well Penetration Depth: 12.5 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.007624 cm/sec
y0 = 1.635 ft



MW-206 T10 FALLING HEAD TEST

Data Set: P:\...\MW-206 T10 FHT.aqt
Date: 04/15/09 Time: 16:23:17

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/3/09

AQUIFER DATA

Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

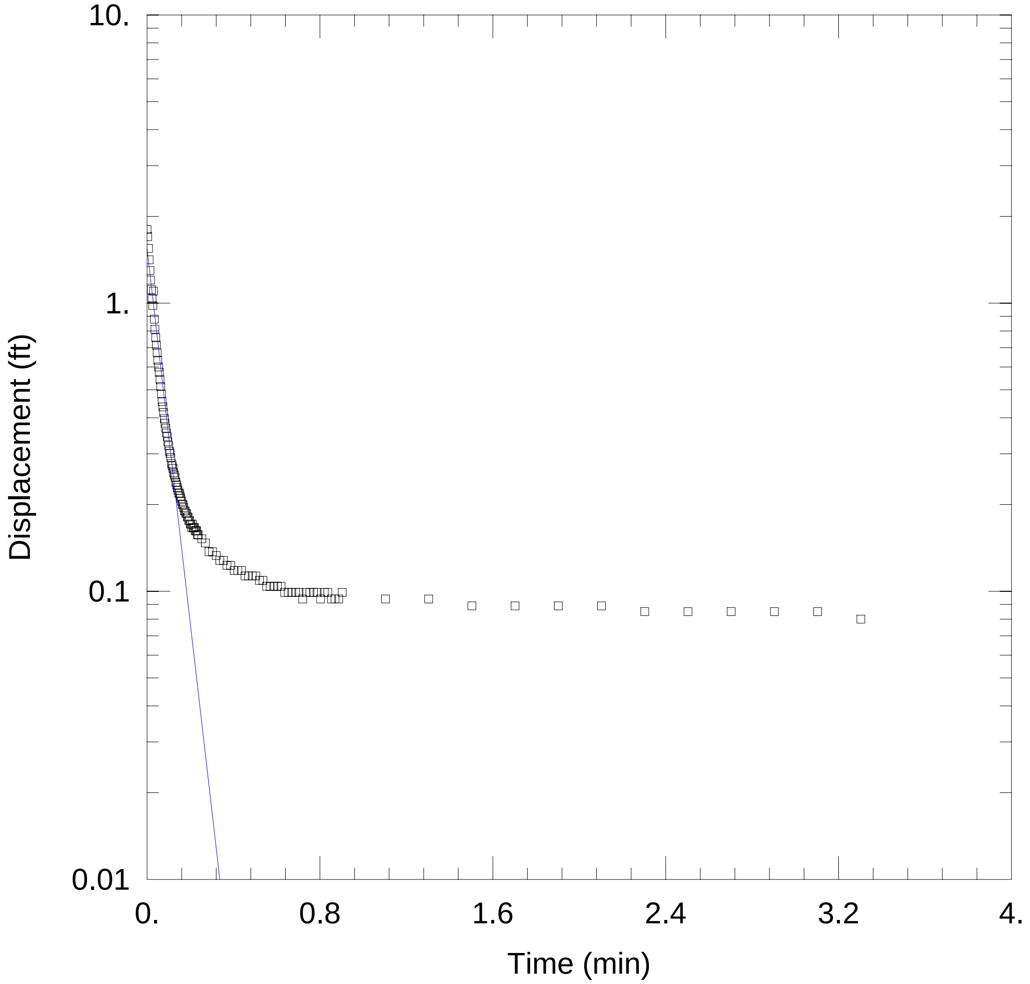
WELL DATA (MW-206)

Initial Displacement: 2.1 ft
Static Water Column Height: 12.5 ft
Total Well Penetration Depth: 12.5 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev

K = 0.008444 cm/sec
y0 = 1.097 ft



MW-206 T11 RISING HEAD TEST

Data Set: P:\...\MW-206 T11 RHT.aqt
Date: 04/15/09 Time: 16:26:21

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/3/09

AQUIFER DATA

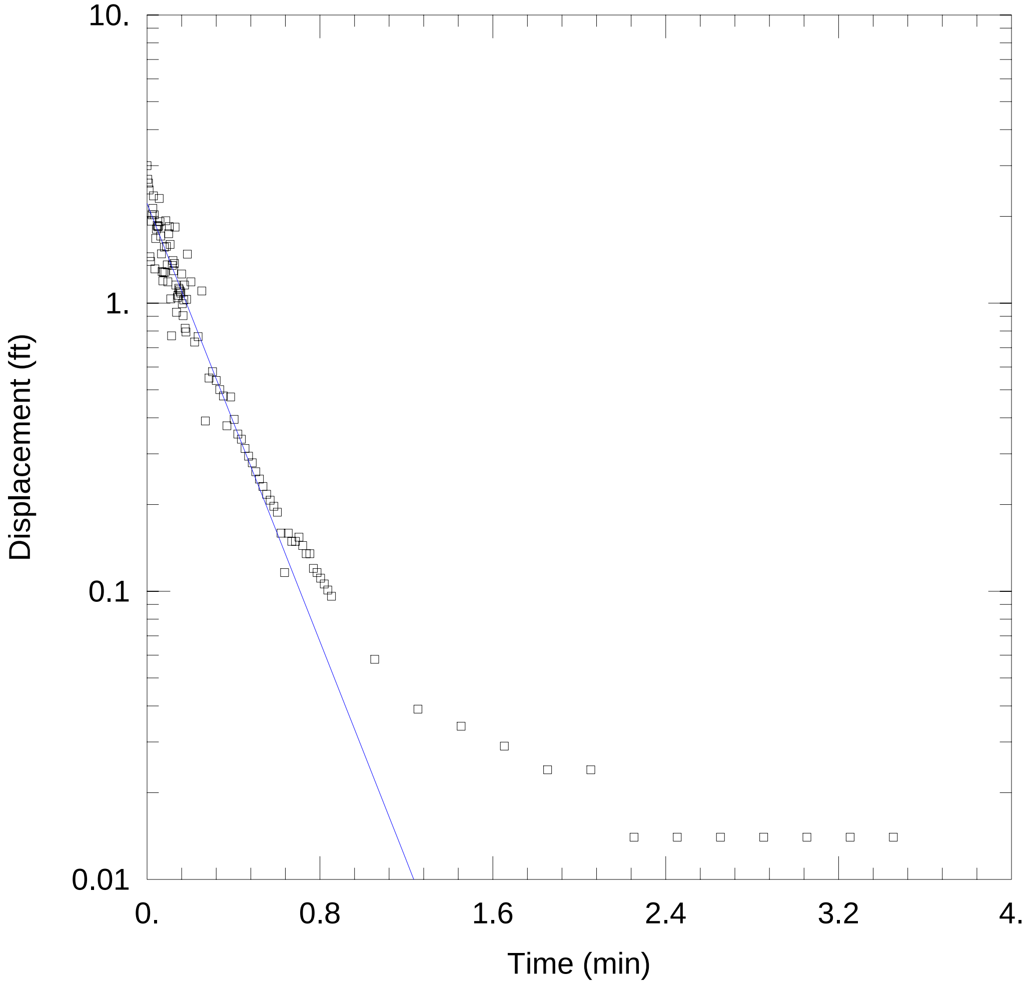
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-206)

Initial Displacement: 1.8 ft
Static Water Column Height: 12.5 ft
Total Well Penetration Depth: 12.5 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.01073 cm/sec
y0 = 1.543 ft



MW-210 T0 FALLING HEAD TEST

Data Set: P:\...\MW-210 T0 FHT.aqt
Date: 04/15/09 Time: 16:30:44

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/3/09

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

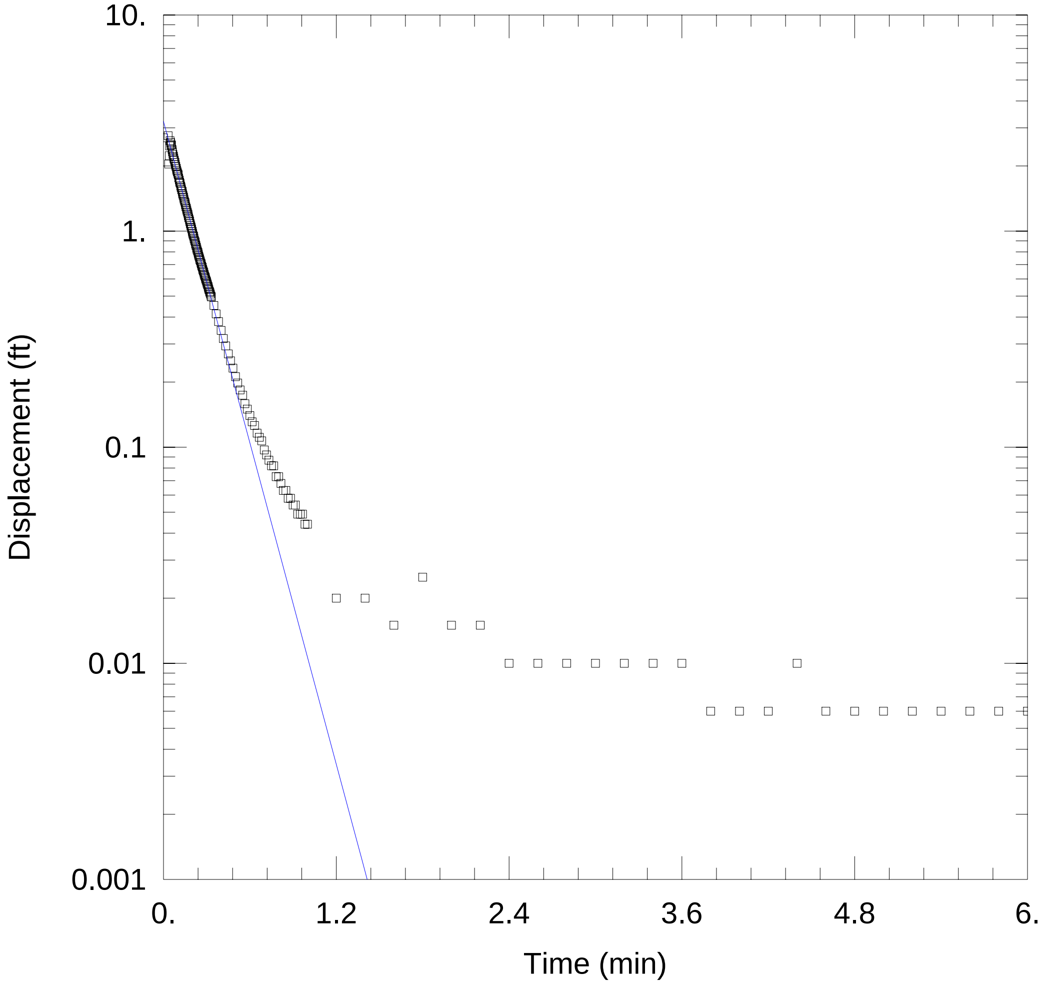
WELL DATA (MW-210)

Initial Displacement: 3. ft
Total Well Penetration Depth: 10.8 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.8 ft
Screen Length: 10. ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 0.003135 cm/sec y0 = 2.214 ft



MW-210 T1 RISING HEAD TEST

Data Set: P:\...\MW-210 T1 RHT.aqt
Date: 04/15/09 Time: 16:33:04

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/2/09

AQUIFER DATA

Saturated Thickness: 50. ft Anisotropy Ratio (Kz/Kr): 1.

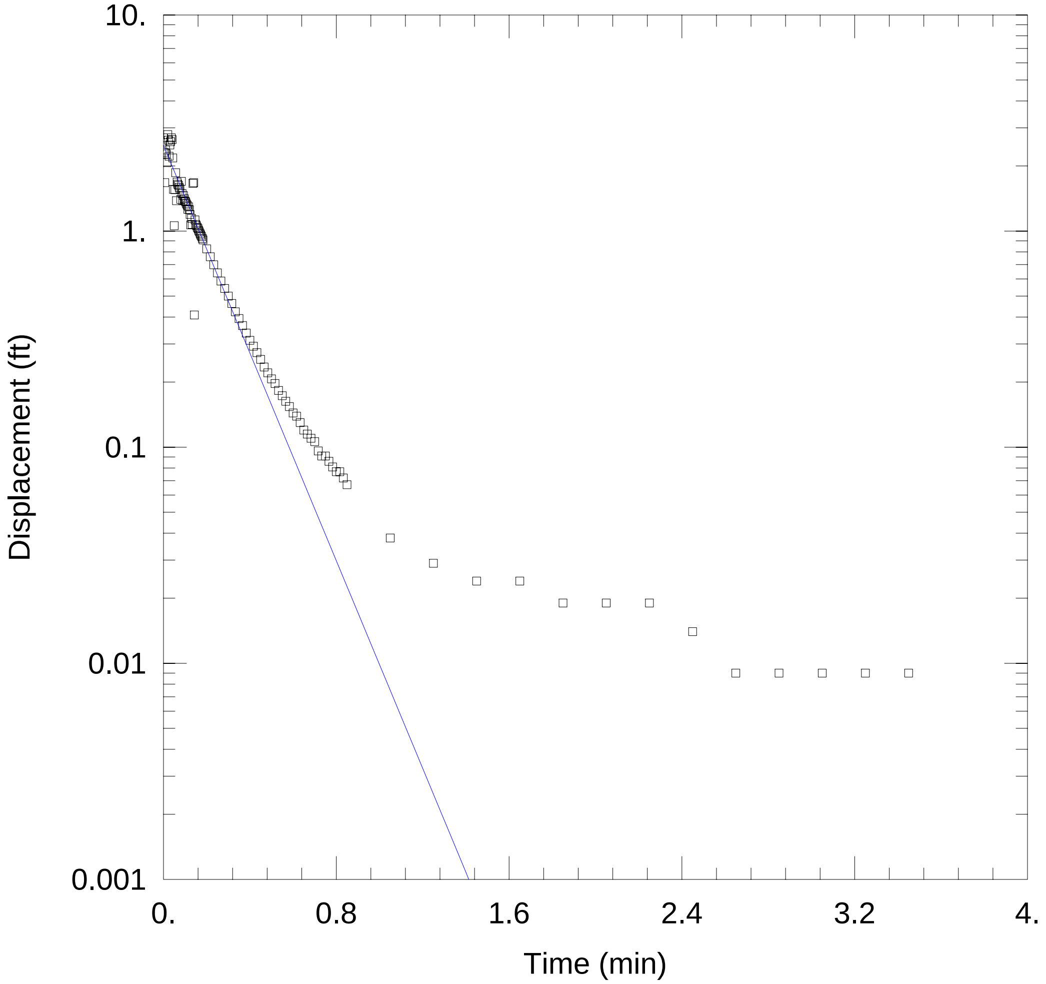
WELL DATA (MW-210)

Initial Displacement: 2.7 ft
Total Well Penetration Depth: 10.8 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.8 ft
Screen Length: 10. ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 0.00409 cm/sec y0 = 3.214 ft



MW-210 T2 FALLING HEAD TEST

Data Set: P:\...\MW-210 T2 FHT.aqt
Date: 04/15/09 Time: 16:36:08

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/2/09

AQUIFER DATA

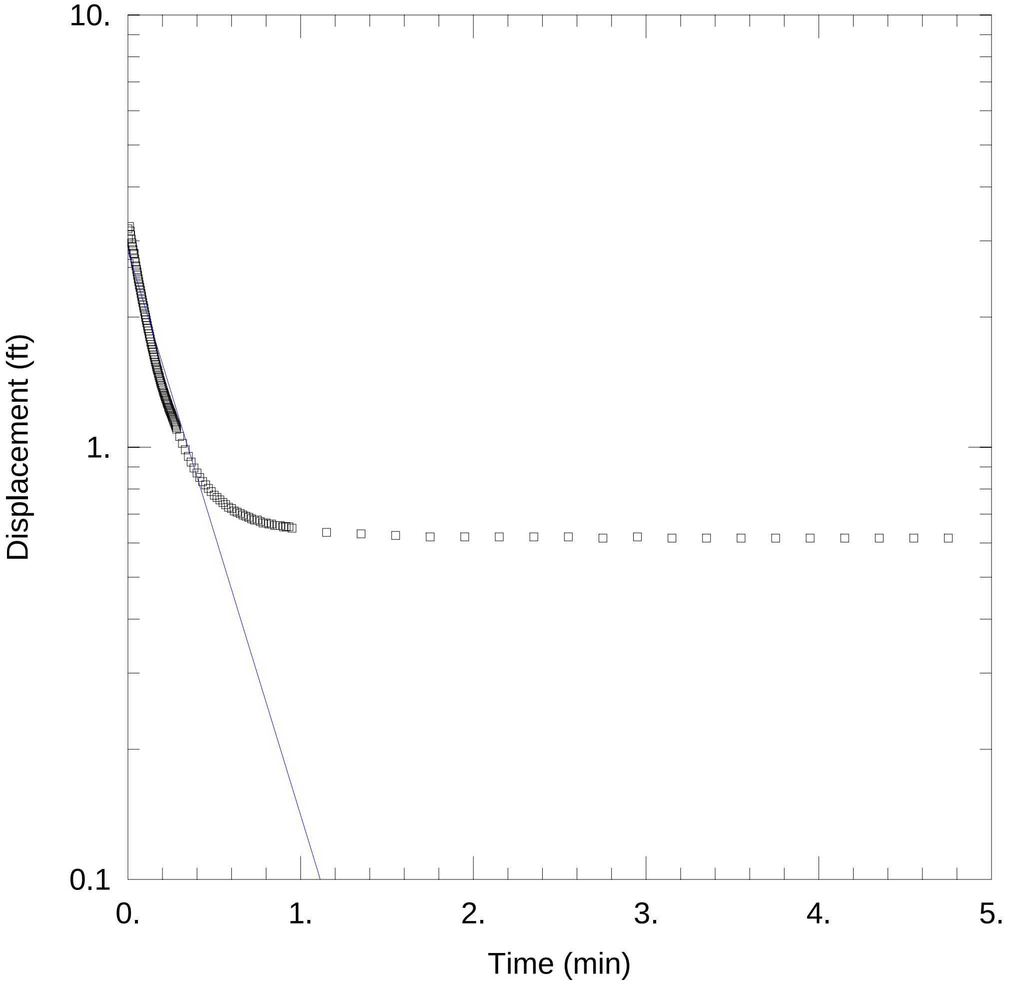
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-210)

Initial Displacement: 2.7 ft
Static Water Column Height: 10.8 ft
Total Well Penetration Depth: 10.8 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002774 cm/sec
y0 = 2.49 ft



MW-210 T3 RISING HEAD TEST

Data Set: P:\...\MW-210 T3 RHT.aqt
Date: 04/15/09 Time: 16:38:32

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/2/09

AQUIFER DATA

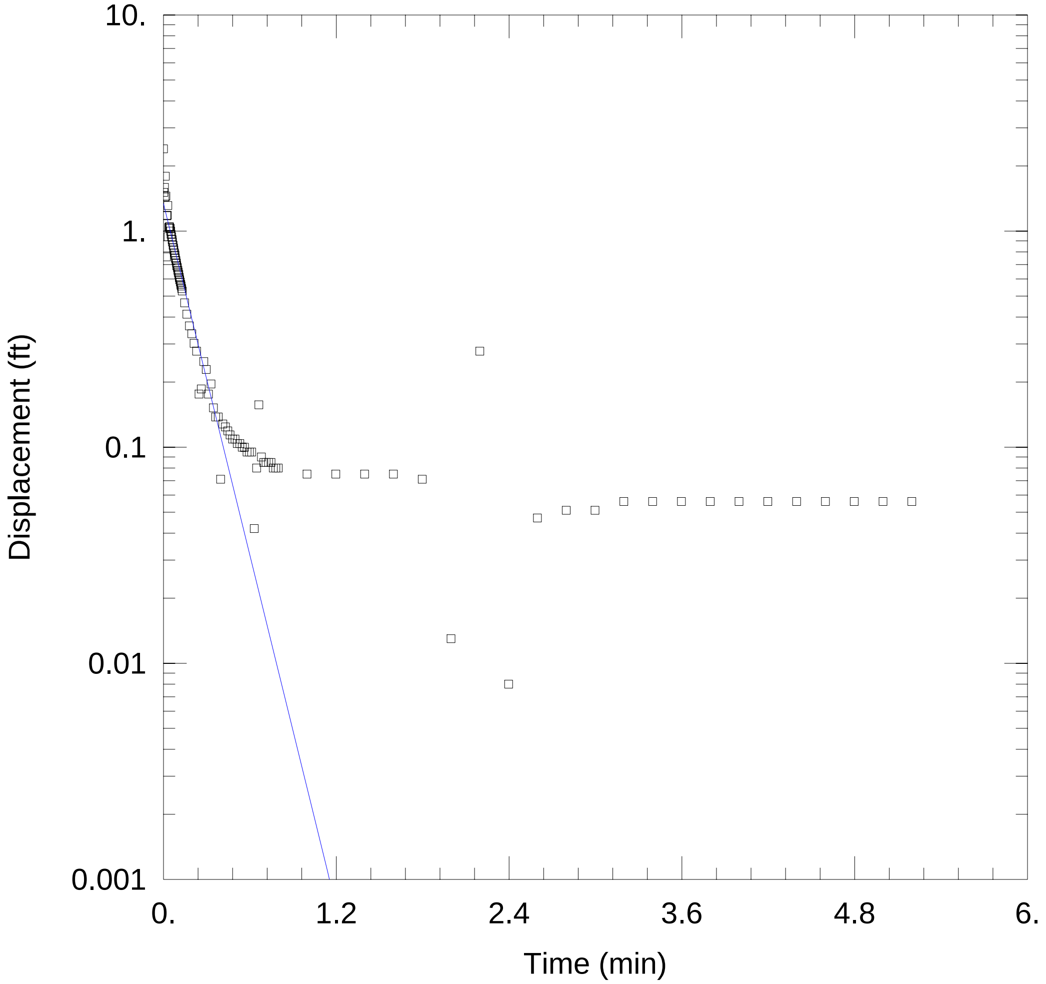
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-210)

Initial Displacement: 3.2 ft
Static Water Column Height: 10.8 ft
Total Well Penetration Depth: 10.8 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001507 cm/sec
y0 = 2.84 ft



MW-211 T4 FALLING HEAD TEST

Data Set: P:\...\MW-211 T4 FHT.aqt

Date: 04/15/09	Time: 15:11:30

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/2/09

AQUIFER DATA

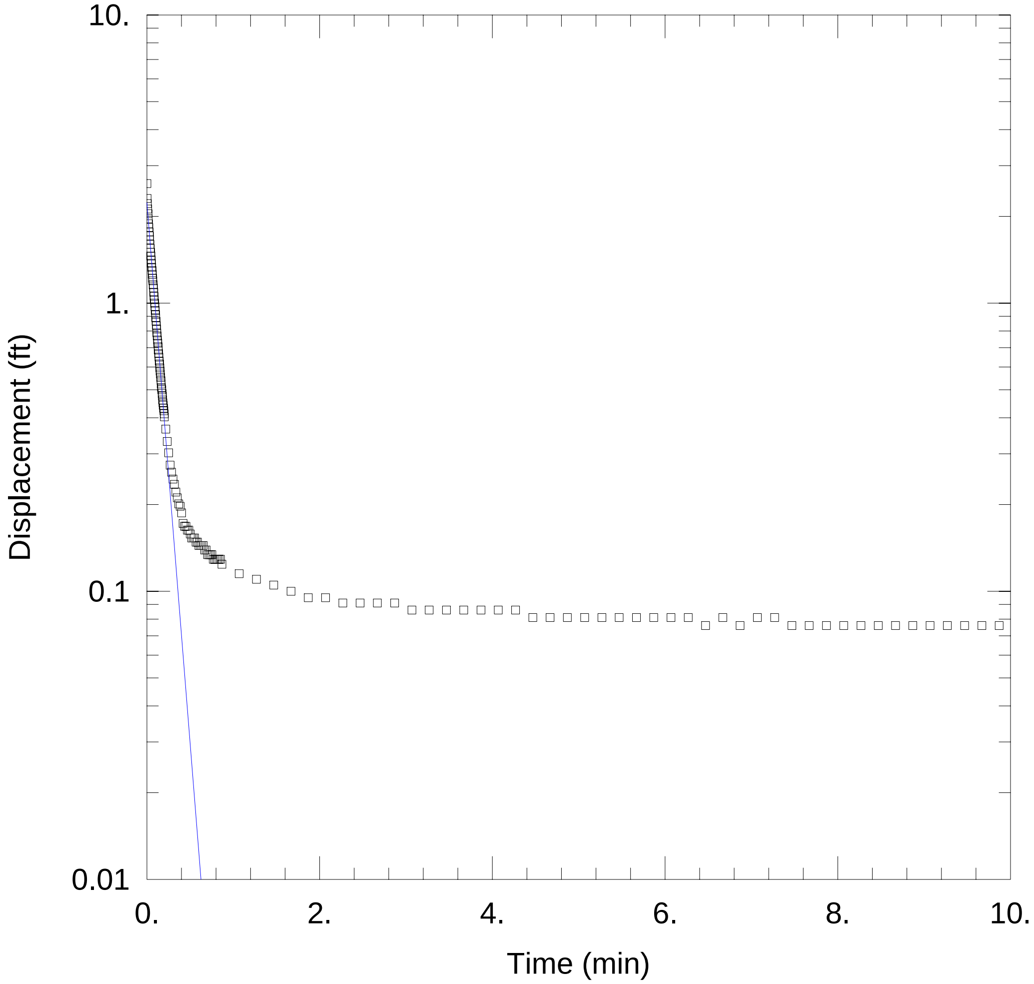
Saturated Thickness: 15. ft	Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-211)

Initial Displacement: 2.4 ft	Static Water Column Height: 10.6 ft
Total Well Penetration Depth: 10.6 ft	Screen Length: 10. ft
Casing Radius: 0.083 ft	Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined	Solution Method: Hvorslev
K = 0.004475 cm/sec	y0 = 1.34 ft



MW-211 T5 RISING HEAD TEST

Data Set: P:\...\MW-211 T5 RHT.aqt
Date: 04/15/09 Time: 15:25:10

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/2/09

AQUIFER DATA

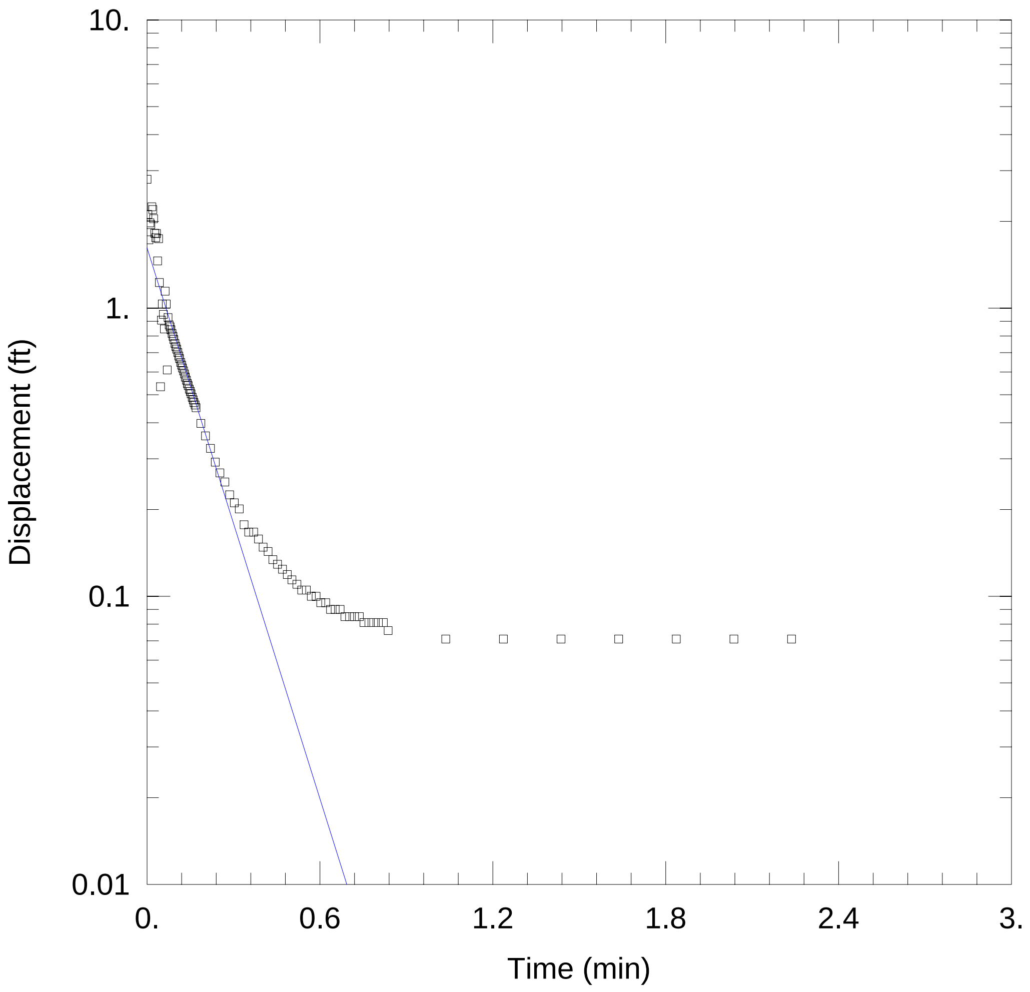
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-211)

Initial Displacement: 2.6 ft
Static Water Column Height: 10.6 ft
Total Well Penetration Depth: 10.6 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.006189 cm/sec
y0 = 2.231 ft



MW-211 T6 FALLING HEAD TEST

Data Set: P:\...\MW-211 T6 FHT.aqt
Date: 04/15/09 Time: 15:32:20

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/2/09

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

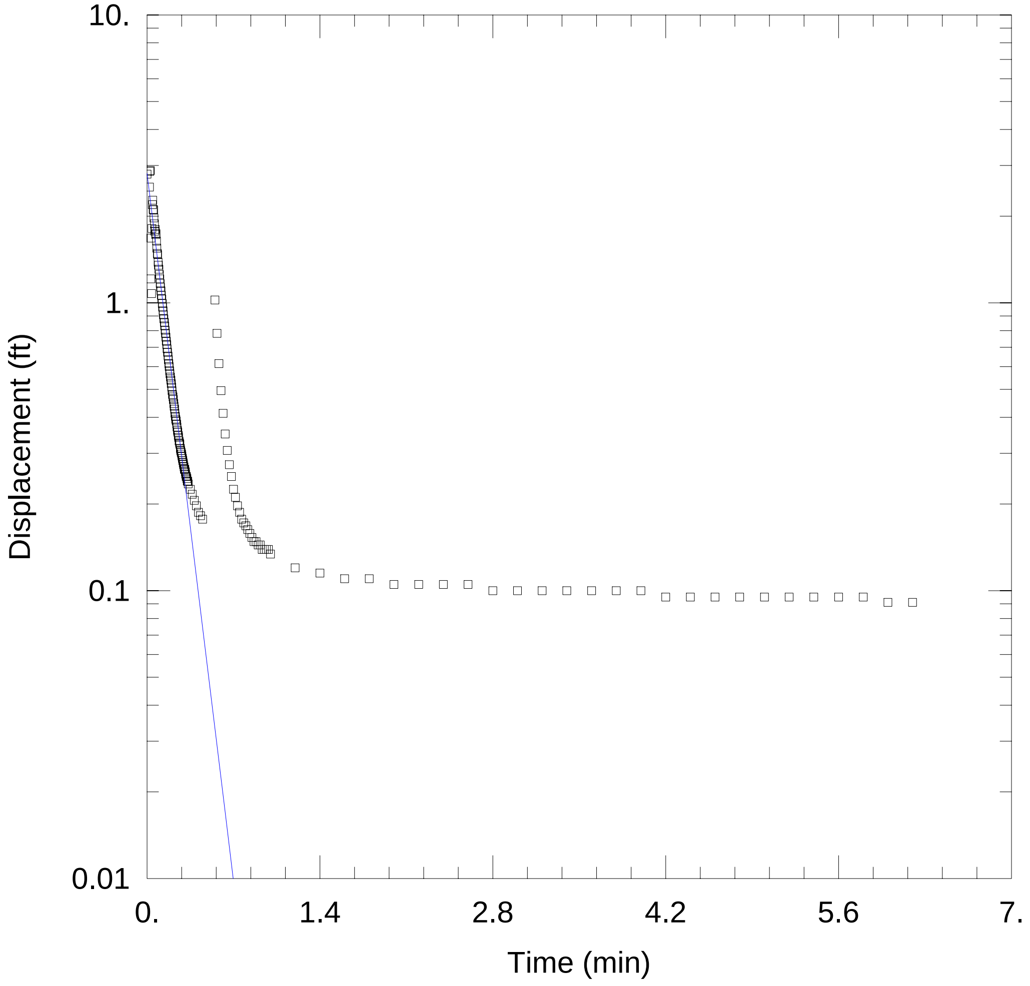
WELL DATA (MW-211)

Initial Displacement: 2.8 ft Static Water Column Height: 10.6 ft
Total Well Penetration Depth: 10.6 ft Screen Length: 10. ft
Casing Radius: 0.083 ft Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.003662 cm/sec y0 = 1.616 ft



MW-211 T7 RISING HEAD TEST

Data Set: P:\...\MW-211 T7 RHT.aqt
Date: 04/15/09 Time: 16:05:32

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/2/09

AQUIFER DATA

Saturated Thickness: 50. ft
Anisotropy Ratio (Kz/Kr): 1.

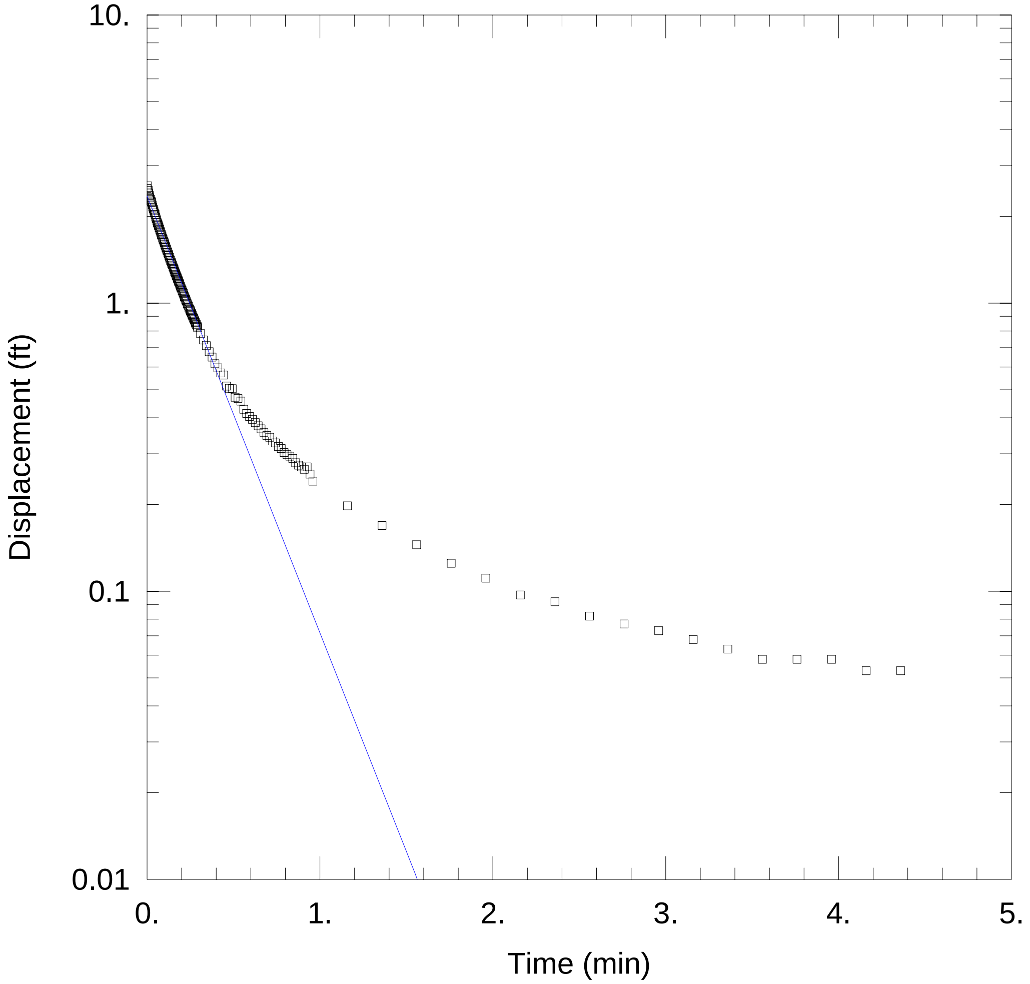
WELL DATA (MW-211)

Initial Displacement: 2.8 ft
Static Water Column Height: 10.6 ft
Total Well Penetration Depth: 10.6 ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.003817 cm/sec
y0 = 2.812 ft



MW-212 T12 RISING HEAD TEST

Data Set: P:\...\MW-212 T12 RHT.aqt
Date: 04/15/09
Time: 16:41:08

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/3/09

AQUIFER DATA

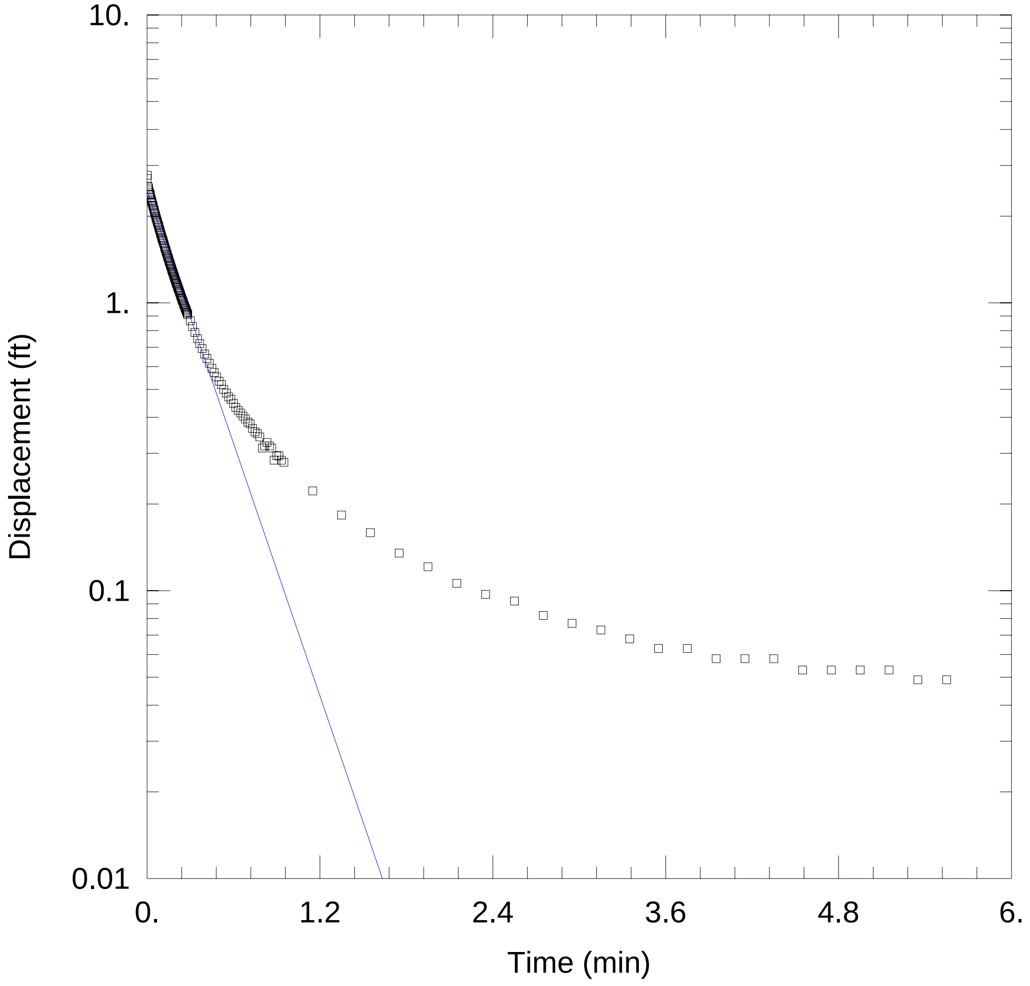
Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-212)

Initial Displacement: 2.5 ft
Static Water Column Height: 7. ft
Total Well Penetration Depth: 7. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.002502 cm/sec
y0 = 2.353 ft



MW-212 T13 RISING HEAD TEST

Data Set: P:\...\MW-212 T13 RHT.aqt
Date: 04/15/09 Time: 16:49:42

PROJECT INFORMATION

Company: MACTEC E & C
Client: NYSDEC
Project: 3612082109
Location: Former Speedy's Cleaners
Test Date: 2/3/09

AQUIFER DATA

Saturated Thickness: 15. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-212)

Initial Displacement: 2.7 ft
Static Water Column Height: 7. ft
Total Well Penetration Depth: 7. ft
Screen Length: 10. ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.1666 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.001529 cm/sec
y0 = 2.451 ft

APPENDIX D

SURVEY DATA

CARRIAGE DRY CLEANERS SITE

SAMPLE TABLE-2006

SAMPLE ID	NORTHING	EASTING	ELEVATION	DESC.
MW-104I	1139718.7	1420943.9	488.03	GROUND
			488.03	CASING
			487.71	RISER
MW-111I	1139745.2	1421085.6	489.56	GROUND
			489.56	CASING
			489.17	RISER
MW-202I	1139666.7	1421470.8	485.66	GROUND
			485.68	CASING
			485.28	RISER
MW-203S	1139893.9	1422253.7	478.80	GROUND
			478.85	CASING
			478.51	RISER
MW-204S	1139719.2	1422162.6	479.24	GROUND
			479.32	CASING
			478.86	RISER
MW-205S	1139544.9	1421827.3	482.38	GROUND
			482.42	CASING
			482.05	RISER
MW-206S	1139592.1	1421324.0	486.87	GROUND
			486.88	CASING
			486.55	RISER
MW-207S	1140589.8	1421869.2	479.65	GROUND
			479.68	CASING
			479.46	RISER
MW-208S	1140627.8	1421494.9	481.08	GROUND
			481.10	CASING
			480.65	RISER
MW-209S	1140416.0	1422105.6	479.80	GROUND
			479.88	CASING
			479.66	RISER
HA-107	1140286.8	1421331.2	482.97	GROUND
			482.90	CASING
			482.57	RISER
HA-110	1139948.9	1421022.0	489.70	GROUND
			489.66	CASING
			489.39	RISER
HA-111	1139737.8	1421091.0	488.29	GROUND
			488.25	CASING
			488.00	RISER
HA-113	1139971.0	1421175.0	487.98	GROUND
			487.87	CASING
			487.67	RISER
HA-114	1139782.3	1421447.2	485.29	GROUND
			485.33	CASING
			485.02	RISER
HA-118	1140130.1	1421994.5	480.40	GROUND
			480.33	CASING
			479.96	RISER
HA-119	1139788.0	1421862.9	482.26	GROUND

CARRIAGE DRY CLEANERS SITE

SAMPLE TABLE-2006

SAMPLE ID	NORTHING	EASTING	ELEVATION	DESC.
			482.23	CASING
			481.97	RISER
HA-122	1139989.1	1421636.1	483.30	GROUND
			483.20	CASING
			482.90	RISER
HA-201	1139684.2	1421442.5	485.34	GROUND
			485.40	CASING
			485.14	RISER
DEC	1139841.3	1421313.0	487.59	GROUND
			487.65	CASING
			487.28	RISER
HA-101	1139916.5	1420945.1	490.52	GROUND
			490.76	RISER
HA-102	1139849.9	1421004.4	490.40	GROUND
			490.71	RISER
HA-104	1139746.1	1420942.4	488.35	GROUND
			488.35	CASING
			487.97	RISER
HA-105	1140027.5	1421315.2	486.42	RIM
HA-106	1140000.7	1421343.5	486.73	RIM
HA-108	1139632.2	1420898.4	487.20	GROUND
			487.20	CASING
			486.97	RISER
HA-109	1140199.7	1421379.2	485.56	GROUND
			485.56	CASING
			485.32	RISER
HA-112	1139464.0	1421323.2	486.67	GROUND
			486.67	CASING
			486.55	RISER
HA-115	1139964.4	1421591.0	484.42	GROUND
			484.42	CASING
			484.14	RISER
HA-116	1140267.9	1420895.5	488.59	GROUND
			488.59	CASING
			488.44	RISER
HA-117	1140445.7	1421771.6	480.39	GROUND
			480.39	CASING
			480.08	RISER
HA-120	1139907.4	1420719.6	491.53	GROUND
			491.53	CASING
			490.89	RISER
HA-121	1139741.6	1420626.0	488.69	GROUND
			488.69	CASING
			488.37	RISER
HA-123	1140304.6	1421613.1	484.89	GROUND
			484.89	CASING
			484.72	RISER
MW-1	1139691.4	1421036.2	488.66	GROUND
			490.06	RISER

CARRIAGE DRY CLEANERS SITE
SAMPLE TABLE-2006

SAMPLE ID	NORTHING	EASTING	ELEVATION	DESC.
MW-2	1139652.7	1421020.8	488.33	GROUND
			489.53	RISER
MW-3	1139750.0	1421000.1	488.24	GROUND
			488.24	CASING
			488.10	RISER
MW-4	1139704.1	1420974.5	487.92	GROUND
			487.92	CASING
			487.74	RISER
MW-5	1139748.1	1421034.1	489.29	GROUND
			489.29	CASING
			489.17	RISER
MW-202	1139675.6	1421475.0	485.74	GROUND
			485.74	CASING
			484.77	RISER

Notes:
Data as presented by Popli Engineers and is dated 8/3/2006
HORIZONTAL DATUM: NAD 83/96 - NYSPCS WEST ZONE
VERTICAL DATUM: NAVD88

FORMER SPEEDY'S DRY CLEANERS SITE

SAMPLE TABLE

SAMPLE ID	NORTHING	EASTING	ELEVATION	DESC.
FLUSH MOUNTED WELL LOCATIONS				
MW-202	1139680.5	1421469.2	485.76	CASING
			484.81	RISER
MW-202i	1139671.5	1421465.7	485.68	CASING
			485.28	RISER
MW-206	1139587.9	1421325.2	486.83	CASING
			486.49	RISER
MW-210	1139671.2	1421245.4	487.03	CASING
			486.70	RISER
*MW-211	1139626.9	1421418.6	486.54	CASING
			486.25	RISER
MW-212	1139650.9	1421425.1	486.75	CASING
			486.40	RISER
SOIL BORE LOCATION				
DP-5	1139662.5	1421387.5	487.8	GROUND
DP-6	1139678.4	1421400.3	487.7	GROUND
DP-7	1139660.3	1421446.0	486.1	GROUND
DP-8	1139695.3	1421411.1	487.5	GROUND
DP9	1139674.6	1421440.9	486.3	GROUND
DP-10	1139651.2	1421408.4	485.6	GROUND
DP-11	1139669.5	1421453.0	485.7	GROUND
DP-12	1139646.6	1421429.4	486.4	GROUND
DP-13	1139655.8	1421419.3	487.1	GROUND
DP=14	1139668.1	1421408.4	487.4	GROUND
DP-15	1139636.5	1421428.7	486.3	GROUND
DP-16	1139626.3	1421440.1	485.7	GROUND
*DP-17	1139626.9	1421418.6	486.5	GROUND
DP-18	1139611.6	1421404.7	486.6	GROUND
DP-19	1139614.3	1421348.5	487.6	GROUND
DP-20	1139614.7	1421409.0	486.5	GROUND
DP-21	1139614.9	1421425.1	485.2	GROUND
DP-22	1139618.5	1421427.5	485.8	GROUND

* MW-211 & DP-17 ARE AT THE SAME LOCATION
HORIZONTAL DATUM: NAD 83/96 - NYSPCS WEST ZONE
VERTICAL DATUM: NAVD88
Survey Data from Popli Design Group - dated March 30, 2009.

CARRIAGE DRY CLEANERS SITE

SAMPLE TABLE

SAMPLE ID	NORTHING	EASTING	ELEVATION	DESC.
FLUSH MOUNTED WELL LOCATIONS				
MW-1	1139691.1	1421036.1	488.42	CASING
			490.06	RISER
MW-2	1139652.1	1421021.0	488.14	CASING
			489.53	RISER
MW-3	1139750.3	1421000.2	488.24	CASING
			488.10	RISER
MW-4	1139704.6	1420974.5	487.92	CASING
			487.74	RISER
MW-5	1139748.4	1421034.0	489.29	CASING
			489.17	RISER
*MW-6	1139652.7	1421066.6	488.66	CASING
			488.26	RISER
HA-102	1139849.9	1421004.4	490.40	CASING
			490.71	RISER
HA-104	1139746.1	1420942.4	488.35	CASING
			487.97	RISER
MW-104I	1139718.7	1420943.9	488.10	CASING
			487.73	RISER
HA-111	1139737.9	1421091.6	489.27	CASING
			489.12	RISER
MW-111I	1139745.0	1421085.2	489.56	CASING
			489.17	RISER
MW-OW1	1139733.5	1421086.6	489.53	CASING
			489.23	RISER
MW-EW1	1139726.2	1421079.6	489.46	CASING
			489.21	RISER

* MW-6 & DP-10 ARE AT THE SAME LOCATION
HORIZONTAL DATUM: NAD 83/96 - NYSPCS WEST ZONE
VERTICAL DATUM: NAVD88
Locations Surveyed by Popli Design Group, dated March 30, 2009

APPENDIX E

DATA USABILITY SUMMARY REPORTS

DATA USABILITY SUMMARY REPORT
2009 SOIL SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

1.0 INTRODUCTION

Soil samples were collected on May 4 and 5, 2009 at the Former Speedy's Cleaners Site (Site) in Brighton, New York and submitted for analysis by Columbia Analytical Services located in Rochester, New York. Results were reported in Sample Delivery Group (SDG): R0902518. A listing of samples included in this Data Usability Summary Report is presented in Table 1. A summary of the analytical results is presented in Table 2. Samples were analyzed for:

- Volatile Organic Compounds (VOCs) by USEPA Method 8260B

Deliverables for the off-site laboratory analyses included a Category B deliverable as defined in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocols (NYSDEC, 2005) for SDG R0902518.

A project chemist review was completed based on NYSDEC Division of Environmental Remediation guidance for Data Usability Summary Reports (NYSDEC, 2002) for SDG R0902518. Laboratory QC limits were used during the data evaluation unless noted otherwise. The project chemist review included evaluations of sample collection, data package completeness, holding times, QC data (blanks, instrument calibrations, duplicates, surrogate recovery, and spike recovery), data transcription, electronic data reporting, calculations, and data qualification.

Table 1

					Class	VOCs	Solids
					Analysis Method	SW8260	E160.3
					Fraction	N	N
SDG	**Media**	**Location**	**Sample ID**	**Sample Date**	**Qc Code**		
R0902518	SOIL	DP-023	828128DP023010	5/4/2009	FS	X	X
R0902518	SOIL	DP-024	828128DP024005	5/4/2009	FS	X	X
R0902518	SOIL	DP-025	828128DP025004	5/4/2009	FS	X	X
R0902518	SOIL	DP-025	828128DP025009	5/4/2009	FS	X	X
R0902518	NA-S	Trip Blank	828128TB005002	5/4/2009	TB	X	

The following laboratory or data validation qualifiers are used in the final data presentation.

U = target analyte is not detected at the reported detection limit
J = concentration is estimated
UJ = target analyte is not detected at the reported detection limit and is estimated

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

2.0 VOLATILE ORGANIC COMPOUNDS (VOCS)

Blanks

2-Butanone was detected in the method blank (150 µg/kg) and trip blank (130 µg/kg) associated with samples in SDG R0902518. Detections of 2-butanone that were less than the action level (1500 µg/kg) were qualified non-detect and elevated to the reporting limit (see table below).

field_sample_id	qc_code	param_name	final_result	final_qualifier	lab_result_text	lab_qualifier
828128DP023010	FS	2-Butanone	490	U	130	BJ
828128DP024005	FS	2-Butanone	710	U	150	BJ
828128DP025004	FS	2-Butanone	680	U	190	BJ
828128DP025009	FS	2-Butanone	480	U	73	BJ

VOC - Initial and Continuing Calibration Standards

SDG R0902518

The continuing calibration analyzed on May 11, 2009 had a percent difference greater than the control limit of 20 for bromomethane (26), methyl acetate (-30), 2-butanone (-24), and 2-hexanone (-22). There were no detections for these compounds and final results were qualified estimated (UJ) in the following associated samples: 828128DP023010, 828128DP024005, 828128DP025004, and 828128DP025009.

Reference:

New York State Department of Environmental Conservation (NYSDEC), 2005. "Analytical Services Protocols"; July 2005.

New York State Department of Environmental Conservation (NYSDEC), 2002. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; Draft DER-10; Division of Environmental Remediation; December 2002.

Data Validator: Tige Cunningham

Date: 6/3/09

Reviewed by Chris Ricardi, NRCC-EAC
Quality Assurance Officer

Chris Ricardi

Date: 6/8/09

DUSR Table 2
Results Summary
SDG R0902518
Former Speedy's Cleaners

		Sample Delivery Group	R0902518		R0902518		R0902518		R0902518		R0902518	
		Location	DP-023		DP-024		DP-025		DP-025		QC	
		Sample Date	5/4/2009		5/4/2009		5/4/2009		5/4/2009		5/4/2009	
		Sample ID	828128DP023010		828128DP024005		828128DP025004		828128DP025009		828128TB005002	
		Qc Code	FS		FS		FS		FS		TB	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,1,2,2-Tetrachloroethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,1,2-Trichloroethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,1-Dichloroethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,1-Dichloroethene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,2,4-Trichlorobenzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,2-Dibromo-3-chloropropane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,2-Dibromoethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,2-Dichlorobenzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,2-Dichloroethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,2-Dichloropropane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,3-Dichlorobenzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	1,4-Dichlorobenzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	2-Butanone	µg/kg	490	UJ	710	UJ	680	UJ	480	UJ	130	BJ
SW8260	2-Hexanone	µg/kg	490	UJ	710	UJ	680	UJ	480	UJ	500	U
SW8260	4-Methyl-2-pentanone	µg/kg	490	U	710	U	680	U	480	U	500	U
SW8260	Acetic acid, methyl ester	µg/kg	490	UJ	710	UJ	680	UJ	480	UJ	500	U
SW8260	Acetone	µg/kg	990	U	1400	U	1400	U	970	U	1000	U
SW8260	Benzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Bromodichloromethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Bromoform	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Bromomethane	µg/kg	250	UJ	360	UJ	340	UJ	240	UJ	250	U
SW8260	Carbon disulfide	µg/kg	490	U	710	U	680	U	480	U	500	U
SW8260	Carbon tetrachloride	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Chlorobenzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Chlorodibromomethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Chloroethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Chloroform	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Chloromethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Cis-1,2-Dichloroethene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	cis-1,3-Dichloropropene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Cyclohexane	µg/kg	490	U	710	U	680	U	480	U	500	U
SW8260	Dichlorodifluoromethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Ethyl benzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Isopropylbenzene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Methyl cyclohexane	µg/kg	490	U	710	U	680	U	480	U	500	U
SW8260	Methyl Tertbutyl Ether	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Methylene chloride	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Styrene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Tetrachloroethene	µg/kg	470		1600		1900		3300		250	U
SW8260	Toluene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	trans-1,2-Dichloroethene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	trans-1,3-Dichloropropene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Trichloroethene	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Trichlorofluoromethane	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Vinyl chloride	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Xylene, m/p	µg/kg	250	U	360	U	340	U	240	U	250	U
SW8260	Xylene, o	µg/kg	250	U	360	U	340	U	240	U	250	U
E160.3	Percent Solids	percent	91.3		83.8		82.1		92			

Notes: µg/kg = microgram per kilogram
QC code: FS = field sample, TB = Trip Blank,
FD = Field Duplicate
Qualifier: U = not detected at a concentration above the reporting limit
J = estimated value

P:\Projects\nysdec1\projects\Former Speedy's Cleaners\3.0_Site_Data\3.4_Test_Results\Validation Files\
Speedy_R0902518_Table_2.xls

produced by: BJS 6/5/09
checked by: TLC 6/5/09

DATA USABILITY SUMMARY REPORT
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

1.0 Introduction

Soil and groundwater samples were collected at the Former Speedy's Cleaners Site (Site) in Brighton, New York from December 16, 2008 to December 18, 2008 and submitted for off-site laboratory analyses. Samples were analyzed by Columbia Analytical Services located in Rochester, New York. Results were reported in the following Sample Delivery Groups (SDGs): **R2847827 and R2847778**. A listing of samples and analyses included in this Data Usability Summary Report is presented in Table 1. A summary of the validated analytical results is presented in Table 2. Samples were analyzed using one or more of the following methods:

- Volatile Organic Compounds (VOCs) by USEPA Method 8260B
- Semivolatile Organic Compounds (SVOCs) by Method 8270C
- Pesticides by Method 8081A
- Polychlorinated Biphenyls (PCBs) by Method 8082
- Total Metals by Method 6010B
- Total Mercury by Method 7471
- Percent solids by Method 160.3M

Deliverables for the off-site laboratory analyses included a Category B deliverable as defined in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocols (NYSDEC, 2005) for SDGs **R2847827 and R2847778.**

A project chemist review was completed based on NYSDEC Division of Environmental Remediation guidance for Data Usability Summary Reports (NYSDEC, 2002) for SDGs **R2847827 and R2847778.** Laboratory quality control (QC) limits were used during the data evaluation unless noted otherwise. The project chemist review included evaluations of sample collection, data package completeness, holding times, QC data (blanks, instrument calibrations, duplicates, surrogate recovery, and spike recovery), data transcription, electronic data reporting, calculations, and data qualification.

The following laboratory or data validation qualifiers are used in the final data presentation.

U = target analyte is not detected at the reported detection limit
J = concentration is estimated
UJ = target analyte is not detected at the reported detection limit and is estimated
D = result is reported from a diluted analysis

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

2.0 Volatile Organic Compounds (VOCs)

VOC – Initial and Continuing Calibration Standards

SDG R R2847778

The continuing calibration percent difference for 1,1,2,2-tetrachloroethene (21.4) exceeds the QC limit of 20. The result for 1,1,2,2-tetrachloroethene in associated samples 828128DP012009 and 828128DP013006 were qualified estimated (UJ).

VOC - Blanks

SDG R2847827

An aqueous rinse blank was collected from the equipment (Geo-probe rods, bowl, and spoon) used to collect the soil samples. The following compounds were detected in the rinse blank (Sample ID: Speedy Rinseate): acetone (46 µg/L), methylene chloride (0.70 µg/L), 2-butanone (6.7 µg/L). Action levels were established at ten times the reported detection for acetone (460 µg/L), methylene chloride (7 µg/L), and 2-butanone (67 µg/L). The raw instrument result for soil samples were compared to the action limits. Results less than the action limit were qualified non detect (U). Results reported less than the detection limit were qualified non-detect (U) at the reporting limit. The following samples were qualified non-detect:

Field Sample ID	QC code	Analyte	Final Conc (ug/kg)	Final Qual	Lab Conc (ug/kg)	Lab Qual
828128DP001001	FS	Acetone	66	U	66	
828128DP001001	FS	Methylene chloride	5.3	U	0.95	J
828128DP001001	FS	2-Butanone	11	U	2.1	J
828128DP001009	FS	Acetone	160	U	160	
828128DP001009	FS	2-Butanone	12	U	8.5	J
828128DP003009	FS	Acetone	63	U	63	
828128DP003009	FS	Methylene chloride	5.7	U	0.46	J
828128DP003009	FS	2-Butanone	11	U	1.2	J
828128DP003009DUP	FD	Acetone	27	U	27	

The analyte 1,2,4-trichlorobenzene (0.58 J µg/L) was reported in the method blank. 1,2,4-Trichlorobenzene was not detected in associated samples and no qualification was required.

SDG R2847778

An aqueous rinse blank was collected from the equipment (Geo-probe rods, bowl, and spoon) used to collect the soil samples (as discussed above). The following compound results reported were qualified non-detect (U) at the reporting limit. The following samples were qualified non-detect:

Field Sample ID	QC code	Analyte	Final Conc (ug/kg)	Final Qual	Lab Conc (ug/kg)	Lab Qual
828128DP005008	FS	Acetone	24	U	14	JB
828128DP005008	FS	Methylene chloride	5.9	U	0.85	J
828128DP005012	FS	Acetone	22	U	5.6	JB
828128DP005012	FS	Methylene chloride	5.4	U	1.1	J
828128DP006008	FS	Acetone	24	U	17	JB
828128DP006008	FS	Methylene chloride	6	U	1.5	J
828128DP007006	FS	Acetone	26	U	17	JB
828128DP007006	FS	Methylene chloride	6.5	U	1.5	J
828128DP007006	FS	2-Butanone	13	U	1.3	J
828128DP007008	FS	Methylene chloride	5.7	U	1.6	J
828128DP008008	FS	Acetone	24	U	4.3	JB
828128DP008008	FS	Methylene chloride	5.9	U	1.6	J
828128DP009010	FS	Acetone	51	U	51	
828128DP009010	FS	Methylene chloride	5.5	U	1.1	J
828128DP009010	FS	2-Butanone	11	U	2.2	J
828128DP010008	FS	Acetone	24	U	2.4	JB
828128DP010008	FS	Methylene chloride	5.9	U	1.5	J
828128DP011008	FS	Acetone	23	U	20	JB
828128DP011008	FS	Methylene chloride	5.7	U	0.90	J
828128DP011008DUP	FD	Acetone	24	U	7.1	JB
828128DP011008DUP	FD	Methylene chloride	6	U	1.7	J
828128DP012008	FS	Acetone	23	U	23	B
828128DP012008	FS	Methylene chloride	5.5	U	0.77	J
828128DP012009	FS	Acetone	30	U	30	
828128DP012009	FS	Methylene chloride	5.8	U	0.80	J
828128DP012009	FS	2-Butanone	12	U	2.6	J
828128DP012009	FS	Acetone	10	U	3.7	J
828128DP014010	FS	Acetone	22	U	20	JB
828128DP014010	FS	Methylene chloride	5.6	U	0.46	J

Acetone (2.4 µg/kg) was reported in the method. An action limit was established at ten times the detection for acetone. Results for acetone were qualified previously under the rinseate blank.

The analyte 1,2,4-trichlorobenzene (0.65 J µg/L) was reported in the method blank. 1,2,4-Trichlorobenzene was not detected in associated samples and no qualification was required.

VOC - Matrix Spike Matrix (MS) and Matrix Spike Duplicate (MSD) Analysis

SDG R2847827

Sample 828128DP004009 was submitted as a MS/MSD sample. The MSD percent recovery for acetone (160), and the MS/MSD percent recoveries for tetrachloroethene (144 and 148) exceed the QC limits. The results for acetone and tetrachloroethene in associated samples 828128DP004009 and 828128DP004009DUP were qualified estimated (J/UJ).

SDG R2847778

Sample 828128DP011008 was submitted as a MS/MSD sample. The MS percent recovery for 1,2-dichlorobenzene (67) and 1,3-dichlorobenzene (67), and the MS/MSD percent recoveries for 1,4-dichlorobenzene (65 and 32), and 1,2,4-trichlorobenzene (55 and 44) are less than the QC limits. The results for 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene in associated samples 828128DP011008 and 828128DP011008DUP were qualified estimated (UJ).

VOC- Sample Reporting

SDG R2847827

The laboratory quantitation of sample 828128DP017010 was determined to be incorrect. The quality assurance manager at the laboratory was contacted and asked to provide an example calculation. During review of the data package, the laboratory discovered a quantitation error associated with a different sample. The lab corrected the quantitations, reviewed all others, and submitted corrected form 1s.

The following sample was analyzed at dilutions due to elevated concentrations of target compounds above the instrument calibration range. Non-detects were reported with elevated reporting limits:

Field Sample ID	QC code	Dilution Factor
828128DP017010	FS	100X and 4850X

2.1 Semivolatile Organic Compounds (SVOC)

SVOC - Initial and Continuing Calibration Standards

SDG R2847778

The percent relative standard deviation (RSD) for 2,4-dinitrophenol (18) exceeds the QC limit of 15. The results for 2,4-dinitrphenol were qualified estimated (UJ).

2.3 Pesticides

Pesticide - Percent Difference Between Columns

SDG R2847778

Pesticide concentrations were reported on two chromatographic columns. The Region II control limit of 25 for the percent difference between the two reported concentrations was used to evaluate sample results. The percent difference for alpha chlordane (28) exceeds the QC limit. The result for alpha chlordane in sample 828128DP005012 was qualified estimated (J).

2.4 Metals

Metals - Blank Contamination

SDG R2847778

Manganese (2.6 µg/kg) was reported in the preparation blank. An action level was established at five times the concentration level. Reported detections of manganese are greater than the action limit and results are reported without further qualification action.

Metals - Laboratory Control Samples

SDG R2847778

The percent recovery for antimony (143) and iron (125) exceed the QC limit. The result for antimony are non-detect and are reported without further qualification action. The results for iron were qualified estimated (J).

Reference:

New York State Department of Environmental Conservation (NYSDEC), 2005. "Analytical Services Protocols"; July 2005.

New York State Department of Environmental Conservation (NYSDEC), 2002. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; Draft DER-10; Division of Environmental Remediation; December 2002.

Data Validator: Wolfgang Calicchio

Date: 4/6/2009

Reviewed by Chris Ricardi, NRCC-EAC
Quality Assurance Officer

Chr Ricard.

Date: 5/4/09

TABLE 1 - DUSR – FORMER SPEEDYS CLEANERS SITE

SDG	Sample ID	QC Code	Media	Lab ID	Method	Sample Date	Notes
R2847827	828128DP001001	FS	soil	1164137	SW8260, E160.3	12/17/2008	
R2847827	828128DP002009	FS	soil	1164138	SW8260, E160.3	12/18/2008	
R2847827	828128DP002009	FS	soil	1164138	SW8260, E160.3	12/18/2008	
R2847827	828128DP003009	FS	soil	1164139	SW8260, E160.3	12/18/2008	
R2847827	828128DP004009	FS	soil	1164140	SW8260, SW8270C, SW8081, SW8082, SW6010B, SW7471, E160.3	12/18/2008	
R2847827	828128DP004009DUP	FD	soil	1164141	SW8260, SW8270C, SW8081, SW8082, SW6010B, SW7471, E160.3	12/18/2008	Duplicate
R2847827	828128DP015008	FS	soil	1163666	SW8260, E160.3	12/16/2008	
R2847827	828128DP016008	FS	soil	1163667	SW8260, E160.3	12/16/2008	
R2847827	828128DP016009	FS	soil	1163668	SW8260, E160.3	12/16/2008	
R2847827	828128DP017010	FS	soil	1163669	SW8260, E160.3	12/16/2008	
R2847827	828128DP017010	FS	water	1163672	SW8260	12/16/2008	
R2847827	828128DP018009	FS	soil	1163670	SW8260, E160.3	12/16/2008	
R2847827	828128DP019011	FS	soil	1163671	SW8260, E160.3	12/16/2008	
R2847827	SPEEDY RINSEATE	EB	equipment blank	1164142	SW8260	12/18/2008	
R2847827	TRIP BLANK_2	TB	trip blank	1164158	SW8260	12/18/2008	
R2847778	828128DP005008	FS	soil	1163151	SW8260, E160.3	12/15/2008	
R2847778	828128DP005012	FS	soil	1163152	SW8260, SW8270, SW8081, SW8082, SW6010, SW7471, E160.3	12/15/2008	
R2847778	828128DP006008	FS	soil	1163153	SW8260, E160.3	12/15/2008	
R2847778	828128DP007006	FS	soil	1163155	SW8260, E160.3	12/15/2008	
R2847778	828128DP007008	FS	soil	1163156	SW8260, SW8270, SW8081, SW8082,	12/15/2008	

					SW6010, SW7471, E160.3		
R2847778	828128DP008008	FS	soil	1163154	SW8260, E160.3	12/15/2008	
R2847778	828128DP009010	FS	soil	1163162	SW8260, E160.3	12/15/2008	
R2847778	828128DP010008	FS	soil	1163157	SW8260, E160.3	12/15/2008	
R2847778	828128DP011008	FS	soil	1163158	SW8260, E160.3	12/15/2008	
R2847778	828128DP011008DUP	FD	soil	1163159	SW8260, E160.3	12/15/2008	Duplicate
R2847778	828128DP012008	FS	soil	1163160	SW8260, E160.3	12/15/2008	
R2847778	828128DP012009	FS	soil	1163161	SW8260, E160.3	12/15/2008	
R2847778	828128DP012009	FS	water	1163168	SW8260	12/15/2008	
R2847778	828128DP013006	FS	soil	1163163	SW8260, E160.3	12/15/2008	
R2847778	828128DP013006	FS	soil	1163163	SW8260, E160.3	12/15/2008	
R2847778	828128DP014010	FS	soil	1163164	SW8260, E160.3	12/15/2008	
R2847778	TRIP BLANK_1	TB	trip blank	1163245	SW8260	12/15/2008	
R2847778	828128BKSS001001	FS	soil	1163165	SW6010, SW7471, E160.3	12/15/2008	
R2847778	828128BKSS002001	FS	soil	1163166	SW6010, SW7471, E160.3	12/15/2008	
R2847778	828128BKSS003001	FS	soil	1163167	SW6010, SW7471, E160.3	12/15/2008	

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	BKSS-001		BKSS-002		BKSS-003		DP-005		DP-005		DP-006		DP-007	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128BKSS001001		828128BKSS002001		828128BKSS003001		828128DP005008		828128DP005012		828128DP006008		828128DP007006	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,1,2,2-Tetrachloroethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,1,2-Trichloroethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,1-Dichloroethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,1-Dichloroethene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,2,4-Trichlorobenzene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,2-Dibromo-3-chloropropane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,2-Dibromoethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,2-Dichlorobenzene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,2-Dichloroethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,2-Dichloropropane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,3-Dichlorobenzene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	1,4-Dichlorobenzene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	2-Butanone	ug/kg							12	U	11	U	12	U	13	U
SW8260	2-Hexanone	ug/kg							12	U	11	U	12	U	13	U
SW8260	4-Methyl-2-pentanone	ug/kg							12	U	11	U	12	U	13	U
SW8260	Acetic acid, methyl ester	ug/kg							12	U	11	U	12	U	13	U
SW8260	Acetone	ug/kg							24	U	22	U	24	U	26	U
SW8260	Benzene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Bromodichloromethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Bromoform	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Bromomethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Carbon disulfide	ug/kg							12	U	0.39	J	12	U	13	U
SW8260	Carbon tetrachloride	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Chlorobenzene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Chlorodibromomethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Chloroethane	ug/kg							12	U	11	U	12	U	13	U
SW8260	Chloroform	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Chloromethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Cis-1,2-Dichloroethene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	cis-1,3-Dichloropropene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Cyclohexane	ug/kg							5.9	U	0.42	J	6	U	6.5	U
SW8260	Dichlorodifluoromethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Ethyl benzene	ug/kg							5.9	U	5.4	U	6	U	0.56	J
SW8260	Isopropylbenzene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Methyl cyclohexane	ug/kg							5.9	U	1.1	J	6	U	6.5	U
SW8260	Methyl Tertbutyl Ether	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Methylene chloride	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	o-Xylene	ug/kg							5.9	U	0.82	J	6	U	6.5	U
SW8260	Styrene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Tetrachloroethene	ug/kg							5.9	U	1.6	J	12		9.2	
SW8260	Toluene	ug/kg							0.58	J	2.2	J	1	J	3.7	J
SW8260	trans-1,2-Dichloroethene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	trans-1,3-Dichloropropene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Trichloroethene	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Trichlorofluoromethane	ug/kg							5.9	U	5.4	U	6	U	6.5	U

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	BKSS-001		BKSS-002		BKSS-003		DP-005		DP-005		DP-006		DP-007	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128BKSS001001		828128BKSS002001		828128BKSS003001		828128DP005008		828128DP005012		828128DP006008		828128DP007006	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	Vinyl chloride	ug/kg							5.9	U	5.4	U	6	U	6.5	U
SW8260	Xylene, m/p	ug/kg							5.9	U	3	J	6	U	1.7	J
SW8270	1,2,4-Trichlorobenzene	ug/kg									380	U				
SW8270	1,2-Dichlorobenzene	ug/kg									380	U				
SW8270	1,3-Dichlorobenzene	ug/kg									380	U				
SW8270	1,4-Dichlorobenzene	ug/kg									380	U				
SW8270	2,4,5-Trichlorophenol	ug/kg									380	U				
SW8270	2,4,6-Trichlorophenol	ug/kg									380	U				
SW8270	2,4-Dichlorophenol	ug/kg									380	U				
SW8270	2,4-Dimethylphenol	ug/kg									380	U				
SW8270	2,4-Dinitrophenol	ug/kg									1900	UJ				
SW8270	2,4-Dinitrotoluene	ug/kg									380	U				
SW8270	2,6-Dinitrotoluene	ug/kg									380	U				
SW8270	2-Chloronaphthalene	ug/kg									380	U				
SW8270	2-Chlorophenol	ug/kg									380	U				
SW8270	2-Methylnaphthalene	ug/kg									380	U				
SW8270	2-Methylphenol	ug/kg									380	U				
SW8270	2-Nitroaniline	ug/kg									1900	U				
SW8270	2-Nitrophenol	ug/kg									380	U				
SW8270	3 and 4 Methylphenol	ug/kg									380	U				
SW8270	3,3`-Dichlorobenzidine	ug/kg									380	U				
SW8270	3-Nitroaniline	ug/kg									1900	U				
SW8270	4,6-Dinitro-2-methylphenol	ug/kg									1900	U				
SW8270	4-Bromophenyl phenyl ether	ug/kg									380	U				
SW8270	4-Chloro-3-methylphenol	ug/kg									380	U				
SW8270	4-Chloroaniline	ug/kg									380	U				
SW8270	4-Chlorophenyl phenyl ether	ug/kg									380	U				
SW8270	4-Nitroaniline	ug/kg									1900	U				
SW8270	4-Nitrophenol	ug/kg									1900	U				
SW8270	Acenaphthene	ug/kg									380	U				
SW8270	Acenaphthylene	ug/kg									380	U				
SW8270	Anthracene	ug/kg									380	U				
SW8270	Benzo(a)anthracene	ug/kg									380	U				
SW8270	Benzo(a)pyrene	ug/kg									380	U				
SW8270	Benzo(b)fluoranthene	ug/kg									380	U				
SW8270	Benzo(ghi)perylene	ug/kg									380	U				
SW8270	Benzo(k)fluoranthene	ug/kg									380	U				
SW8270	Benzyl alcohol	ug/kg									380	U				
SW8270	Bis(2-Chloroethoxy)methane	ug/kg									380	U				
SW8270	Bis(2-Chloroethyl)ether	ug/kg									380	U				
SW8270	Bis(2-Chloroisopropyl)ether	ug/kg									380	U				
SW8270	Bis(2-Ethylhexyl)phthalate	ug/kg									380	U				
SW8270	Butylbenzylphthalate	ug/kg									380	U				
SW8270	Carbazole	ug/kg									380	U				
SW8270	Chrysene	ug/kg									380	U				
SW8270	Di-n-butylphthalate	ug/kg									380	U				
SW8270	Di-n-octylphthalate	ug/kg									380	U				

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	BKSS-001		BKSS-002		BKSS-003		DP-005		DP-005		DP-006		DP-007	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128BKSS001001		828128BKSS002001		828128BKSS003001		828128DP005008		828128DP005012		828128DP006008		828128DP007006	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	Dibenz(a,h)anthracene	ug/kg									380	U				
SW8270	Dibenzofuran	ug/kg									380	U				
SW8270	Diethylphthalate	ug/kg									380	U				
SW8270	Dimethylphthalate	ug/kg									380	U				
SW8270	Fluoranthene	ug/kg									380	U				
SW8270	Fluorene	ug/kg									380	U				
SW8270	Hexachlorobenzene	ug/kg									380	U				
SW8270	Hexachlorobutadiene	ug/kg									380	U				
SW8270	Hexachlorocyclopentadiene	ug/kg									380	U				
SW8270	Hexachloroethane	ug/kg									380	U				
SW8270	Indeno(1,2,3-cd)pyrene	ug/kg									380	U				
SW8270	Isophorone	ug/kg									380	U				
SW8270	N-Nitrosodi-n-propylamine	ug/kg									380	U				
SW8270	N-Nitrosodimethylamine	ug/kg									380	U				
SW8270	N-Nitrosodiphenylamine	ug/kg									380	U				
SW8270	Naphthalene	ug/kg									380	U				
SW8270	Nitrobenzene	ug/kg									380	U				
SW8270	Pentachlorophenol	ug/kg									1900	U				
SW8270	Phenanthrene	ug/kg									380	U				
SW8270	Phenol	ug/kg									380	U				
SW8270	Pyrene	ug/kg									380	U				
SW8081	4,4`-DDD	ug/kg									3.8	U				
SW8081	4,4`-DDE	ug/kg									3.8	U				
SW8081	4,4`-DDT	ug/kg									3.8	U				
SW8081	Aldrin	ug/kg									1.9	U				
SW8081	Alpha-BHC	ug/kg									1.9	U				
SW8081	Alpha-Chlordane	ug/kg									5.8	J				
SW8081	Beta-BHC	ug/kg									1.9	U				
SW8081	Delta-BHC	ug/kg									1.9	U				
SW8081	Dieldrin	ug/kg									16					
SW8081	Endosulfan I	ug/kg									1.9	U				
SW8081	Endosulfan II	ug/kg									3.8	U				
SW8081	Endosulfan sulfate	ug/kg									3.8	U				
SW8081	Endrin	ug/kg									3.8	U				
SW8081	Endrin aldehyde	ug/kg									3.8	U				
SW8081	Endrin ketone	ug/kg									3.8	U				
SW8081	Gamma-BHC/Lindane	ug/kg									1.9	U				
SW8081	Gamma-Chlordane	ug/kg									4.8					
SW8081	Heptachlor.	ug/kg									1.9	U				
SW8081	Heptachlor epoxide	ug/kg									1.9	U				
SW8081	Methoxychlor	ug/kg									19	U				
SW8081	Toxaphene	ug/kg									38	U				
SW8082	Aroclor-1016	ug/kg									38	U				
SW8082	Aroclor-1221	ug/kg									77	U				
SW8082	Aroclor-1232	ug/kg									38	U				
SW8082	Aroclor-1242	ug/kg									38	U				
SW8082	Aroclor-1248	ug/kg									38	U				

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TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	BKSS-001		BKSS-002		BKSS-003		DP-005		DP-005		DP-006		DP-007	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128BKSS001001		828128BKSS002001		828128BKSS003001		828128DP005008		828128DP005012		828128DP006008		828128DP007006	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8082	Aroclor-1254	ug/kg									38	U				
SW8082	Aroclor-1260	ug/kg									38	U				
SW6010	Aluminum	mg/kg	10,300		12,700		10,900				9,750					
SW6010	Antimony	mg/kg	7.6	U	8.1	U	7.5	U			6.9	U				
SW6010	Arsenic	mg/kg	3		2.4		4.8				3.5					
SW6010	Barium	mg/kg	59.9		70.1		64.5				43.1					
SW6010	Beryllium	mg/kg	0.63	U	0.68	U	0.63	U			0.57	U				
SW6010	Cadmium	mg/kg	0.63	U	0.68	U	0.63	U			0.57	U				
SW6010	Calcium	mg/kg	18,400		7,380		8,940				57,700					
SW6010	Chromium	mg/kg	22.4		17.8		16.6				13.5					
SW6010	Cobalt	mg/kg	6.3	U	7		6.3	U			5.7	U				
SW6010	Copper	mg/kg	22.4		17.7		15.5				12.5					
SW6010	Iron	mg/kg	15,800		17,500		16,400				14,700					
SW6010	Lead	mg/kg	100		75.6		65.2				15.1					
SW6010	Magnesium	mg/kg	10,800		4,490		6,000				30,900					
SW6010	Manganese	mg/kg	460		560		486				458					
SW6010	Nickel	mg/kg	11.6		13.9		12.3				11.7					
SW6010	Potassium	mg/kg	1,270		1,340		1,420				1,510					
SW6010	Selenium	mg/kg	1.5		2.1		2.1				1.2					
SW6010	Silver	mg/kg	1.3	U	1.4	U	1.3	U			1.1	U				
SW6010	Sodium	mg/kg	268		135	U	142				359					
SW6010	Thallium	mg/kg	1.3	U	1.4	U	1.3	U			1.1	U				
SW6010	Vanadium	mg/kg	22.7		25.9		24.2				19					
SW6010	Zinc	mg/kg	122		107		200				80.9					
SW7471	Mercury	mg/kg	0.41		0.09		0.07				0.04	U				
E160.3	Percent Solids	PERCENT	77.9		73.3		78		84.6		87.5		84.7		84.6	

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	DP-007		DP-008		DP-009		DP-010		DP-011		DP-011		DP-012	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128DP007008		828128DP008008		828128DP009010		828128DP010008		828128DP011008		828128DP011008DUP		828128DP012008	
		Qc Code	FS		FS		FS		FS		FS		FD		FS	
Analysis	Parameter	Units	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,1,2,2-Tetrachloroethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,1,2-Trichloroethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,1-Dichloroethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,1-Dichloroethene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,2,4-Trichlorobenzene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	UJ	6	UJ	5.5	U
SW8260	1,2-Dibromo-3-chloropropane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,2-Dibromoethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,2-Dichlorobenzene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	UJ	6	UJ	5.5	U
SW8260	1,2-Dichloroethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,2-Dichloropropane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	1,3-Dichlorobenzene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	UJ	6	UJ	5.5	U
SW8260	1,4-Dichlorobenzene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	UJ	6	UJ	5.5	U
SW8260	2-Butanone	ug/kg	11	U	12	U	11	U	12	U	11	U	12	U	11	U
SW8260	2-Hexanone	ug/kg	11	U	12	U	11	U	12	U	11	U	12	U	11	U
SW8260	4-Methyl-2-pentanone	ug/kg	11	U	12	U	11	U	12	U	11	U	12	U	11	U
SW8260	Acetic acid, methyl ester	ug/kg	11	U	12	U	1.4	J	12	U	11	U	12	U	11	U
SW8260	Acetone	ug/kg	23	U	24	U	51	U	24	U	23	U	24	U	23	U
SW8260	Benzene	ug/kg	5.7	U	5.9	U	0.46	J	5.9	U	5.7	U	6	U	5.5	U
SW8260	Bromodichloromethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Bromoform	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Bromomethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Carbon disulfide	ug/kg	11	U	12	U	11	U	12	U	11	U	12	U	11	U
SW8260	Carbon tetrachloride	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Chlorobenzene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Chlorodibromomethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Chloroethane	ug/kg	11	U	12	U	11	U	12	U	11	U	12	U	11	U
SW8260	Chloroform	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Chloromethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Cis-1,2-Dichloroethene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	cis-1,3-Dichloropropene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Cyclohexane	ug/kg	5.7	U	5.9	U	0.58	J	5.9	U	5.7	U	6	U	5.5	U
SW8260	Dichlorodifluoromethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Ethyl benzene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Isopropylbenzene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Methyl cyclohexane	ug/kg	5.7	U	5.9	U	1.1	J	0.64	J	5.7	U	6	U	5.5	U
SW8260	Methyl Tertbutyl Ether	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Methylene chloride	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	o-Xylene	ug/kg	5.7	U	5.9	U	0.68	J	5.9	U	5.7	U	6	U	5.5	U
SW8260	Styrene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Tetrachloroethene	ug/kg	2	J	25		46		1.4	J	9.4		5.7	J	9.3	
SW8260	Toluene	ug/kg	0.52	J	1.8	J	1.8	J	1.2	J	0.56	J	6	U	0.56	J
SW8260	trans-1,2-Dichloroethene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	trans-1,3-Dichloropropene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Trichloroethene	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Trichlorofluoromethane	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	DP-007		DP-008		DP-009		DP-010		DP-011		DP-011		DP-012	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128DP007008		828128DP008008		828128DP009010		828128DP010008		828128DP011008		828128DP011008DUP		828128DP012008	
		Qc Code	FS		FS		FS		FS		FS		FD		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	Vinyl chloride	ug/kg	5.7	U	5.9	U	5.5	U	5.9	U	5.7	U	6	U	5.5	U
SW8260	Xylene, m/p	ug/kg	5.7	U	5.9	U	2.1	J	2	J	5.7	U	6	U	5.5	U
SW8270	1,2,4-Trichlorobenzene	ug/kg	370	U												
SW8270	1,2-Dichlorobenzene	ug/kg	370	U												
SW8270	1,3-Dichlorobenzene	ug/kg	370	U												
SW8270	1,4-Dichlorobenzene	ug/kg	370	U												
SW8270	2,4,5-Trichlorophenol	ug/kg	370	U												
SW8270	2,4,6-Trichlorophenol	ug/kg	370	U												
SW8270	2,4-Dichlorophenol	ug/kg	370	U												
SW8270	2,4-Dimethylphenol	ug/kg	370	U												
SW8270	2,4-Dinitrophenol	ug/kg	1900	UJ												
SW8270	2,4-Dinitrotoluene	ug/kg	370	U												
SW8270	2,6-Dinitrotoluene	ug/kg	370	U												
SW8270	2-Chloronaphthalene	ug/kg	370	U												
SW8270	2-Chlorophenol	ug/kg	370	U												
SW8270	2-Methylnaphthalene	ug/kg	370	U												
SW8270	2-Methylphenol	ug/kg	370	U												
SW8270	2-Nitroaniline	ug/kg	1900	U												
SW8270	2-Nitrophenol	ug/kg	370	U												
SW8270	3 and 4 Methylphenol	ug/kg	370	U												
SW8270	3,3`-Dichlorobenzidine	ug/kg	370	U												
SW8270	3-Nitroaniline	ug/kg	1900	U												
SW8270	4,6-Dinitro-2-methylphenol	ug/kg	1900	U												
SW8270	4-Bromophenyl phenyl ether	ug/kg	370	U												
SW8270	4-Chloro-3-methylphenol	ug/kg	370	U												
SW8270	4-Chloroaniline	ug/kg	370	U												
SW8270	4-Chlorophenyl phenyl ether	ug/kg	370	U												
SW8270	4-Nitroaniline	ug/kg	1900	U												
SW8270	4-Nitrophenol	ug/kg	1900	U												
SW8270	Acenaphthene	ug/kg	370	U												
SW8270	Acenaphthylene	ug/kg	370	U												
SW8270	Anthracene	ug/kg	370	U												
SW8270	Benzo(a)anthracene	ug/kg	370	U												
SW8270	Benzo(a)pyrene	ug/kg	370	U												
SW8270	Benzo(b)fluoranthene	ug/kg	370	U												
SW8270	Benzo(ghi)perylene	ug/kg	370	U												
SW8270	Benzo(k)fluoranthene	ug/kg	370	U												
SW8270	Benzyl alcohol	ug/kg	370	U												
SW8270	Bis(2-Chloroethoxy)methane	ug/kg	370	U												
SW8270	Bis(2-Chloroethyl)ether	ug/kg	370	U												
SW8270	Bis(2-Chloroisopropyl)ether	ug/kg	370	U												
SW8270	Bis(2-Ethylhexyl)phthalate	ug/kg	370	U												
SW8270	Butylbenzylphthalate	ug/kg	370	U												
SW8270	Carbazole	ug/kg	370	U												
SW8270	Chrysene	ug/kg	370	U												
SW8270	Di-n-butylphthalate	ug/kg	370	U												
SW8270	Di-n-octylphthalate	ug/kg	370	U												

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TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	DP-007		DP-008		DP-009		DP-010		DP-011		DP-011		DP-012	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128DP007008		828128DP008008		828128DP009010		828128DP010008		828128DP011008		828128DP011008DUP		828128DP012008	
		Qc Code	FS		FS		FS		FS		FS		FD		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	Dibenz(a,h)anthracene	ug/kg	370	U												
SW8270	Dibenzofuran	ug/kg	370	U												
SW8270	Diethylphthalate	ug/kg	370	U												
SW8270	Dimethylphthalate	ug/kg	370	U												
SW8270	Fluoranthene	ug/kg	370	U												
SW8270	Fluorene	ug/kg	370	U												
SW8270	Hexachlorobenzene	ug/kg	370	U												
SW8270	Hexachlorobutadiene	ug/kg	370	U												
SW8270	Hexachlorocyclopentadiene	ug/kg	370	U												
SW8270	Hexachloroethane	ug/kg	370	U												
SW8270	Indeno(1,2,3-cd)pyrene	ug/kg	370	U												
SW8270	Isophorone	ug/kg	370	U												
SW8270	N-Nitrosodi-n-propylamine	ug/kg	370	U												
SW8270	N-Nitrosodimethylamine	ug/kg	370	U												
SW8270	N-Nitrosodiphenylamine	ug/kg	370	U												
SW8270	Naphthalene	ug/kg	370	U												
SW8270	Nitrobenzene	ug/kg	370	U												
SW8270	Pentachlorophenol	ug/kg	1900	U												
SW8270	Phenanthrene	ug/kg	370	U												
SW8270	Phenol	ug/kg	370	U												
SW8270	Pyrene	ug/kg	370	U												
SW8081	4,4`-DDD	ug/kg	3.7	U												
SW8081	4,4`-DDE	ug/kg	3.7	U												
SW8081	4,4`-DDT	ug/kg	3.7	U												
SW8081	Aldrin	ug/kg	1.9	U												
SW8081	Alpha-BHC	ug/kg	1.9	U												
SW8081	Alpha-Chlordane	ug/kg	1.9	U												
SW8081	Beta-BHC	ug/kg	1.9	U												
SW8081	Delta-BHC	ug/kg	1.9	U												
SW8081	Dieldrin	ug/kg	3.7	U												
SW8081	Endosulfan I	ug/kg	1.9	U												
SW8081	Endosulfan II	ug/kg	3.7	U												
SW8081	Endosulfan sulfate	ug/kg	3.7	U												
SW8081	Endrin	ug/kg	3.7	U												
SW8081	Endrin aldehyde	ug/kg	3.7	U												
SW8081	Endrin ketone	ug/kg	3.7	U												
SW8081	Gamma-BHC/Lindane	ug/kg	1.9	U												
SW8081	Gamma-Chlordane	ug/kg	1.9	U												
SW8081	Heptachlor	ug/kg	1.9	U												
SW8081	Heptachlor epoxide	ug/kg	1.9	U												
SW8081	Methoxychlor	ug/kg	19	U												
SW8081	Toxaphene	ug/kg	37	U												
SW8082	Aroclor-1016	ug/kg	37	U												
SW8082	Aroclor-1221	ug/kg	76	U												
SW8082	Aroclor-1232	ug/kg	37	U												
SW8082	Aroclor-1242	ug/kg	37	U												
SW8082	Aroclor-1248	ug/kg	37	U												

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847778		R2847778		R2847778		R2847778	
		Location	DP-007		DP-008		DP-009		DP-010		DP-011		DP-011		DP-012	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008		12/15/2008	
		Sample ID	828128DP007008		828128DP008008		828128DP009010		828128DP010008		828128DP011008		828128DP011008DUP		828128DP012008	
		Qc Code	FS		FS		FS		FS		FS		FD		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8082	Aroclor-1254	ug/kg	37	U												
SW8082	Aroclor-1260	ug/kg	37	U												
SW6010	Aluminum	mg/kg	5,160													
SW6010	Antimony	mg/kg	6.7	U												
SW6010	Arsenic	mg/kg	1.1	U												
SW6010	Barium	mg/kg	23.7													
SW6010	Beryllium	mg/kg	0.55	U												
SW6010	Cadmium	mg/kg	0.55	U												
SW6010	Calcium	mg/kg	59,000													
SW6010	Chromium	mg/kg	7.5													
SW6010	Cobalt	mg/kg	5.5	U												
SW6010	Copper	mg/kg	8.8													
SW6010	Iron	mg/kg	10,100													
SW6010	Lead	mg/kg	14.7													
SW6010	Magnesium	mg/kg	30,400													
SW6010	Manganese	mg/kg	377													
SW6010	Nickel	mg/kg	7.1													
SW6010	Potassium	mg/kg	955													
SW6010	Selenium	mg/kg	1.1	U												
SW6010	Silver	mg/kg	1.1	U												
SW6010	Sodium	mg/kg	177													
SW6010	Thallium	mg/kg	1.1	U												
SW6010	Vanadium	mg/kg	13													
SW6010	Zinc	mg/kg	157													
SW7471	Mercury	mg/kg	0.04	U												
E160.3	Percent Solids	PERCENT	88.4		88.2		87.4		85		86.2		84.3		90.6	

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

	Sample Delivery Group		R2847778		R2847778		R2847778		R2847827		R2847827		R2847827		R2847827	
		Location	DP-012		DP-013		DP-014		DP-001		DP-002		DP-003		DP-004	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/17/2008		12/18/2008		12/18/2008		12/18/2008	
		Sample ID	828128DP012009		828128DP013006		828128DP014010		828128DP001001		828128DP002009		828128DP003009		828128DP004009	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,1,2,2-Tetrachloroethane	ug/kg	5.8	U	630	UJ	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,1,2-Trichloroethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,1-Dichloroethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,1-Dichloroethene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,2,4-Trichlorobenzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,2-Dibromo-3-chloropropane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,2-Dibromoethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,2-Dichlorobenzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,2-Dichloroethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,2-Dichloropropane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,3-Dichlorobenzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	1,4-Dichlorobenzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	2-Butanone	ug/kg	12	U	1300	U	11	U	11	U	12	U	11	U	11	U
SW8260	2-Hexanone	ug/kg	12	U	1300	U	11	U	11	U	12	U	11	U	11	U
SW8260	4-Methyl-2-pentanone	ug/kg	12	U	1300	U	11	U	11	U	12	U	11	U	11	U
SW8260	Acetic acid, methyl ester	ug/kg	12	U	1300	U	11	U	11	U	12	U	11	U	11	U
SW8260	Acetone	ug/kg	30	U	2500	U	22	U	66	U	160	U	63	U	33	U
SW8260	Benzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	0.41	J	5.7	U
SW8260	Bromodichloromethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Bromoform	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Bromomethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Carbon disulfide	ug/kg	12	U	1300	U	11	U	11	U	12	U	11	U	11	U
SW8260	Carbon tetrachloride	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Chlorobenzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Chlorodibromomethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Chloroethane	ug/kg	12	U	1300	U	11	U	11	U	12	U	11	U	11	U
SW8260	Chloroform	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Chloromethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Cis-1,2-Dichloroethene	ug/kg	5.8	U	630	U	5.6	U	1.4	J	19		0.61	J	5.7	U
SW8260	cis-1,3-Dichloropropene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Cyclohexane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Dichlorodifluoromethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Ethyl benzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Isopropylbenzene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Methyl cyclohexane	ug/kg	0.85	J	630	U	5.6	U	5.3	U	6.1	U	1.4	J	0.57	J
SW8260	Methyl Tertbutyl Ether	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Methylene chloride	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	o-Xylene	ug/kg	0.58	J	630	U	5.6	U	5.3	U	6.1	U	1	J	5.7	U
SW8260	Styrene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Tetrachloroethene	ug/kg	70		35000	D	9.6		18		1500	D	42		27	J
SW8260	Toluene	ug/kg	1.8	J	630	U	1.1	J	0.6	J	1.3	J	3.1	J	0.64	J
SW8260	trans-1,2-Dichloroethene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	trans-1,3-Dichloropropene	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Trichloroethene	ug/kg	0.6	J	630	U	5.6	U	4.8	J	16		0.97	J	5.7	U
SW8260	Trichlorofluoromethane	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U

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TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

	Sample Delivery Group		R2847778		R2847778		R2847778		R2847827		R2847827		R2847827		R2847827	
		Location	DP-012		DP-013		DP-014		DP-001		DP-002		DP-003		DP-004	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/17/2008		12/18/2008		12/18/2008		12/18/2008	
		Sample ID	828128DP012009		828128DP013006		828128DP014010		828128DP001001		828128DP002009		828128DP003009		828128DP004009	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	Vinyl chloride	ug/kg	5.8	U	630	U	5.6	U	5.3	U	6.1	U	5.7	U	5.7	U
SW8260	Xylene, m/p	ug/kg	3	J	630	U	0.89	J	5.3	U	1.7	J	3.4	J	5.7	U
SW8270	1,2,4-Trichlorobenzene	ug/kg													360	U
SW8270	1,2-Dichlorobenzene	ug/kg													360	U
SW8270	1,3-Dichlorobenzene	ug/kg													360	U
SW8270	1,4-Dichlorobenzene	ug/kg													360	U
SW8270	2,4,5-Trichlorophenol	ug/kg													360	U
SW8270	2,4,6-Trichlorophenol	ug/kg													360	U
SW8270	2,4-Dichlorophenol	ug/kg													360	U
SW8270	2,4-Dimethylphenol	ug/kg													360	U
SW8270	2,4-Dinitrophenol	ug/kg													1900	U
SW8270	2,4-Dinitrotoluene	ug/kg													360	U
SW8270	2,6-Dinitrotoluene	ug/kg													360	U
SW8270	2-Chloronaphthalene	ug/kg													360	U
SW8270	2-Chlorophenol	ug/kg													360	U
SW8270	2-Methylnaphthalene	ug/kg													360	U
SW8270	2-Methylphenol	ug/kg													360	U
SW8270	2-Nitroaniline	ug/kg													1900	U
SW8270	2-Nitrophenol	ug/kg													360	U
SW8270	3 and 4 Methylphenol	ug/kg													360	U
SW8270	3,3`-Dichlorobenzidine	ug/kg													360	U
SW8270	3-Nitroaniline	ug/kg													1900	U
SW8270	4,6-Dinitro-2-methylphenol	ug/kg													1900	U
SW8270	4-Bromophenyl phenyl ether	ug/kg													360	U
SW8270	4-Chloro-3-methylphenol	ug/kg													360	U
SW8270	4-Chloroaniline	ug/kg													360	U
SW8270	4-Chlorophenyl phenyl ether	ug/kg													360	U
SW8270	4-Nitroaniline	ug/kg													1900	U
SW8270	4-Nitrophenol	ug/kg													1900	U
SW8270	Acenaphthene	ug/kg													360	U
SW8270	Acenaphthylene	ug/kg													360	U
SW8270	Anthracene	ug/kg													360	U
SW8270	Benzo(a)anthracene	ug/kg													360	U
SW8270	Benzo(a)pyrene	ug/kg													360	U
SW8270	Benzo(b)fluoranthene	ug/kg													360	U
SW8270	Benzo(ghi)perylene	ug/kg													360	U
SW8270	Benzo(k)fluoranthene	ug/kg													360	U
SW8270	Benzyl alcohol	ug/kg													360	U
SW8270	Bis(2-Chloroethoxy)methane	ug/kg													360	U
SW8270	Bis(2-Chloroethyl)ether	ug/kg													360	U
SW8270	Bis(2-Chloroisopropyl)ether	ug/kg													360	U
SW8270	Bis(2-Ethylhexyl)phthalate	ug/kg													360	U
SW8270	Butylbenzylphthalate	ug/kg													360	U
SW8270	Carbazole	ug/kg													360	U
SW8270	Chrysene	ug/kg													360	U
SW8270	Di-n-butylphthalate	ug/kg													360	U
SW8270	Di-n-octylphthalate	ug/kg													360	U

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847827		R2847827		R2847827		R2847827	
		Location	DP-012		DP-013		DP-014		DP-001		DP-002		DP-003		DP-004	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/17/2008		12/18/2008		12/18/2008		12/18/2008	
		Sample ID	828128DP012009		828128DP013006		828128DP014010		828128DP001001		828128DP002009		828128DP003009		828128DP004009	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	Dibenz(a,h)anthracene	ug/kg													360	U
SW8270	Dibenzofuran	ug/kg													360	U
SW8270	Diethylphthalate	ug/kg													360	U
SW8270	Dimethylphthalate	ug/kg													360	U
SW8270	Fluoranthene	ug/kg													360	U
SW8270	Fluorene	ug/kg													360	U
SW8270	Hexachlorobenzene	ug/kg													360	U
SW8270	Hexachlorobutadiene	ug/kg													360	U
SW8270	Hexachlorocyclopentadiene	ug/kg													360	U
SW8270	Hexachloroethane	ug/kg													360	U
SW8270	Indeno(1,2,3-cd)pyrene	ug/kg													360	U
SW8270	Isophorone	ug/kg													360	U
SW8270	N-Nitrosodi-n-propylamine	ug/kg													360	U
SW8270	N-Nitrosodimethylamine	ug/kg													360	U
SW8270	N-Nitrosodiphenylamine	ug/kg													360	U
SW8270	Naphthalene	ug/kg													360	U
SW8270	Nitrobenzene	ug/kg													360	U
SW8270	Pentachlorophenol	ug/kg													1900	U
SW8270	Phenanthrene	ug/kg													360	U
SW8270	Phenol	ug/kg													360	U
SW8270	Pyrene	ug/kg													360	U
SW8081	4,4`-DDD	ug/kg													3.6	U
SW8081	4,4`-DDE	ug/kg													3.6	U
SW8081	4,4`-DDT	ug/kg													3.6	U
SW8081	Aldrin	ug/kg													1.9	U
SW8081	Alpha-BHC	ug/kg													1.9	U
SW8081	Alpha-Chlordane	ug/kg													1.9	U
SW8081	Beta-BHC	ug/kg													1.9	U
SW8081	Delta-BHC	ug/kg													1.9	U
SW8081	Dieldrin	ug/kg													3.6	U
SW8081	Endosulfan I	ug/kg													1.9	U
SW8081	Endosulfan II	ug/kg													3.6	U
SW8081	Endosulfan sulfate	ug/kg													3.6	U
SW8081	Endrin	ug/kg													3.6	U
SW8081	Endrin aldehyde	ug/kg													3.6	U
SW8081	Endrin ketone	ug/kg													3.6	U
SW8081	Gamma-BHC/Lindane	ug/kg													1.9	U
SW8081	Gamma-Chlordane	ug/kg													1.9	U
SW8081	Heptachlor	ug/kg													1.9	U
SW8081	Heptachlor epoxide	ug/kg													1.9	U
SW8081	Methoxychlor	ug/kg													19	U
SW8081	Toxaphene	ug/kg													36	U
SW8082	Aroclor-1016	ug/kg													36	U
SW8082	Aroclor-1221	ug/kg													73	U
SW8082	Aroclor-1232	ug/kg													36	U
SW8082	Aroclor-1242	ug/kg													36	U
SW8082	Aroclor-1248	ug/kg													36	U

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847778		R2847778		R2847778		R2847827		R2847827		R2847827		R2847827	
		Location	DP-012		DP-013		DP-014		DP-001		DP-002		DP-003		DP-004	
		Sample Date	12/15/2008		12/15/2008		12/15/2008		12/17/2008		12/18/2008		12/18/2008		12/18/2008	
		Sample ID	828128DP012009		828128DP013006		828128DP014010		828128DP001001		828128DP002009		828128DP003009		828128DP004009	
		Qc Code	FS		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8082	Aroclor-1254	ug/kg													36	U
SW8082	Aroclor-1260	ug/kg													36	U
SW6010	Aluminum	mg/kg													3,570	J
SW6010	Antimony	mg/kg													6.5	UJ
SW6010	Arsenic	mg/kg													7.2	J
SW6010	Barium	mg/kg													20.4	
SW6010	Beryllium	mg/kg													0.55	U
SW6010	Cadmium	mg/kg													0.55	U
SW6010	Calcium	mg/kg													141,000	
SW6010	Chromium	mg/kg													6.5	
SW6010	Cobalt	mg/kg													5.5	U
SW6010	Copper	mg/kg													6.8	
SW6010	Iron	mg/kg													9,890	J
SW6010	Lead	mg/kg													16.4	
SW6010	Magnesium	mg/kg													72,000	
SW6010	Manganese	mg/kg													479	
SW6010	Nickel	mg/kg													5.4	
SW6010	Potassium	mg/kg													934	
SW6010	Selenium	mg/kg													1.1	U
SW6010	Silver	mg/kg													1.1	U
SW6010	Sodium	mg/kg													292	
SW6010	Thallium	mg/kg													1.1	U
SW6010	Vanadium	mg/kg													9.4	
SW6010	Zinc	mg/kg													40.7	
SW7471	Mercury	mg/kg													0.04	U
E160.3	Percent Solids	PERCENT	85.5		83.4		89.2		87.3		82.5		88.3		91.7	

prepared by BS
reviewed by CSR
5/4/09

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847827		R2847827		R2847827		R2847827		R2847827		R2847827		R2847827	
		Location	DP-004		DP-015		DP-016		DP-016		DP-017		DP-018		DP-019	
		Sample Date	12/18/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008	
		Sample ID	828128DP004009DUP		828128DP015008		828128DP016008		828128DP016009		828128DP017010		828128DP018009		828128DP019011	
		Qc Code	FD		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,1,2,2-Tetrachloroethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,1,2-Trichloroethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,1-Dichloroethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,1-Dichloroethene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,2,4-Trichlorobenzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,2-Dibromo-3-chloropropane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,2-Dibromoethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,2-Dichlorobenzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,2-Dichloroethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,2-Dichloropropane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,3-Dichlorobenzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	1,4-Dichlorobenzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	2-Butanone	ug/kg	11	U	11	U	11	U	1200	U	54000	U	1200	U	11	U
SW8260	2-Hexanone	ug/kg	11	U	11	U	11	U	1200	U	54000	U	1200	U	11	U
SW8260	4-Methyl-2-pentanone	ug/kg	11	U	11	U	11	U	1200	U	54000	U	1200	U	11	U
SW8260	Acetic acid, methyl ester	ug/kg	11	U	11	U	11	U	1200	U	54000	U	1200	U	11	U
SW8260	Acetone	ug/kg	27	U	23	U	22	U	2300	U	110000	U	2400	U	23	U
SW8260	Benzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Bromodichloromethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Bromoform	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Bromomethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Carbon disulfide	ug/kg	11	U	11	U	11	U	1200	U	54000	U	1200	U	11	U
SW8260	Carbon tetrachloride	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Chlorobenzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Chlorodibromomethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Chloroethane	ug/kg	11	U	11	U	11	U	1200	U	54000	U	1200	U	11	U
SW8260	Chloroform	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Chloromethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Cis-1,2-Dichloroethene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	0.49	J
SW8260	cis-1,3-Dichloropropene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Cyclohexane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Dichlorodifluoromethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Ethyl benzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Isopropylbenzene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Methyl cyclohexane	ug/kg	0.52	J	0.42	J	5.6	U	580	U	27000	U	600	U	0.61	J
SW8260	Methyl Tertbutyl Ether	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Methylene chloride	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	o-Xylene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Styrene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Tetrachloroethene	ug/kg	41	J	36		7.7		2800		830000		2800		1.5	J
SW8260	Toluene	ug/kg	0.82	J	1.4	J	0.41	J	580	U	27000	U	600	U	1	J
SW8260	trans-1,2-Dichloroethene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	trans-1,3-Dichloropropene	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Trichloroethene	ug/kg	0.49	J	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Trichlorofluoromethane	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U

prepared by BS
reviewed by CSR
5/4/09

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847827		R2847827		R2847827		R2847827		R2847827		R2847827		R2847827	
		Location	DP-004		DP-015		DP-016		DP-016		DP-017		DP-018		DP-019	
		Sample Date	12/18/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008	
		Sample ID	828128DP004009DUP		828128DP015008		828128DP016008		828128DP016009		828128DP017010		828128DP018009		828128DP019011	
		Qc Code	FD		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	Vinyl chloride	ug/kg	5.5	U	5.6	U	5.6	U	580	U	27000	U	600	U	5.7	U
SW8260	Xylene, m/p	ug/kg	0.65	J	1.6	J	5.6	U	580	U	27000	U	600	U	1.4	J
SW8270	1,2,4-Trichlorobenzene	ug/kg	370	U												
SW8270	1,2-Dichlorobenzene	ug/kg	370	U												
SW8270	1,3-Dichlorobenzene	ug/kg	370	U												
SW8270	1,4-Dichlorobenzene	ug/kg	370	U												
SW8270	2,4,5-Trichlorophenol	ug/kg	370	U												
SW8270	2,4,6-Trichlorophenol	ug/kg	370	U												
SW8270	2,4-Dichlorophenol	ug/kg	370	U												
SW8270	2,4-Dimethylphenol	ug/kg	370	U												
SW8270	2,4-Dinitrophenol	ug/kg	1900	U												
SW8270	2,4-Dinitrotoluene	ug/kg	370	U												
SW8270	2,6-Dinitrotoluene	ug/kg	370	U												
SW8270	2-Chloronaphthalene	ug/kg	370	U												
SW8270	2-Chlorophenol	ug/kg	370	U												
SW8270	2-Methylnaphthalene	ug/kg	370	U												
SW8270	2-Methylphenol	ug/kg	370	U												
SW8270	2-Nitroaniline	ug/kg	1900	U												
SW8270	2-Nitrophenol	ug/kg	370	U												
SW8270	3 and 4 Methylphenol	ug/kg	370	U												
SW8270	3,3`-Dichlorobenzidine	ug/kg	370	U												
SW8270	3-Nitroaniline	ug/kg	1900	U												
SW8270	4,6-Dinitro-2-methylphenol	ug/kg	1900	U												
SW8270	4-Bromophenyl phenyl ether	ug/kg	370	U												
SW8270	4-Chloro-3-methylphenol	ug/kg	370	U												
SW8270	4-Chloroaniline	ug/kg	370	U												
SW8270	4-Chlorophenyl phenyl ether	ug/kg	370	U												
SW8270	4-Nitroaniline	ug/kg	1900	U												
SW8270	4-Nitrophenol	ug/kg	1900	U												
SW8270	Acenaphthene	ug/kg	370	U												
SW8270	Acenaphthylene	ug/kg	370	U												
SW8270	Anthracene	ug/kg	370	U												
SW8270	Benzo(a)anthracene	ug/kg	370	U												
SW8270	Benzo(a)pyrene	ug/kg	370	U												
SW8270	Benzo(b)fluoranthene	ug/kg	370	U												
SW8270	Benzo(ghi)perylene	ug/kg	370	U												
SW8270	Benzo(k)fluoranthene	ug/kg	370	U												
SW8270	Benzyl alcohol	ug/kg	370	U												
SW8270	Bis(2-Chloroethoxy)methane	ug/kg	370	U												
SW8270	Bis(2-Chloroethyl)ether	ug/kg	370	U												
SW8270	Bis(2-Chloroisopropyl)ether	ug/kg	370	U												
SW8270	Bis(2-Ethylhexyl)phthalate	ug/kg	370	U												
SW8270	Butylbenzylphthalate	ug/kg	370	U												
SW8270	Carbazole	ug/kg	370	U												
SW8270	Chrysene	ug/kg	370	U												
SW8270	Di-n-butylphthalate	ug/kg	370	U												
SW8270	Di-n-octylphthalate	ug/kg	370	U												

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847827		R2847827		R2847827		R2847827		R2847827		R2847827		R2847827	
		Location	DP-004		DP-015		DP-016		DP-016		DP-017		DP-018		DP-019	
		Sample Date	12/18/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008	
		Sample ID	828128DP004009DUP		828128DP015008		828128DP016008		828128DP016009		828128DP017010		828128DP018009		828128DP019011	
		Qc Code	FD		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	Dibenz(a,h)anthracene	ug/kg	370	U												
SW8270	Dibenzofuran	ug/kg	370	U												
SW8270	Diethylphthalate	ug/kg	370	U												
SW8270	Dimethylphthalate	ug/kg	370	U												
SW8270	Fluoranthene	ug/kg	370	U												
SW8270	Fluorene	ug/kg	370	U												
SW8270	Hexachlorobenzene	ug/kg	370	U												
SW8270	Hexachlorobutadiene	ug/kg	370	U												
SW8270	Hexachlorocyclopentadiene	ug/kg	370	U												
SW8270	Hexachloroethane	ug/kg	370	U												
SW8270	Indeno(1,2,3-cd)pyrene	ug/kg	370	U												
SW8270	Isophorone	ug/kg	370	U												
SW8270	N-Nitrosodi-n-propylamine	ug/kg	370	U												
SW8270	N-Nitrosodimethylamine	ug/kg	370	U												
SW8270	N-Nitrosodiphenylamine	ug/kg	370	U												
SW8270	Naphthalene	ug/kg	370	U												
SW8270	Nitrobenzene	ug/kg	370	U												
SW8270	Pentachlorophenol	ug/kg	1900	U												
SW8270	Phenanthrene	ug/kg	370	U												
SW8270	Phenol	ug/kg	370	U												
SW8270	Pyrene	ug/kg	370	U												
SW8081	4,4`-DDD	ug/kg	3.7	U												
SW8081	4,4`-DDE	ug/kg	3.7	U												
SW8081	4,4`-DDT	ug/kg	3.7	U												
SW8081	Aldrin	ug/kg	1.9	U												
SW8081	Alpha-BHC	ug/kg	1.9	U												
SW8081	Alpha-Chlordane	ug/kg	1.9	U												
SW8081	Beta-BHC	ug/kg	1.9	U												
SW8081	Delta-BHC	ug/kg	1.9	U												
SW8081	Dieldrin	ug/kg	3.7	U												
SW8081	Endosulfan I	ug/kg	1.9	U												
SW8081	Endosulfan II	ug/kg	3.7	U												
SW8081	Endosulfan sulfate	ug/kg	3.7	U												
SW8081	Endrin	ug/kg	3.7	U												
SW8081	Endrin aldehyde	ug/kg	3.7	U												
SW8081	Endrin ketone	ug/kg	3.7	U												
SW8081	Gamma-BHC/Lindane	ug/kg	1.9	U												
SW8081	Gamma-Chlordane	ug/kg	1.9	U												
SW8081	Heptachlor	ug/kg	1.9	U												
SW8081	Heptachlor epoxide	ug/kg	1.9	U												
SW8081	Methoxychlor	ug/kg	19	U												
SW8081	Toxaphene	ug/kg	37	U												
SW8082	Aroclor-1016	ug/kg	37	U												
SW8082	Aroclor-1221	ug/kg	75	U												
SW8082	Aroclor-1232	ug/kg	37	U												
SW8082	Aroclor-1242	ug/kg	37	U												
SW8082	Aroclor-1248	ug/kg	37	U												

TABLE 2
2009 GEOPROBE SOIL AND GROUNDWATER SAMPLING
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NY

		Sample Delivery Group	R2847827		R2847827		R2847827		R2847827		R2847827		R2847827		R2847827	
		Location	DP-004		DP-015		DP-016		DP-016		DP-017		DP-018		DP-019	
		Sample Date	12/18/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008		12/16/2008	
		Sample ID	828128DP004009DUP		828128DP015008		828128DP016008		828128DP016009		828128DP017010		828128DP018009		828128DP019011	
		Qc Code	FD		FS		FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8082	Aroclor-1254	ug/kg	37	U												
SW8082	Aroclor-1260	ug/kg	37	U												
SW6010	Aluminum	mg/kg	2,460	J												
SW6010	Antimony	mg/kg	6.7	UJ												
SW6010	Arsenic	mg/kg	10.1	J												
SW6010	Barium	mg/kg	16													
SW6010	Beryllium	mg/kg	0.56	U												
SW6010	Cadmium	mg/kg	0.56	U												
SW6010	Calcium	mg/kg	168,000													
SW6010	Chromium	mg/kg	5.5													
SW6010	Cobalt	mg/kg	5.6	U												
SW6010	Copper	mg/kg	7.3													
SW6010	Iron	mg/kg	9,730	J												
SW6010	Lead	mg/kg	17.1													
SW6010	Magnesium	mg/kg	90,000													
SW6010	Manganese	mg/kg	521													
SW6010	Nickel	mg/kg	4.5	U												
SW6010	Potassium	mg/kg	731													
SW6010	Selenium	mg/kg	1.1	U												
SW6010	Silver	mg/kg	1.1	U												
SW6010	Sodium	mg/kg	319													
SW6010	Thallium	mg/kg	1.1	U												
SW6010	Vanadium	mg/kg	7.2													
SW6010	Zinc	mg/kg	30.4													
SW7471	Mercury	mg/kg	0.03	U												
E160.3	Percent Solids	PERCENT	89.2		86.2		89.9		88.9		90		88.3		87.9	

DATA USABILITY SUMMARY REPORT
2009 GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

1.0 INTRODUCTION

Groundwater samples were collected at the Former Speedy's Cleaners Site (Site) in Brighton, New York in January and February 2009 and submitted for off-site laboratory analyses. Samples were analyzed by Columbia Analytical Services located in Rochester, New York. Results were reported in the following Sample Delivery Groups (SDGs): R0900311, R0900339, and R0900550. A listing of samples included in this Data Usability Summary Report is presented in Table 1. A summary of the analytical results is presented in Table 2. Samples were analyzed for one or more of the following methods:

- Volatile Organic Compounds (VOCs) by USEPA Method 8260B
- Semi Volatile Organic Compounds (SVOCs) by Method 8270C
- Pesticides by Method 8081
- Polychlorinated biphenyls (PCBs) by Method 8082
- Total Metals by USEPA Method 6010B
- Total Mercury by USEPA Method 7471
- Total, Carbonate, and Bicarbonate Alkalinity by Method SM 2320B
- Total Suspended Solids (TSS) by USEPA Method E160.2
- Total Phosphorous as P (TPO4) by USEPA Method E365.1
- Biochemical Oxygen Demand (BOD) by USEPA Method E405.1
- Chemical Oxygen Demand (COD) by USEPA Method E410.4
- Total Organic Carbon (TOC) by Method 415.1
- Sulfide by Method 376.1
- Chloride, nitrate, and nitrite by Method 300
- Methane, Ethane, and Ethene by Method RSK-175
- Carbon Dioxide by calculation method SM 4500
- pH by Method 150.1
- Hardness as CaCO3 by Method SM2340C
- Chlorine Demand by Method SM16 409A

Deliverables for the off-site laboratory analyses included a Category B deliverable as defined in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocols (NYSDEC, 2005) for SDGs R0900311, R0900550, and R0900339.

A project chemist review was completed based on NYSDEC Division of Environmental Remediation guidance for Data Usability Summary Reports (NYSDEC, 2002) for SDGs R0900311, R0900550, and R0900339. Laboratory QC limits were used during the data evaluation unless noted otherwise. The project chemist review included evaluations of sample collection, data package completeness, holding times, QC data (blanks, instrument calibrations, duplicates, surrogate recovery, and spike recovery), data transcription, electronic data reporting, calculations, and data qualification.

The following laboratory or data validation qualifiers are used in the final data presentation.

U = target analyte is not detected at the reported detection limit
J = concentration is estimated
UJ = target analyte is not detected at the reported detection limit and is estimated
D = result is reported from a diluted analysis
B (metals) = concentration is between the MDL and reporting limit

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

2.0 VOLATILE ORGANIC COMPOUNDS (VOCS)

VOC - Initial and Continuing Calibration Standards

SDG R0900311

The continuing calibration analyzed on January 30, 2009 had a percent difference greater than the control limit of 20 for chloromethane (21). Chloromethane was qualified estimated (UJ) in the following samples: 828128-MW-2021045R1 and 828128-MW-206S010R1.

The continuing calibration analyzed on February 1, 2009 had a percent difference greater than the control limit of 20 for chloromethane (22), carbon tetrachloride (-20.2), and 1,2-dibromo-3-chloropropane (21.2). Chloromethane, carbon tetrachloride, and 1,2-dibromo-3-chloropropane were qualified estimated (UJ) in the following samples: 828128-MW-210015R1, 828128-MW-211015R1, and 828128-MW-212010R1.

SDG R0900550

The continuing calibration analyzed on February 14, 2009 had a percent difference greater than the control limit of 20 for 1,2-dibromoethane (29) and 1,2-dibromo-3-chloropropane (38). 1,2-Dibromoethane and 1,2-dibromo-3-chloropropane were qualified estimated (UJ) in the sample 828128-MW-201017R1.

VOC – Lab Control Spikes

SDG R0900550

The lab control spike associated with sample 828128-MW-201017R1 had a low recovery for 1,2-dibromoethane (69) below the lower control limit of 70. 1,2-Dibromoethane was qualified estimated (UJ) in sample 828128-MW-201017R1.

VOC – Sample Reporting

SDG R0900311

Sample 828128-MW-203S012R1 was re-analyzed at a dilution (2X) due to concentrations above the calibration range of the instrument in the initial un-diluted analysis. Sample results reported in the final data set are a combination of the two analytical runs.

The following samples were analyzed at a dilution due to elevated levels of target compounds:

Field Sample ID	Dilution Factor
828128-MW-210015R1	2.5
828128-MW-212010R1	50

SDG R0900339

The following samples were re-analyzed at a dilution due to concentrations of cis-1,2-dichloroethene above the calibration range of the instrument in the initial un-diluted analysis. Sample results reported in the final data set are a combination of the two analytical runs.

Field Sample ID	Dilution Factor
828128-HA-114012R1	5
828128-HA-119013R1	2
828128-HA-119013R1D	2

The following samples were analyzed at a dilution due to elevated levels of target compounds:

Field Sample ID	Dilution Factor
828128-DEC-WELL014R1	5
828128-HA-106014R1	2
828128-HA-115155R1	2
828128-MW-202012R1D	2.5
828128-MW-202012R1	2.5

The laboratory noted in the SDG case narrative that non target hydrocarbons co-eluted with the cyclohexane peak on several samples. The laboratory estimated this interference and subtracted the interference when possible. During validation, professional judgment was made to estimate positive detection of cyclohexane due to the possible impact from the co-eluting hydrocarbons. Cyclohexane was qualified estimated (J) in the following samples:

Field Sample ID	Compound	Concentration (µg/L)	Final Qualifier
828128-DEC-WELL014R1	Cyclohexane	190	J
828128-HA-106014R1	Cyclohexane	150	J
828128-HA-114012R1	Cyclohexane	23	J
828128-HA-115155R1	Cyclohexane	150	J
828128-HA-122012R1	Cyclohexane	30	J

SDG R0900550

Sample 828128-MW-201017R1was re-analyzed at a dilution (2X) due to concentrations above the calibration range of the instrument in the initial un-diluted analysis. Sample results reported in the final data set are a combination of the two analytical runs.

3.0 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS)

SVOC - Initial and Continuing Calibration Standards

SDG R0900311

The initial calibration analyzed on January 29, 2009 had a percent relative standard deviation (%RSD) between the relative response factors (RRF) that was greater than the control limit of 15 for hexachlorocyclopentadiene (29) and 2,4-Dinitrophenol (18). Hexachlorocyclopentadiene and 2,4-dinitrophenol were qualified estimated (UJ) in the following samples: 828128-MW-206017R1 and 828128-MW-212010R1.

SDG R0900339

The initial calibration analyzed on February 2, 2009 had a percent relative standard deviation (%RSD) between the relative response factors (RRF) that was greater than the control limit of 15 for 2,4-Dinitrophenol (33). 2,4-Dinitrophenol was qualified estimated (UJ) in sample 828128-MW-202012R1.

SVOC – Laboratory Control Spikes

SDG R0900311

The laboratory control spike (LCS) and laboratory control spike duplicate (LCSD) extracted and analyzed with samples in SDG R0900311 had recoveries for hexachlorobutadiene (LSC and LCSD = 15%) and hexachloroethane (LSC and LCSD = 14%) above the laboratory limits of 13 and 11 percent, respectively. There were no detections for theses compounds in the following associated samples: 828128-MW-206017R1 and 828128-MW-212010R1. Even though the recoveries were above the laboratories lower control limit, professional judgment was used to qualify hexachlorobutadiene and hexachloroethane as estimated (UJ) at the reporting limit due to the low recoveries.

SDG R0900339

The laboratory control spike (LCS) and laboratory control spike duplicate (LCSD) extracted and analyzed with sample 828128-MW-202012R1 had recoveries for hexachlorobutadiene (LSC and LCSD = 15%) above the laboratory limit of 13. There was no detection for this compound in sample 828128-MW-202012R1. Even though the recoveries were above the laboratories lower control limit, professional judgment was used to qualify hexachlorobutadiene as estimated (UJ) at the reporting limit due to the low recoveries.

SVOC - Matrix Spike Matrix (MS) and Matrix Spike Duplicate (MSD) Analysis

SDG R0900311

Groundwater sample 828128-MW-206017R1 was submitted as a MS/MSD sample. 1,2-Dichlorobenzene (22) and 1,4-dichlorobenzene (21) had percent recoveries below the lower laboratory control limit of 23 percent. 1,2-Dichlorobenzene and 1,4-dichlorobenzene were not detected in the un-spike field sample (828128-MW-206017R1) and were qualified estimated (UJ) at the reporting limit.

4.0 METALS

Metals - Serial Dilution Analysis

SDG R0900311

A serial dilution analysis was performed by the lab on sample 828128-MW-206017R1. Aluminum and zinc were reported as non-detect in the original un-diluted analysis and reported as detections in the 5X serial dilution analysis (see table below).

Sample ID	Analyte	Un-diluted Concentration (µg/L)	Lab Qualifier	5x Dilution Concentration (µg/L)
828128-MW-206017R1	Aluminum	100	U	501
828128-MW-206017R1	Zinc	20	U	187

Aluminum and zinc were qualified as estimated in all groundwater samples reported in SDG R0900311.

The percent difference between the un-diluted and diluted concentration for iron (17.5) was above the control limit of 10. Iron was qualified estimated (J) in all groundwater samples in SDG R0900311.

Reference:

New York State Department of Environmental Conservation (NYSDEC), 2005. "Analytical Services Protocols"; July 2005.

New York State Department of Environmental Conservation (NYSDEC), 2002. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; Draft DER-10; Division of Environmental Remediation; December 2002.

Data Validator: Tige Cunningham

Date: 4/7/09

Reviewed by Chris Ricardi, NRCC-EAC
Quality Assurance Officer

Chris Ricardi

Date: 5/6/09

TABLE 1
DATA USABILITY SUMMARY REPORT
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					Class	VOCs	SVOCs	Pesticides	PCBs	Metals	Metals	MNA	MNA	MNA
					Parameter	NA	NA	NA	NA	NA	NA	Alkalinity	Carbon Dioxide	Chloride
					Analysis Method	SW8260	SW8270	SW8081	SW8082	SW6010	SW7470	A2320B_B	SM 4500	E300
					Fraction	N	N	N	N	T	T	N	N	N
SDG	**Media**	**Location**	**Sample ID**	**Sample Date**	**Qc Code**									
R0900311	GW	HA-118	828128-HA-118012R1	1/20/2009	FS	X								
R0900311	GW	MW-202I	828128-MW-202I045R1	1/21/2009	FS	X				X	X	X	X	X
R0900311	GW	MW-203S	828128-MW-203S012R1	1/20/2009	FS	X				X	X	X	X	X
R0900311	GW	MW-205S	828128-MW-205S012R1	1/20/2009	FS	X				X	X	X	X	X
R0900311	GW	MW-206	828128-MW-206017R1	1/20/2009	FS	X	X	X	X	X	X	X	X	X
R0900311	GW	MW-206S	828128-MW-206S010R1	1/20/2009	FS	X								
R0900311	GW	MW-210	828128-MW-210015R1	1/19/2009	FS	X								
R0900311	GW	MW-211	828128-MW-211015R1	1/20/2009	FS	X						X	X	X
R0900311	GW	MW-212	828128-MW-212010R1	1/21/2009	FS	X	X	X	X			X	X	X
R0900311	BW	QC	TB-001	1/19/2009	TB	X								
R0900339	GW	DEC-WELL	828128-DEC-WELL014R1	1/21/2009	FS	X								
R0900339	GW	HA-105	828128-HA-105012R1	1/21/2009	FS	X								
R0900339	GW	HA-106	828128-HA-106014R1	1/21/2009	FS	X								
R0900339	GW	HA-112	828128-HA-112015R1	1/21/2009	FS	X								
R0900339	GW	HA-114	828128-HA-114012R1	1/21/2009	FS	X				X	X	X	X	X
R0900339	GW	HA-115	828128-HA-115155R1	1/21/2009	FS	X								
R0900339	GW	HA-117	828128-HA-117014R1	1/21/2009	FS	X								
R0900339	GW	HA-119	828128-HA-119013R1	1/21/2009	FS	X				X	X	X	X	X
R0900339	GW	HA-119	828128-HA-119013R1D	1/21/2009	FD	X				X	X	X	X	X
R0900339	GW	HA-122	828128-HA-122012R1	1/21/2009	FS	X								
R0900339	GW	HA-123	828128-HA-123155R1	1/21/2009	FS	X								
R0900339	GW	MW-202	828128-MW-202012R1	1/22/2009	FS	X	X	X	X	X	X			
R0900339	GW	MW-202	828128-MW-202012R1D	1/22/2009	FD	X	X	X	X	X	X			
R0900339	GW	MW-204S	828128-MW-204S012R1	1/21/2009	FS	X								
R0900339	GW	MW-207S	828128-MW-207S012R1	1/21/2009	FS	X								
R0900339	GW	MW-209S	828128-MW-209S014R1	1/21/2009	FS	X								
R0900339	GW	MW-212	828128-MW-212010R1	1/21/2009	FS					X	X			
R0900339	BW	QC	TB-002	1/21/2009	TB	X								
R0900339	BW	QC	TB-003	1/22/2009	TB	X								
R0900550	GW	MW-201	828128-MW-201017R1	2/2/2009	FS	X				X		X	X	X

TABLE 1
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					Class	MNA	MNA	MNA	MNA	MNA	MNA	MNA
					Parameter	gases	Nitrate	Nitrite	pH	Sulfate	Sulfide	TOC
					Analysis Method	RSK 175	E300	E353.2	E150.1	E300	E376.1	E415.1
					Fraction	N	N	N	N	N	N	N
SDG	**Media**	**Location**	**Sample ID**	**Sample Date**	**Qc Code**							
R0900311	GW	HA-118	828128-HA-118012R1	1/20/2009	FS							
R0900311	GW	MW-202I	828128-MW-202I045R1	1/21/2009	FS	X	X	X	X	X	X	X
R0900311	GW	MW-203S	828128-MW-203S012R1	1/20/2009	FS	X	X	X	X	X	X	X
R0900311	GW	MW-205S	828128-MW-205S012R1	1/20/2009	FS	X	X	X	X	X	X	X
R0900311	GW	MW-206	828128-MW-206017R1	1/20/2009	FS	X	X	X	X	X	X	X
R0900311	GW	MW-206S	828128-MW-206S010R1	1/20/2009	FS							
R0900311	GW	MW-210	828128-MW-210015R1	1/19/2009	FS							
R0900311	GW	MW-211	828128-MW-211015R1	1/20/2009	FS	X	X	X	X	X	X	X
R0900311	GW	MW-212	828128-MW-212010R1	1/21/2009	FS	X	X	X	X	X	X	X
R0900311	BW	QC	TB-001	1/19/2009	TB							
R0900339	GW	DEC-WELL	828128-DEC-WELL014R1	1/21/2009	FS							
R0900339	GW	HA-105	828128-HA-105012R1	1/21/2009	FS							
R0900339	GW	HA-106	828128-HA-106014R1	1/21/2009	FS							
R0900339	GW	HA-112	828128-HA-112015R1	1/21/2009	FS							
R0900339	GW	HA-114	828128-HA-114012R1	1/21/2009	FS	X	X	X	X	X	X	X
R0900339	GW	HA-115	828128-HA-115155R1	1/21/2009	FS							
R0900339	GW	HA-117	828128-HA-117014R1	1/21/2009	FS							
R0900339	GW	HA-119	828128-HA-119013R1	1/21/2009	FS	X	X	X	X	X	X	X
R0900339	GW	HA-119	828128-HA-119013R1D	1/21/2009	FD	X	X	X	X	X	X	X
R0900339	GW	HA-122	828128-HA-122012R1	1/21/2009	FS							
R0900339	GW	HA-123	828128-HA-123155R1	1/21/2009	FS							
R0900339	GW	MW-202	828128-MW-202012R1	1/22/2009	FS							
R0900339	GW	MW-202	828128-MW-202012R1D	1/22/2009	FD							
R0900339	GW	MW-204S	828128-MW-204S012R1	1/21/2009	FS							
R0900339	GW	MW-207S	828128-MW-207S012R1	1/21/2009	FS							
R0900339	GW	MW-209S	828128-MW-209S014R1	1/21/2009	FS							
R0900339	GW	MW-212	828128-MW-212010R1	1/21/2009	FS							
R0900339	BW	QC	TB-002	1/21/2009	TB							
R0900339	BW	QC	TB-003	1/22/2009	TB							
R0900550	GW	MW-201	828128-MW-201017R1	2/2/2009	FS	X	X	X	X	X	X	X

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
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FORMER SPEEDY'S CLEANERS SITE
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Sample Delivery Group			R0900311		R0900311		R0900311		R0900311		R0900311	
Location			HA-118		MW-202I		MW-203S		MW-205S		MW-206	
Sample Date			1/20/2009		1/21/2009		1/20/2009		1/20/2009		1/20/2009	
Sample ID			828128-HA-118012R1		828128-MW-202I045R1		828128-MW-203S012R1		828128-MW-205S012R1		828128-MW-206017R1	
Qc Code			FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,1,2,2-Tetrachloroethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethan	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,1,2-Trichloroethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,1-Dichloroethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,1-Dichloroethene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,2,4-Trichlorobenzene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dibromo-3-chloropropane	ug/l	2	U	2	U	2	U	2	U	2	U
SW8260	1,2-Dibromoethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dichlorobenzene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dichloroethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dichloropropane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,3-Dichlorobenzene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	1,4-Dichlorobenzene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	2-Butanone	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260	2-Hexanone	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260	4-Methyl-2-pentanone	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260	Acetic acid, methyl ester	ug/l	10	U	10	U	10	U	10	U	10	U
SW8260	Acetone	ug/l	10	U	10	U	10	U	10	U	10	U
SW8260	Benzene	ug/l	1	U	1	U	1	U	1	U	0.95	J
SW8260	Bromodichloromethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Bromoform	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Bromomethane	ug/l	2	U	2	U	2	U	2	U	2	U
SW8260	Carbon disulfide	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Carbon tetrachloride	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Chlorobenzene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Chlorodibromomethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Chloroethane	ug/l	2	U	2	U	2	U	2	U	2	U
SW8260	Chloroform	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Chloromethane	ug/l	2	U	2	UJ	2	U	2	U	2	U
SW8260	Cis-1,2-Dichloroethene	ug/l	1.3		1	U	190	D	0.84	J	100	
SW8260	cis-1,3-Dichloropropene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Cyclohexane	ug/l	1	U	1	U	1	U	1	U	15	
SW8260	Dichlorodifluoromethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Ethyl benzene	ug/l	1	U	1	U	1	U	1	U	22	
SW8260	Isopropylbenzene	ug/l	1	U	1	U	1	U	1	U	0.86	J
SW8260	Methyl cyclohexane	ug/l	1	U	1	U	1	U	1	U	2.3	
SW8260	Methyl Tertbutyl Ether	ug/l	4.6		6.4		66		1	U	1	U
SW8260	Methylene chloride	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	o-Xylene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Styrene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Tetrachloroethene	ug/l	0.8	J	1	U	1		1.1		18	
SW8260	Toluene	ug/l	1	U	1	U	1	U	1	U	3	
SW8260	trans-1,2-Dichloroethene	ug/l	1	U	1	U	0.97	J	1	U	0.97	J
SW8260	trans-1,3-Dichloropropene	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Trichloroethene	ug/l	1	U	1	U	1	U	1	U	4.5	
SW8260	Trichlorofluoromethane	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260	Vinyl chloride	ug/l	1	U	1	U	34		1	U	6.9	
SW8260	Xylene, m/p	ug/l	2	U	2	U	2	U	2	U	0.57	J
SW8270	1,2,4-Trichlorobenzene	ug/l									9.4	U
SW8270	1,2-Dichlorobenzene	ug/l									9.4	UJ
SW8270	1,3-Dichlorobenzene	ug/l									9.4	U
SW8270	1,4-Dichlorobenzene	ug/l									9.4	UJ
SW8270	2,4,5-Trichlorophenol	ug/l									9.4	U
SW8270	2,4,6-Trichlorophenol	ug/l									9.4	U
SW8270	2,4-Dichlorophenol	ug/l									9.4	U
SW8270	2,4-Dimethylphenol	ug/l									9.4	U
SW8270	2,4-Dinitrophenol	ug/l									47	UJ
SW8270	2,4-Dinitrotoluene	ug/l									9.4	U
SW8270	2,6-Dinitrotoluene	ug/l									9.4	U
SW8270	2-Chloronaphthalene	ug/l									9.4	U
SW8270	2-Chlorophenol	ug/l									9.4	U
SW8270	2-Methylnaphthalene	ug/l									9.4	U
SW8270	2-Methylphenol	ug/l									9.4	U
SW8270	2-Nitroaniline	ug/l									47	U
SW8270	2-Nitrophenol	ug/l									9.4	U
SW8270	3,3`-Dichlorobenzidine	ug/l									9.4	U
SW8270	3-Nitroaniline	ug/l									47	U
SW8270	4,6-Dinitro-2-methylphenol	ug/l									47	U
SW8270	4-Bromophenyl phenyl ether	ug/l									9.4	U
SW8270	4-Chloro-3-methylphenol	ug/l									9.4	U
SW8270	4-Chloroaniline	ug/l									9.4	U
SW8270	4-Chlorophenyl phenyl ether	ug/l									9.4	U
SW8270	4-Methylphenol	ug/l									9.4	U
SW8270	4-Nitroaniline	ug/l									47	U

TABLE 2 - RESULTS SUMMARY
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		Sample Delivery Group	R0900311		R0900311		R0900311		R0900311		R0900311	
		Location	HA-118		MW-202I		MW-203S		MW-205S		MW-206	
		Sample Date	1/20/2009		1/21/2009		1/20/2009		1/20/2009		1/20/2009	
		Sample ID	828128-HA-118012R1		828128-MW-202I045R1		828128-MW-203S012R1		828128-MW-205S012R1		828128-MW-206017R1	
		Qc Code	FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	4-Nitrophenol	ug/l									47	U
SW8270	Acenaphthene	ug/l									9.4	U
SW8270	Acenaphthylene	ug/l									9.4	U
SW8270	Anthracene	ug/l									9.4	U
SW8270	Benzo(a)anthracene	ug/l									9.4	U
SW8270	Benzo(a)pyrene	ug/l									9.4	U
SW8270	Benzo(b)fluoranthene	ug/l									9.4	U
SW8270	Benzo(ghi)perylene	ug/l									9.4	U
SW8270	Benzo(k)fluoranthene	ug/l									9.4	U
SW8270	Benzyl alcohol	ug/l									9.4	U
SW8270	Bis(2-Chloroethoxy)methane	ug/l									9.4	U
SW8270	Bis(2-Chloroethyl)ether	ug/l									9.4	U
SW8270	Bis(2-Chloroisopropyl)ether	ug/l									9.4	U
SW8270	Bis(2-Ethylhexyl)phthalate	ug/l									9.4	U
SW8270	Butylbenzylphthalate	ug/l									9.4	U
SW8270	Carbazole	ug/l									9.4	U
SW8270	Chrysene	ug/l									9.4	U
SW8270	Di-n-butylphthalate	ug/l									9.4	U
SW8270	Di-n-octylphthalate	ug/l									9.4	U
SW8270	Dibenz(a,h)anthracene	ug/l									9.4	U
SW8270	Dibenzofuran	ug/l									9.4	U
SW8270	Diethylphthalate	ug/l									9.4	U
SW8270	Dimethylphthalate	ug/l									9.4	U
SW8270	Fluoranthene	ug/l									9.4	U
SW8270	Fluorene	ug/l									9.4	U
SW8270	Hexachlorobenzene	ug/l									9.4	U
SW8270	Hexachlorobutadiene	ug/l									9.4	UJ
SW8270	Hexachlorocyclopentadiene	ug/l									9.4	UJ
SW8270	Hexachloroethane	ug/l									9.4	UJ
SW8270	Indeno(1,2,3-cd)pyrene	ug/l									9.4	U
SW8270	Isophorone	ug/l									9.4	U
SW8270	N-Nitrosodi-n-propylamine	ug/l									9.4	U
SW8270	N-Nitrosodimethylamine	ug/l									9.4	U
SW8270	N-Nitrosodiphenylamine	ug/l									9.4	U
SW8270	Naphthalene	ug/l									9.4	U
SW8270	Nitrobenzene	ug/l									9.4	U
SW8270	Pentachlorophenol	ug/l									47	U
SW8270	Phenanthrene	ug/l									9.4	U
SW8270	Phenol	ug/l									9.4	U
SW8270	Pyrene	ug/l									9.4	U
SW8081	4,4`-DDD	ug/l									0.094	U
SW8081	4,4`-DDE	ug/l									0.094	U
SW8081	4,4`-DDT	ug/l									0.094	U
SW8081	Aldrin	ug/l									0.047	U
SW8081	Alpha-BHC	ug/l									0.047	U
SW8081	Alpha-Chlordane	ug/l									0.047	U
SW8081	Beta-BHC	ug/l									0.047	U
SW8081	Delta-BHC	ug/l									0.047	U
SW8081	Dieldrin	ug/l									0.094	U
SW8081	Endosulfan I	ug/l									0.047	U
SW8081	Endosulfan II	ug/l									0.094	U
SW8081	Endosulfan sulfate	ug/l									0.094	U
SW8081	Endrin	ug/l									0.094	U
SW8081	Endrin aldehyde	ug/l									0.094	U
SW8081	Endrin ketone	ug/l									0.094	U
SW8081	Gamma-BHC/Lindane	ug/l									0.047	U
SW8081	Gamma-Chlordane	ug/l									0.047	U
SW8081	Heptachlor	ug/l									0.047	U
SW8081	Heptachlor epoxide	ug/l									0.047	U
SW8081	Methoxychlor	ug/l									0.47	U
SW8081	Toxaphene	ug/l									0.95	U
SW8082	Aroclor-1016	ug/l									0.95	U
SW8082	Aroclor-1221	ug/l									1.9	U
SW8082	Aroclor-1232	ug/l									0.95	U
SW8082	Aroclor-1242	ug/l									0.95	U
SW8082	Aroclor-1248	ug/l									0.95	U
SW8082	Aroclor-1254	ug/l									0.95	U
SW8082	Aroclor-1260	ug/l									0.95	U
SW6010	Aluminum	ug/l			100	UJ	311	J	100	UJ	100	UJ
SW6010	Antimony	ug/l			60	U	60	U	60	U	60	U
SW6010	Arsenic	ug/l			10	U	10	U	10	U	10	U
SW6010	Barium	ug/l			97.8		64.8		78.7		153	
SW6010	Beryllium	ug/l			5	U	5	U	5	U	5	U
SW6010	Cadmium	ug/l			5	U	5	U	5	U	5	U
SW6010	Calcium	ug/l			178000		81200		137000		106000	

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900311		R0900311		R0900311		R0900311		R0900311	
		Location	HA-118		MW-202I		MW-203S		MW-205S		MW-206	
		Sample Date	1/20/2009		1/21/2009		1/20/2009		1/20/2009		1/20/2009	
		Sample ID	828128-HA-118012R1		828128-MW-202I045R1		828128-MW-203S012R1		828128-MW-205S012R1		828128-MW-206017R1	
		Qc Code	FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW6010	Chromium	ug/l			10	U	10	U	10	U	10	U
SW6010	Cobalt	ug/l			50	U	50	U	50	U	50	U
SW6010	Copper	ug/l			20	U	20	U	20	U	20	U
SW6010	Iron	ug/l			100	UJ	281	J	100	UJ	1300	J
SW6010	Lead	ug/l			5	U	5	U	5	U	5	U
SW6010	Magnesium	ug/l			48900		27200		44100		28800	
SW6010	Manganese	ug/l			29.9		29.9		10	U	105	
SW6010	Nickel	ug/l			40	U	40	U	40	U	40	U
SW6010	Potassium	ug/l			3250		2000	U	2000	U	2000	U
SW6010	Selenium	ug/l			10	U	10	U	10	U	10	U
SW6010	Silver	ug/l			10	U	10	U	10	U	10	U
SW6010	Sodium	ug/l			147000		46100		140000		30900	
SW6010	Thallium	ug/l			10	U	10	U	10	U	10	U
SW6010	Vanadium	ug/l			50	U	50	U	50	U	50	U
SW6010	Zinc	ug/l			20	UJ	20	UJ	245	J	20	UJ
SW7470	Mercury	ug/l			0.2	U	0.2	U	0.2	U	0.2	U
E300_C	Chloride	mg/l			254		73.8		283		43.7	
E300_S	Sulfate	mg/l			290		34.3		70		71.6	
A2320B_B	Alkalinity, Bicarbonate	mg/l			310		282		379		340	
A2320B_C	Carbonate Alkalinity, as CaCO3	mg/l			20	U	20	U	20	U	20	U
A2320B_T	Total Alkalinity, as CaCO3	mg/l			310		282		379		340	
E300_N	Nitrate as N	mg/l			0.5	U	0.56		1.53		0.5	U
E353.2	Nitrite as N	mg/l			0.01	U	0.01	U	0.01	U	0.01	U
E376.1	Sulfide	mg/l			1	U	1	U	1	U	1	U
E415.1	Total Organic Carbon	mg/l			2.1		1.4		1.9		2.1	
SM 4500-CO2 D	Carbon Dioxide	mg/l			340		270		385		333	
RSK 175	Ethane	ug/l			1	U	1	U	1	U	1	U
RSK 175	Ethene	ug/l			1	U	6.7		1	U	1	U
RSK 175	Methane	ug/l			47		9.2		4.5		2	U
E150.1	pH	ph units			7.02		7.38		7.17		7.31	

Notes:
ug/l = micorgram per liter
mg/l = milligrams per liter
Qualifiers
U = not detected at the reporting limit
J = estimated concentration
QC Code
FS = Field Sample, FD = Field Duplicate
TB = Trip Blank, EB = Equipment Rinse blank

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900311		R0900311		R0900311		R0900311		R0900311	
		Location	MW-206S		MW-210		MW-211		MW-212		QC	
		Sample Date	1/20/2009		1/19/2009		1/20/2009		1/21/2009		1/19/2009	
		Sample ID	828128-MW-206S010R1		828128-MW-210015R1		828128-MW-211015R1		828128-MW-212010R1		TB-001	
		Qc Code	FS		FS		FS		FS		TB	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,1,2,2-Tetrachloroethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethan	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,1,2-Trichloroethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,1-Dichloroethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,1-Dichloroethene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,2,4-Trichlorobenzene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,2-Dibromo-3-chloropropane	ug/l	2	U	5	UJ	2	UJ	100	UJ	2	U
SW8260	1,2-Dibromoethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,2-Dichlorobenzene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,2-Dichloroethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,2-Dichloropropane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,3-Dichlorobenzene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	1,4-Dichlorobenzene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	2-Butanone	ug/l	5	U	13	U	5	U	250	U	5	U
SW8260	2-Hexanone	ug/l	5	U	13	U	5	U	250	U	5	U
SW8260	4-Methyl-2-pentanone	ug/l	5	U	13	U	5	U	250	U	5	U
SW8260	Acetic acid, methyl ester	ug/l	10	U	25	U	10	U	500	U	10	U
SW8260	Acetone	ug/l	10	U	25	U	10	U	500	U	10	U
SW8260	Benzene	ug/l	1	U	1.1	J	0.97	J	50	U	1	U
SW8260	Bromodichloromethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Bromoform	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Bromomethane	ug/l	2	U	5	U	2	U	100	U	2	U
SW8260	Carbon disulfide	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Carbon tetrachloride	ug/l	1	U	2.5	UJ	1	UJ	50	UJ	1	U
SW8260	Chlorobenzene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Chlorodibromomethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Chloroethane	ug/l	2	U	5	U	2	U	100	U	2	U
SW8260	Chloroform	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Chloromethane	ug/l	2	UJ	5	UJ	2	UJ	100	UJ	2	U
SW8260	Cis-1,2-Dichloroethene	ug/l	59		380		170		130		1	U
SW8260	cis-1,3-Dichloropropene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Cyclohexane	ug/l	4.8		19		8		50	U	1	U
SW8260	Dichlorodifluoromethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Ethyl benzene	ug/l	1.2		14		8.4		50	U	1	U
SW8260	Isopropylbenzene	ug/l	1	U	2.1	J	0.43	J	50	U	1	U
SW8260	Methyl cyclohexane	ug/l	1	U	7.9		1.4		50	U	1	U
SW8260	Methyl Tertbutyl Ether	ug/l	1	U	1.3	J	0.75	J	50	U	1	U
SW8260	Methylene chloride	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	o-Xylene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Styrene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Tetrachloroethene	ug/l	9.7		230		18		7600		1	U
SW8260	Toluene	ug/l	1	U	2.9		1	U	50	U	1	U
SW8260	trans-1,2-Dichloroethene	ug/l	1	U	3.1		1.1		50	U	1	U
SW8260	trans-1,3-Dichloropropene	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Trichloroethene	ug/l	3.1		81		13		170		1	U
SW8260	Trichlorofluoromethane	ug/l	1	U	2.5	U	1	U	50	U	1	U
SW8260	Vinyl chloride	ug/l	2.9		41		12		50	U	1	U
SW8260	Xylene, m/p	ug/l	2	U	0.8	J	0.36	J	100	U	2	U
SW8270	1,2,4-Trichlorobenzene	ug/l							9.4	U		
SW8270	1,2-Dichlorobenzene	ug/l							9.4	U		
SW8270	1,3-Dichlorobenzene	ug/l							9.4	U		
SW8270	1,4-Dichlorobenzene	ug/l							9.4	U		
SW8270	2,4,5-Trichlorophenol	ug/l							9.4	U		
SW8270	2,4,6-Trichlorophenol	ug/l							9.4	U		
SW8270	2,4-Dichlorophenol	ug/l							9.4	U		
SW8270	2,4-Dimethylphenol	ug/l							9.4	U		
SW8270	2,4-Dinitrophenol	ug/l							47	UJ		
SW8270	2,4-Dinitrotoluene	ug/l							9.4	U		
SW8270	2,6-Dinitrotoluene	ug/l							9.4	U		
SW8270	2-Chloronaphthalene	ug/l							9.4	U		
SW8270	2-Chlorophenol	ug/l							9.4	U		
SW8270	2-Methylnaphthalene	ug/l							9.4	U		
SW8270	2-Methylphenol	ug/l							9.4	U		
SW8270	2-Nitroaniline	ug/l							47	U		
SW8270	2-Nitrophenol	ug/l							9.4	U		
SW8270	3,3`-Dichlorobenzidine	ug/l							9.4	U		
SW8270	3-Nitroaniline	ug/l							47	U		
SW8270	4,6-Dinitro-2-methylphenol	ug/l							47	U		
SW8270	4-Bromophenyl phenyl ether	ug/l							9.4	U		
SW8270	4-Chloro-3-methylphenol	ug/l							9.4	U		
SW8270	4-Chloroaniline	ug/l							9.4	U		
SW8270	4-Chlorophenyl phenyl ether	ug/l							9.4	U		
SW8270	4-Methylphenol	ug/l							9.4	U		
SW8270	4-Nitroaniline	ug/l							47	U		

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
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FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900311		R0900311		R0900311		R0900311		R0900311	
		Location	MW-206S		MW-210		MW-211		MW-212		QC	
		Sample Date	1/20/2009		1/19/2009		1/20/2009		1/21/2009		1/19/2009	
		Sample ID	828128-MW-206S010R1		828128-MW-210015R1		828128-MW-211015R1		828128-MW-212010R1		TB-001	
		Qc Code	FS		FS		FS		FS		TB	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	4-Nitrophenol	ug/l							47	U		
SW8270	Acenaphthene	ug/l							9.4	U		
SW8270	Acenaphthylene	ug/l							9.4	U		
SW8270	Anthracene	ug/l							9.4	U		
SW8270	Benzo(a)anthracene	ug/l							9.4	U		
SW8270	Benzo(a)pyrene	ug/l							9.4	U		
SW8270	Benzo(b)fluoranthene	ug/l							9.4	U		
SW8270	Benzo(ghi)perylene	ug/l							9.4	U		
SW8270	Benzo(k)fluoranthene	ug/l							9.4	U		
SW8270	Benzyl alcohol	ug/l							9.4	U		
SW8270	Bis(2-Chloroethoxy)methane	ug/l							9.4	U		
SW8270	Bis(2-Chloroethyl)ether	ug/l							9.4	U		
SW8270	Bis(2-Chloroisopropyl)ether	ug/l							9.4	U		
SW8270	Bis(2-Ethylhexyl)phthalate	ug/l							9.4	U		
SW8270	Butylbenzylphthalate	ug/l							9.4	U		
SW8270	Carbazole	ug/l							9.4	U		
SW8270	Chrysene	ug/l							9.4	U		
SW8270	Di-n-butylphthalate	ug/l							9.4	U		
SW8270	Di-n-octylphthalate	ug/l							9.4	U		
SW8270	Dibenz(a,h)anthracene	ug/l							9.4	U		
SW8270	Dibenzofuran	ug/l							9.4	U		
SW8270	Diethylphthalate	ug/l							9.4	U		
SW8270	Dimethylphthalate	ug/l							9.4	U		
SW8270	Fluoranthene	ug/l							9.4	U		
SW8270	Fluorene	ug/l							9.4	U		
SW8270	Hexachlorobenzene	ug/l							9.4	U		
SW8270	Hexachlorobutadiene	ug/l							9.4	UJ		
SW8270	Hexachlorocyclopentadiene	ug/l							9.4	UJ		
SW8270	Hexachloroethane	ug/l							9.4	UJ		
SW8270	Indeno(1,2,3-cd)pyrene	ug/l							9.4	U		
SW8270	Isophorone	ug/l							9.4	U		
SW8270	N-Nitrosodi-n-propylamine	ug/l							9.4	U		
SW8270	N-Nitrosodimethylamine	ug/l							9.4	U		
SW8270	N-Nitrosodiphenylamine	ug/l							9.4	U		
SW8270	Naphthalene	ug/l							9.4	U		
SW8270	Nitrobenzene	ug/l							9.4	U		
SW8270	Pentachlorophenol	ug/l							47	U		
SW8270	Phenanthrene	ug/l							9.4	U		
SW8270	Phenol	ug/l							9.4	U		
SW8270	Pyrene	ug/l							9.4	U		
SW8081	4,4`-DDD	ug/l							0.094	U		
SW8081	4,4`-DDE	ug/l							0.094	U		
SW8081	4,4`-DDT	ug/l							0.094	U		
SW8081	Aldrin	ug/l							0.047	U		
SW8081	Alpha-BHC	ug/l							0.047	U		
SW8081	Alpha-Chlordane	ug/l							0.047	U		
SW8081	Beta-BHC	ug/l							0.047	U		
SW8081	Delta-BHC	ug/l							0.047	U		
SW8081	Dieldrin	ug/l							0.094	U		
SW8081	Endosulfan I	ug/l							0.047	U		
SW8081	Endosulfan II	ug/l							0.094	U		
SW8081	Endosulfan sulfate	ug/l							0.094	U		
SW8081	Endrin	ug/l							0.094	U		
SW8081	Endrin aldehyde	ug/l							0.094	U		
SW8081	Endrin ketone	ug/l							0.094	U		
SW8081	Gamma-BHC/Lindane	ug/l							0.047	U		
SW8081	Gamma-Chlordane	ug/l							0.047	U		
SW8081	Heptachlor	ug/l							0.047	U		
SW8081	Heptachlor epoxide	ug/l							0.047	U		
SW8081	Methoxychlor	ug/l							0.47	U		
SW8081	Toxaphene	ug/l							0.95	U		
SW8082	Aroclor-1016	ug/l							0.95	U		
SW8082	Aroclor-1221	ug/l							1.9	U		
SW8082	Aroclor-1232	ug/l							0.95	U		
SW8082	Aroclor-1242	ug/l							0.95	U		
SW8082	Aroclor-1248	ug/l							0.95	U		
SW8082	Aroclor-1254	ug/l							0.95	U		
SW8082	Aroclor-1260	ug/l							0.95	U		
SW6010	Aluminum	ug/l										
SW6010	Antimony	ug/l										
SW6010	Arsenic	ug/l										
SW6010	Barium	ug/l										
SW6010	Beryllium	ug/l										
SW6010	Cadmium	ug/l										
SW6010	Calcium	ug/l										

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900311		R0900311		R0900311		R0900311		R0900311	
		Location	MW-206S		MW-210		MW-211		MW-212		QC	
		Sample Date	1/20/2009		1/19/2009		1/20/2009		1/21/2009		1/19/2009	
		Sample ID	828128-MW-206S010R1		828128-MW-210015R1		828128-MW-211015R1		828128-MW-212010R1		TB-001	
		Qc Code	FS		FS		FS		FS		TB	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW6010	Chromium	ug/l										
SW6010	Cobalt	ug/l										
SW6010	Copper	ug/l										
SW6010	Iron	ug/l										
SW6010	Lead	ug/l										
SW6010	Magnesium	ug/l										
SW6010	Manganese	ug/l										
SW6010	Nickel	ug/l										
SW6010	Potassium	ug/l										
SW6010	Selenium	ug/l										
SW6010	Silver	ug/l										
SW6010	Sodium	ug/l										
SW6010	Thallium	ug/l										
SW6010	Vanadium	ug/l										
SW6010	Zinc	ug/l										
SW7470	Mercury	ug/l										
E300_C	Chloride	mg/l					70.1		254			
E300_S	Sulfate	mg/l					57.3		58.7			
A2320B_B	Alkalinity, Bicarbonate	mg/l					321		350			
A2320B_C	Carbonate Alkalinity, as CaCO3	mg/l					20	U	20	U		
A2320B_T	Total Alkalinity, as CaCO3	mg/l					321		350			
E300_N	Nitrate as N	mg/l					0.5	U	0.8			
E353.2	Nitrite as N	mg/l					0.01	U	0.01	U		
E376.1	Sulfide	mg/l					1	U	1	U		
E415.1	Total Organic Carbon	mg/l					2		1.4			
SM 4500-CO2 D	Carbon Dioxide	mg/l					312		352			
RSK 175	Ethane	ug/l					1	U	1	U		
RSK 175	Ethene	ug/l					1	U	1	U		
RSK 175	Methane	ug/l					6		6.7			
E150.1	pH	ph units					7.34		7.2			

Notes:
ug/l = micorgram per liter
mg/l = milligrams per liter
Qualifiers
U = not detected at the reporting limit
J = estimated concentration
QC Code
FS = Field Sample, FD = Field Duplicate
TB = Trip Blank, EB = Equipment Rinse blank

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900339		R0900339		R0900339		R0900339		R0900339	
		Location	DEC-WELL		HA-105		HA-106		HA-112		HA-114	
		Sample Date	1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/21/2009	
		Sample ID	828128-DEC-WELL014R1		828128-HA-105012R1		828128-HA-106014R1		828128-HA-112015R1		828128-HA-114012R1	
		Qc Code	FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,1,2,2-Tetrachloroethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethan	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,1,2-Trichloroethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,1-Dichloroethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,1-Dichloroethene	ug/l	5	U	1	U	2	U	1	U	0.83	J
SW8260	1,2,4-Trichlorobenzene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,2-Dibromo-3-chloropropane	ug/l	10	U	2	U	4	U	2	U	2	U
SW8260	1,2-Dibromoethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,2-Dichlorobenzene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,2-Dichloroethane	ug/l	7.5		1	U	2	U	1	U	1	U
SW8260	1,2-Dichloropropane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,3-Dichlorobenzene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	1,4-Dichlorobenzene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	2-Butanone	ug/l	25	U	5	U	10	U	5	U	5	U
SW8260	2-Hexanone	ug/l	25	U	5	U	10	U	5	U	5	U
SW8260	4-Methyl-2-pentanone	ug/l	25	U	5	U	10	U	5	U	5	U
SW8260	Acetic acid, methyl ester	ug/l	50	U	10	U	20	U	10	U	10	U
SW8260	Acetone	ug/l	50	U	10	U	20	U	10	U	10	U
SW8260	Benzene	ug/l	210		6.5		18		1	U	2.1	
SW8260	Bromodichloromethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Bromoform	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Bromomethane	ug/l	10	U	2	U	4	U	2	U	2	U
SW8260	Carbon disulfide	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Carbon tetrachloride	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Chlorobenzene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Chlorodibromomethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Chloroethane	ug/l	10	U	2	U	4	U	2	U	2	U
SW8260	Chloroform	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Chloromethane	ug/l	10	U	2	U	4	U	2	U	2	U
SW8260	Cis-1,2-Dichloroethene	ug/l	5	U	1	U	2	U	1	U	540	D
SW8260	cis-1,3-Dichloropropene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Cyclohexane	ug/l	190	J	1	U	150	J	1	U	23	J
SW8260	Dichlorodifluoromethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Ethyl benzene	ug/l	590		17		320		1	U	27	
SW8260	Isopropylbenzene	ug/l	40		6		24		1	U	3.7	
SW8260	Methyl cyclohexane	ug/l	75		1.1		87		1	U	5.9	
SW8260	Methyl Tertbutyl Ether	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Methylene chloride	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	o-Xylene	ug/l	570		1	U	140		1	U	1	U
SW8260	Styrene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Tetrachloroethene	ug/l	5	U	1	U	2	U	1	U	11	
SW8260	Toluene	ug/l	900		1	U	69		1	U	6.9	
SW8260	trans-1,2-Dichloroethene	ug/l	5	U	1	U	2	U	1	U	9.3	
SW8260	trans-1,3-Dichloropropene	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Trichloroethene	ug/l	5	U	1	U	2	U	1	U	6.8	
SW8260	Trichlorofluoromethane	ug/l	5	U	1	U	2	U	1	U	1	U
SW8260	Vinyl chloride	ug/l	5	U	1	U	2	U	1	U	160	
SW8260	Xylene, m/p	ug/l	1400		2	U	500		2	U	1.7	J
SW8270	1,2,4-Trichlorobenzene	ug/l										
SW8270	1,2-Dichlorobenzene	ug/l										
SW8270	1,3-Dichlorobenzene	ug/l										
SW8270	1,4-Dichlorobenzene	ug/l										
SW8270	2,4,5-Trichlorophenol	ug/l										
SW8270	2,4,6-Trichlorophenol	ug/l										
SW8270	2,4-Dichlorophenol	ug/l										
SW8270	2,4-Dimethylphenol	ug/l										
SW8270	2,4-Dinitrophenol	ug/l										
SW8270	2,4-Dinitrotoluene	ug/l										
SW8270	2,6-Dinitrotoluene	ug/l										
SW8270	2-Chloronaphthalene	ug/l										
SW8270	2-Chlorophenol	ug/l										
SW8270	2-Methylnaphthalene	ug/l										
SW8270	2-Methylphenol	ug/l										
SW8270	2-Nitroaniline	ug/l										
SW8270	2-Nitrophenol	ug/l										
SW8270	3,3`-Dichlorobenzidine	ug/l										
SW8270	3-Nitroaniline	ug/l										
SW8270	4,6-Dinitro-2-methylphenol	ug/l										
SW8270	4-Bromophenyl phenyl ether	ug/l										
SW8270	4-Chloro-3-methylphenol	ug/l										
SW8270	4-Chloroaniline	ug/l										
SW8270	4-Chlorophenyl phenyl ether	ug/l										
SW8270	4-Methylphenol	ug/l										
SW8270	4-Nitroaniline	ug/l										

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900339		R0900339		R0900339		R0900339		R0900339	
		Location	DEC-WELL		HA-105		HA-106		HA-112		HA-114	
		Sample Date	1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/21/2009	
		Sample ID	828128-DEC-WELL014R1		828128-HA-105012R1		828128-HA-106014R1		828128-HA-112015R1		828128-HA-114012R1	
		Qc Code	FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	4-Nitrophenol	ug/l										
SW8270	Acenaphthene	ug/l										
SW8270	Acenaphthylene	ug/l										
SW8270	Anthracene	ug/l										
SW8270	Benzo(a)anthracene	ug/l										
SW8270	Benzo(a)pyrene	ug/l										
SW8270	Benzo(b)fluoranthene	ug/l										
SW8270	Benzo(ghi)perylene	ug/l										
SW8270	Benzo(k)fluoranthene	ug/l										
SW8270	Benzyl alcohol	ug/l										
SW8270	Bis(2-Chloroethoxy)methane	ug/l										
SW8270	Bis(2-Chloroethyl)ether	ug/l										
SW8270	Bis(2-Chloroisopropyl)ether	ug/l										
SW8270	Bis(2-Ethylhexyl)phthalate	ug/l										
SW8270	Butylbenzylphthalate	ug/l										
SW8270	Carbazole	ug/l										
SW8270	Chrysene	ug/l										
SW8270	Di-n-butylphthalate	ug/l										
SW8270	Di-n-octylphthalate	ug/l										
SW8270	Dibenz(a,h)anthracene	ug/l										
SW8270	Dibenzofuran	ug/l										
SW8270	Diethylphthalate	ug/l										
SW8270	Dimethylphthalate	ug/l										
SW8270	Fluoranthene	ug/l										
SW8270	Fluorene	ug/l										
SW8270	Hexachlorobenzene	ug/l										
SW8270	Hexachlorobutadiene	ug/l										
SW8270	Hexachlorocyclopentadiene	ug/l										
SW8270	Hexachloroethane	ug/l										
SW8270	Indeno(1,2,3-cd)pyrene	ug/l										
SW8270	Isophorone	ug/l										
SW8270	N-Nitrosodi-n-propylamine	ug/l										
SW8270	N-Nitrosodimethylamine	ug/l										
SW8270	N-Nitrosodiphenylamine	ug/l										
SW8270	Naphthalene	ug/l										
SW8270	Nitrobenzene	ug/l										
SW8270	Pentachlorophenol	ug/l										
SW8270	Phenanthrene	ug/l										
SW8270	Phenol	ug/l										
SW8270	Pyrene	ug/l										
SW8081	4,4`-DDD	ug/l										
SW8081	4,4`-DDE	ug/l										
SW8081	4,4`-DDT	ug/l										
SW8081	Aldrin	ug/l										
SW8081	Alpha-BHC	ug/l										
SW8081	Alpha-Chlordane	ug/l										
SW8081	Beta-BHC	ug/l										
SW8081	Delta-BHC	ug/l										
SW8081	Dieldrin	ug/l										
SW8081	Endosulfan I	ug/l										
SW8081	Endosulfan II	ug/l										
SW8081	Endosulfan sulfate	ug/l										
SW8081	Endrin	ug/l										
SW8081	Endrin aldehyde	ug/l										
SW8081	Endrin ketone	ug/l										
SW8081	Gamma-BHC/Lindane	ug/l										
SW8081	Gamma-Chlordane	ug/l										
SW8081	Heptachlor	ug/l										
SW8081	Heptachlor epoxide	ug/l										
SW8081	Methoxychlor	ug/l										
SW8081	Toxaphene	ug/l										
SW8082	Aroclor-1016	ug/l										
SW8082	Aroclor-1221	ug/l										
SW8082	Aroclor-1232	ug/l										
SW8082	Aroclor-1242	ug/l										
SW8082	Aroclor-1248	ug/l										
SW8082	Aroclor-1254	ug/l										
SW8082	Aroclor-1260	ug/l										
SW6010	Aluminum	ug/l									100	U
SW6010	Antimony	ug/l									60	U
SW6010	Arsenic	ug/l									10	U
SW6010	Barium	ug/l									80.9	
SW6010	Beryllium	ug/l									5	U
SW6010	Cadmium	ug/l									5	U
SW6010	Calcium	ug/l									68800	

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

Sample Delivery Group			R0900339		R0900339		R0900339		R0900339		R0900339	
Location			DEC-WELL		HA-105		HA-106		HA-112		HA-114	
Sample Date			1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/21/2009	
Sample ID			828128-DEC-WELL014R1		828128-HA-105012R1		828128-HA-106014R1		828128-HA-112015R1		828128-HA-114012R1	
Qc Code			FS		FS		FS		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW6010	Chromium	ug/l									10	U
SW6010	Cobalt	ug/l									50	U
SW6010	Copper	ug/l									20	U
SW6010	Iron	ug/l									913	
SW6010	Lead	ug/l									5	U
SW6010	Magnesium	ug/l									19000	
SW6010	Manganese	ug/l									138	
SW6010	Nickel	ug/l									40	U
SW6010	Potassium	ug/l									2000	U
SW6010	Selenium	ug/l									10	U
SW6010	Silver	ug/l									10	U
SW6010	Sodium	ug/l									70100	
SW6010	Thallium	ug/l									10	U
SW6010	Vanadium	ug/l									50	U
SW6010	Zinc	ug/l									24.5	
SW7470	Mercury	ug/l									0.2	U
E300_C	Chloride	mg/l									131	
E300_S	Sulfate	mg/l									12.9	
A2320B_B	Alkalinity, Bicarbonate	mg/l									225	
A2320B_C	Carbonate Alkalinity, as CaCO3	mg/l									20	U
A2320B_T	Total Alkalinity, as CaCO3	mg/l									225	
E300_N	Nitrate as N	mg/l									0.5	U
E353.2	Nitrite as N	mg/l									0.01	U
E376.1	Sulfide	mg/l									1	U
E415.1	Total Organic Carbon	mg/l									2.8	
SM 4500-CO2 D	Carbon Dioxide	mg/l									220	
RSK 175	Ethane	ug/l									3.6	
RSK 175	Ethene	ug/l									12	
RSK 175	Methane	ug/l									33	
E150.1	pH	ph units									7.31	

Notes:
ug/l = micorgram per liter
mg/l = milligrams per liter
Qualifiers
U = not detected at the reporting limit
J = estimated concentration
QC Code
FS = Field Sample, FD = Field Duplicate
TB = Trip Blank, EB = Equipment Rinse blank

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900339		R0900339		R0900339		R0900339		R0900339	
		Location	HA-115		HA-117		HA-119		HA-119		HA-122	
		Sample Date	1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/21/2009	
		Sample ID	828128-HA-115155R1		828128-HA-117014R1		828128-HA-119013R1		828128-HA-119013R1D		828128-HA-122012R1	
		Qc Code	FS		FS		FS		FD		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,1,2,2-Tetrachloroethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethan	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,1,2-Trichloroethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,1-Dichloroethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,1-Dichloroethene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,2,4-Trichlorobenzene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dibromo-3-chloropropane	ug/l	4	U	2	U	2	U	2	U	2	U
SW8260	1,2-Dibromoethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dichlorobenzene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dichloroethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,2-Dichloropropane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,3-Dichlorobenzene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	1,4-Dichlorobenzene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	2-Butanone	ug/l	10	U	5	U	5	U	5	U	5	U
SW8260	2-Hexanone	ug/l	10	U	5	U	5	U	5	U	5	U
SW8260	4-Methyl-2-pentanone	ug/l	10	U	5	U	5	U	5	U	5	U
SW8260	Acetic acid, methyl ester	ug/l	20	U	10	U	10	U	10	U	10	U
SW8260	Acetone	ug/l	20	U	10	U	10	U	10	U	10	U
SW8260	Benzene	ug/l	16		1	U	0.74	J	0.78	J	30	
SW8260	Bromodichloromethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Bromoform	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Bromomethane	ug/l	4	U	2	U	2	U	2	U	2	U
SW8260	Carbon disulfide	ug/l	2	U	1	U	0.45	J	0.44	J	1	U
SW8260	Carbon tetrachloride	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Chlorobenzene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Chlorodibromomethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Chloroethane	ug/l	4	U	2	U	2	U	2	U	2	U
SW8260	Chloroform	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Chloromethane	ug/l	4	U	2	U	2	U	2	U	2	U
SW8260	Cis-1,2-Dichloroethene	ug/l	2	U	1	U	180	D	190	D	43	
SW8260	cis-1,3-Dichloropropene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Cyclohexane	ug/l	150	J	1	U	1	U	1	U	30	J
SW8260	Dichlorodifluoromethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Ethyl benzene	ug/l	360		1	U	0.29	J	0.27	J	66	
SW8260	Isopropylbenzene	ug/l	36		1	U	1	U	1	U	6.6	
SW8260	Methyl cyclohexane	ug/l	75		1	U	1	U	1	U	14	
SW8260	Methyl Tertbutyl Ether	ug/l	2	U	3.7		2.4		2.4		1	U
SW8260	Methylene chloride	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	o-Xylene	ug/l	220		1	U	1	U	1	U	35	
SW8260	Styrene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Tetrachloroethene	ug/l	2	U	6.7		1	U	1	U	1	U
SW8260	Toluene	ug/l	74		1	U	0.56	J	0.59	J	10	
SW8260	trans-1,2-Dichloroethene	ug/l	2	U	1	U	2		2.2		1.1	
SW8260	trans-1,3-Dichloropropene	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Trichloroethene	ug/l	2	U	1	U	0.95	J	0.96	J	1	U
SW8260	Trichlorofluoromethane	ug/l	2	U	1	U	1	U	1	U	1	U
SW8260	Vinyl chloride	ug/l	2	U	1	U	56		55		69	
SW8260	Xylene, m/p	ug/l	360		2	U	2	U	2	U	49	
SW8270	1,2,4-Trichlorobenzene	ug/l										
SW8270	1,2-Dichlorobenzene	ug/l										
SW8270	1,3-Dichlorobenzene	ug/l										
SW8270	1,4-Dichlorobenzene	ug/l										
SW8270	2,4,5-Trichlorophenol	ug/l										
SW8270	2,4,6-Trichlorophenol	ug/l										
SW8270	2,4-Dichlorophenol	ug/l										
SW8270	2,4-Dimethylphenol	ug/l										
SW8270	2,4-Dinitrophenol	ug/l										
SW8270	2,4-Dinitrotoluene	ug/l										
SW8270	2,6-Dinitrotoluene	ug/l										
SW8270	2-Chloronaphthalene	ug/l										
SW8270	2-Chlorophenol	ug/l										
SW8270	2-Methylnaphthalene	ug/l										
SW8270	2-Methylphenol	ug/l										
SW8270	2-Nitroaniline	ug/l										
SW8270	2-Nitrophenol	ug/l										
SW8270	3,3`-Dichlorobenzidine	ug/l										
SW8270	3-Nitroaniline	ug/l										
SW8270	4,6-Dinitro-2-methylphenol	ug/l										
SW8270	4-Bromophenyl phenyl ether	ug/l										
SW8270	4-Chloro-3-methylphenol	ug/l										
SW8270	4-Chloroaniline	ug/l										
SW8270	4-Chlorophenyl phenyl ether	ug/l										
SW8270	4-Methylphenol	ug/l										
SW8270	4-Nitroaniline	ug/l										

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900339		R0900339		R0900339		R0900339		R0900339	
		Location	HA-115		HA-117		HA-119		HA-119		HA-122	
		Sample Date	1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/21/2009	
		Sample ID	828128-HA-115155R1		828128-HA-117014R1		828128-HA-119013R1		828128-HA-119013R1D		828128-HA-122012R1	
		Qc Code	FS		FS		FS		FD		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	4-Nitrophenol	ug/l										
SW8270	Acenaphthene	ug/l										
SW8270	Acenaphthylene	ug/l										
SW8270	Anthracene	ug/l										
SW8270	Benzo(a)anthracene	ug/l										
SW8270	Benzo(a)pyrene	ug/l										
SW8270	Benzo(b)fluoranthene	ug/l										
SW8270	Benzo(ghi)perylene	ug/l										
SW8270	Benzo(k)fluoranthene	ug/l										
SW8270	Benzyl alcohol	ug/l										
SW8270	Bis(2-Chloroethoxy)methane	ug/l										
SW8270	Bis(2-Chloroethyl)ether	ug/l										
SW8270	Bis(2-Chloroisopropyl)ether	ug/l										
SW8270	Bis(2-Ethylhexyl)phthalate	ug/l										
SW8270	Butylbenzylphthalate	ug/l										
SW8270	Carbazole	ug/l										
SW8270	Chrysene	ug/l										
SW8270	Di-n-butylphthalate	ug/l										
SW8270	Di-n-octylphthalate	ug/l										
SW8270	Dibenz(a,h)anthracene	ug/l										
SW8270	Dibenzofuran	ug/l										
SW8270	Diethylphthalate	ug/l										
SW8270	Dimethylphthalate	ug/l										
SW8270	Fluoranthene	ug/l										
SW8270	Fluorene	ug/l										
SW8270	Hexachlorobenzene	ug/l										
SW8270	Hexachlorobutadiene	ug/l										
SW8270	Hexachlorocyclopentadiene	ug/l										
SW8270	Hexachloroethane	ug/l										
SW8270	Indeno(1,2,3-cd)pyrene	ug/l										
SW8270	Isophorone	ug/l										
SW8270	N-Nitrosodi-n-propylamine	ug/l										
SW8270	N-Nitrosodimethylamine	ug/l										
SW8270	N-Nitrosodiphenylamine	ug/l										
SW8270	Naphthalene	ug/l										
SW8270	Nitrobenzene	ug/l										
SW8270	Pentachlorophenol	ug/l										
SW8270	Phenanthrene	ug/l										
SW8270	Phenol	ug/l										
SW8270	Pyrene	ug/l										
SW8081	4,4`-DDD	ug/l										
SW8081	4,4`-DDE	ug/l										
SW8081	4,4`-DDT	ug/l										
SW8081	Aldrin	ug/l										
SW8081	Alpha-BHC	ug/l										
SW8081	Alpha-Chlordane	ug/l										
SW8081	Beta-BHC	ug/l										
SW8081	Delta-BHC	ug/l										
SW8081	Dieldrin	ug/l										
SW8081	Endosulfan I	ug/l										
SW8081	Endosulfan II	ug/l										
SW8081	Endosulfan sulfate	ug/l										
SW8081	Endrin	ug/l										
SW8081	Endrin aldehyde	ug/l										
SW8081	Endrin ketone	ug/l										
SW8081	Gamma-BHC/Lindane	ug/l										
SW8081	Gamma-Chlordane	ug/l										
SW8081	Heptachlor	ug/l										
SW8081	Heptachlor epoxide	ug/l										
SW8081	Methoxychlor	ug/l										
SW8081	Toxaphene	ug/l										
SW8082	Aroclor-1016	ug/l										
SW8082	Aroclor-1221	ug/l										
SW8082	Aroclor-1232	ug/l										
SW8082	Aroclor-1242	ug/l										
SW8082	Aroclor-1248	ug/l										
SW8082	Aroclor-1254	ug/l										
SW8082	Aroclor-1260	ug/l										
SW6010	Aluminum	ug/l					100	U	100	U		
SW6010	Antimony	ug/l					60	U	60	U		
SW6010	Arsenic	ug/l					10	U	10	U		
SW6010	Barium	ug/l					111		111			
SW6010	Beryllium	ug/l					5	U	5	U		
SW6010	Cadmium	ug/l					5	U	5	U		
SW6010	Calcium	ug/l					96300		96200			

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900339		R0900339		R0900339		R0900339		R0900339	
		Location	HA-115		HA-117		HA-119		HA-119		HA-122	
		Sample Date	1/21/2009		1/21/2009		1/21/2009		1/21/2009		1/21/2009	
		Sample ID	828128-HA-115155R1		828128-HA-117014R1		828128-HA-119013R1		828128-HA-119013R1D		828128-HA-122012R1	
		Qc Code	FS		FS		FS		FD		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW6010	Chromium	ug/l					10	U	10	U		
SW6010	Cobalt	ug/l					50	U	50	U		
SW6010	Copper	ug/l					20	U	20	U		
SW6010	Iron	ug/l					100	U	100	U		
SW6010	Lead	ug/l					5	U	5	U		
SW6010	Magnesium	ug/l					28400		28500			
SW6010	Manganese	ug/l					45.4		45.4			
SW6010	Nickel	ug/l					40	U	40	U		
SW6010	Potassium	ug/l					2000	U	2000	U		
SW6010	Selenium	ug/l					10	U	10	U		
SW6010	Silver	ug/l					10	U	10	U		
SW6010	Sodium	ug/l					37600		37100			
SW6010	Thallium	ug/l					10	U	10	U		
SW6010	Vanadium	ug/l					50	U	50	U		
SW6010	Zinc	ug/l					20	U	65.2			
SW7470	Mercury	ug/l					0.2	U	0.2	U		
E300_C	Chloride	mg/l					58.7		58			
E300_S	Sulfate	mg/l					63.2		62.7			
A2320B_B	Alkalinity, Bicarbonate	mg/l					309		310			
A2320B_C	Carbonate Alkalinity, as CaCO3	mg/l					20	U	20	U		
A2320B_T	Total Alkalinity, as CaCO3	mg/l					309		310			
E300_N	Nitrate as N	mg/l					0.5	U	0.5	U		
E353.2	Nitrite as N	mg/l					0.01	U	0.01	U		
E376.1	Sulfide	mg/l					1	U	1	U		
E415.1	Total Organic Carbon	mg/l					1.7		1.7			
SM 4500-CO2 D	Carbon Dioxide	mg/l					309		312			
RSK 175	Ethane	ug/l					1	U	1			
RSK 175	Ethene	ug/l					2.5		2.5			
RSK 175	Methane	ug/l					9.3		9.4			
E150.1	pH	ph units					7.22		7.2			

Notes:

ug/l = micorgram per liter

mg/l = milligrams per liter

Qualifiers
- U = not detected at the reporting limit
- J = estimated concentration

QC Code
- FS = Field Sample, FD = Field Duplicate
- TB = Trip Blank, EB = Equipment Rinse blank

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

Sample Delivery Group			R0900339		R0900339		R0900339		R0900339		R0900339	
Location			HA-123		MW-202		MW-202		MW-204S		MW-207S	
Sample Date			1/21/2009		1/22/2009		1/22/2009		1/21/2009		1/21/2009	
Sample ID			828128-HA-123155R1		828128-MW-202012R1		828128-MW-202012R1D		828128-MW-204S012R1		828128-MW-207S012R1	
Qc Code			FS		FS		FD		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,1,2,2-Tetrachloroethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethan	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,1,2-Trichloroethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,1-Dichloroethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,1-Dichloroethene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,2,4-Trichlorobenzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,2-Dibromo-3-chloropropane	ug/l	2	U	5	U	5	U	2	U	2	U
SW8260	1,2-Dibromoethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,2-Dichlorobenzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,2-Dichloroethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,2-Dichloropropane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,3-Dichlorobenzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	1,4-Dichlorobenzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	2-Butanone	ug/l	5	U	13	U	13	U	5	U	5	U
SW8260	2-Hexanone	ug/l	5	U	13	U	13	U	5	U	5	U
SW8260	4-Methyl-2-pentanone	ug/l	5	U	13	U	13	U	5	U	5	U
SW8260	Acetic acid, methyl ester	ug/l	10	U	25	U	25	U	10	U	10	U
SW8260	Acetone	ug/l	10	U	25	U	25	U	10	U	10	U
SW8260	Benzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Bromodichloromethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Bromoform	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Bromomethane	ug/l	2	U	5	U	5	U	2	U	2	U
SW8260	Carbon disulfide	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Carbon tetrachloride	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Chlorobenzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Chlorodibromomethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Chloroethane	ug/l	2	U	5	U	5	U	2	U	2	U
SW8260	Chloroform	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Chloromethane	ug/l	2	U	5	U	5	U	2	U	2	U
SW8260	Cis-1,2-Dichloroethene	ug/l	2		120		120		32		1	U
SW8260	cis-1,3-Dichloropropene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Cyclohexane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Dichlorodifluoromethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Ethyl benzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Isopropylbenzene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Methyl cyclohexane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Methyl Tertbutyl Ether	ug/l	1	U	0.95	J	2.5	U	1	U	1	U
SW8260	Methylene chloride	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	o-Xylene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Styrene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Tetrachloroethene	ug/l	15		420		410		31		11	
SW8260	Toluene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	trans-1,2-Dichloroethene	ug/l	1	U	2	J	2.2	J	1	U	1	U
SW8260	trans-1,3-Dichloropropene	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Trichloroethene	ug/l	1.7		24		24		2		1	U
SW8260	Trichlorofluoromethane	ug/l	1	U	2.5	U	2.5	U	1	U	1	U
SW8260	Vinyl chloride	ug/l	1	U	13		13		1	U	1	U
SW8260	Xylene, m/p	ug/l	2	U	5	U	5	U	2	U	2	U
SW8270	1,2,4-Trichlorobenzene	ug/l			9.4	U	9.7	U				
SW8270	1,2-Dichlorobenzene	ug/l			9.4	U	9.7	U				
SW8270	1,3-Dichlorobenzene	ug/l			9.4	U	9.7	U				
SW8270	1,4-Dichlorobenzene	ug/l			9.4	U	9.7	U				
SW8270	2,4,5-Trichlorophenol	ug/l			9.4	U	9.7	U				
SW8270	2,4,6-Trichlorophenol	ug/l			9.4	U	9.7	U				
SW8270	2,4-Dichlorophenol	ug/l			9.4	U	9.7	U				
SW8270	2,4-Dimethylphenol	ug/l			9.4	U	9.7	U				
SW8270	2,4-Dinitrophenol	ug/l			47	UJ	49	UJ				
SW8270	2,4-Dinitrotoluene	ug/l			9.4	U	9.7	U				
SW8270	2,6-Dinitrotoluene	ug/l			9.4	U	9.7	U				
SW8270	2-Chloronaphthalene	ug/l			9.4	U	9.7	U				
SW8270	2-Chlorophenol	ug/l			9.4	U	9.7	U				
SW8270	2-Methylnaphthalene	ug/l			9.4	U	9.7	U				
SW8270	2-Methylphenol	ug/l			9.4	U	9.7	U				
SW8270	2-Nitroaniline	ug/l			47	U	49	U				
SW8270	2-Nitrophenol	ug/l			9.4	U	9.7	U				
SW8270	3,3`-Dichlorobenzidine	ug/l			9.4	U	9.7	U				
SW8270	3-Nitroaniline	ug/l			47	U	49	U				
SW8270	4,6-Dinitro-2-methylphenol	ug/l			47	U	49	U				
SW8270	4-Bromophenyl phenyl ether	ug/l			9.4	U	9.7	U				
SW8270	4-Chloro-3-methylphenol	ug/l			9.4	U	9.7	U				
SW8270	4-Chloroaniline	ug/l			9.4	U	9.7	U				
SW8270	4-Chlorophenyl phenyl ether	ug/l			9.4	U	9.7	U				
SW8270	4-Methylphenol	ug/l			9.4	U	9.7	U				
SW8270	4-Nitroaniline	ug/l			47	U	49	U				

TABLE 2 - RESULTS SUMMARY
DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

Sample Delivery Group			R0900339		R0900339		R0900339		R0900339		R0900339	
Location			HA-123		MW-202		MW-202		MW-204S		MW-207S	
Sample Date			1/21/2009		1/22/2009		1/22/2009		1/21/2009		1/21/2009	
Sample ID			828128-HA-123155R1		828128-MW-202012R1		828128-MW-202012R1D		828128-MW-204S012R1		828128-MW-207S012R1	
Qc Code			FS		FS		FD		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	4-Nitrophenol	ug/l			47	U	49	U				
SW8270	Acenaphthene	ug/l			9.4	U	9.7	U				
SW8270	Acenaphthylene	ug/l			9.4	U	9.7	U				
SW8270	Anthracene	ug/l			9.4	U	9.7	U				
SW8270	Benzo(a)anthracene	ug/l			9.4	U	9.7	U				
SW8270	Benzo(a)pyrene	ug/l			9.4	U	9.7	U				
SW8270	Benzo(b)fluoranthene	ug/l			9.4	U	9.7	U				
SW8270	Benzo(ghi)perylene	ug/l			9.4	U	9.7	U				
SW8270	Benzo(k)fluoranthene	ug/l			9.4	U	9.7	U				
SW8270	Benzyl alcohol	ug/l			9.4	U	9.7	U				
SW8270	Bis(2-Chloroethoxy)methane	ug/l			9.4	U	9.7	U				
SW8270	Bis(2-Chloroethyl)ether	ug/l			9.4	U	9.7	U				
SW8270	Bis(2-Chloroisopropyl)ether	ug/l			9.4	U	9.7	U				
SW8270	Bis(2-Ethylhexyl)phthalate	ug/l			9.4	U	9.7	U				
SW8270	Butylbenzylphthalate	ug/l			9.4	U	9.7	U				
SW8270	Carbazole	ug/l			9.4	U	9.7	U				
SW8270	Chrysene	ug/l			9.4	U	9.7	U				
SW8270	Di-n-butylphthalate	ug/l			9.4	U	9.7	U				
SW8270	Di-n-octylphthalate	ug/l			9.4	U	9.7	U				
SW8270	Dibenz(a,h)anthracene	ug/l			9.4	U	9.7	U				
SW8270	Dibenzofuran	ug/l			9.4	U	9.7	U				
SW8270	Diethylphthalate	ug/l			9.4	U	9.7	U				
SW8270	Dimethylphthalate	ug/l			9.4	U	9.7	U				
SW8270	Fluoranthene	ug/l			9.4	U	9.7	U				
SW8270	Fluorene	ug/l			9.4	U	9.7	U				
SW8270	Hexachlorobenzene	ug/l			9.4	U	9.7	U				
SW8270	Hexachlorobutadiene	ug/l			9.4	UJ	9.7	U				
SW8270	Hexachlorocyclopentadiene	ug/l			9.4	U	9.7	U				
SW8270	Hexachloroethane	ug/l			9.4	U	9.7	U				
SW8270	Indeno(1,2,3-cd)pyrene	ug/l			9.4	U	9.7	U				
SW8270	Isophorone	ug/l			9.4	U	9.7	U				
SW8270	N-Nitrosodi-n-propylamine	ug/l			9.4	U	9.7	U				
SW8270	N-Nitrosodimethylamine	ug/l			9.4	U	9.7	U				
SW8270	N-Nitrosodiphenylamine	ug/l			9.4	U	9.7	U				
SW8270	Naphthalene	ug/l			9.4	U	9.7	U				
SW8270	Nitrobenzene	ug/l			9.4	U	9.7	U				
SW8270	Pentachlorophenol	ug/l			47	U	49	U				
SW8270	Phenanthrene	ug/l			9.4	U	9.7	U				
SW8270	Phenol	ug/l			9.4	U	9.7	U				
SW8270	Pyrene	ug/l			9.4	U	9.7	U				
SW8081	4,4`-DDD	ug/l			0.094	U	0.098	U				
SW8081	4,4`-DDE	ug/l			0.094	U	0.098	U				
SW8081	4,4`-DDT	ug/l			0.094	U	0.098	U				
SW8081	Aldrin	ug/l			0.047	U	0.049	U				
SW8081	Alpha-BHC	ug/l			0.047	U	0.049	U				
SW8081	Alpha-Chlordane	ug/l			0.047	U	0.049	U				
SW8081	Beta-BHC	ug/l			0.047	U	0.049	U				
SW8081	Delta-BHC	ug/l			0.047	U	0.049	U				
SW8081	Dieldrin	ug/l			0.094	U	0.098	U				
SW8081	Endosulfan I	ug/l			0.047	U	0.049	U				
SW8081	Endosulfan II	ug/l			0.094	U	0.098	U				
SW8081	Endosulfan sulfate	ug/l			0.094	U	0.098	U				
SW8081	Endrin	ug/l			0.094	U	0.098	U				
SW8081	Endrin aldehyde	ug/l			0.094	U	0.098	U				
SW8081	Endrin ketone	ug/l			0.094	U	0.098	U				
SW8081	Gamma-BHC/Lindane	ug/l			0.047	U	0.049	U				
SW8081	Gamma-Chlordane	ug/l			0.047	U	0.049	U				
SW8081	Heptachlor	ug/l			0.047	U	0.049	U				
SW8081	Heptachlor epoxide	ug/l			0.047	U	0.049	U				
SW8081	Methoxychlor	ug/l			0.47	U	0.49	U				
SW8081	Toxaphene	ug/l			0.95	U	0.99	U				
SW8082	Aroclor-1016	ug/l			0.95	U	0.99	U				
SW8082	Aroclor-1221	ug/l			1.9	U	2	U				
SW8082	Aroclor-1232	ug/l			0.95	U	0.99	U				
SW8082	Aroclor-1242	ug/l			0.95	U	0.99	U				
SW8082	Aroclor-1248	ug/l			0.95	U	0.99	U				
SW8082	Aroclor-1254	ug/l			0.95	U	0.99	U				
SW8082	Aroclor-1260	ug/l			0.95	U	0.99	U				
SW6010	Aluminum	ug/l			100	U	100	U				
SW6010	Antimony	ug/l			60	U	60	U				
SW6010	Arsenic	ug/l			10	U	10	U				
SW6010	Barium	ug/l			89.2		86.9					
SW6010	Beryllium	ug/l			5	U	5	U				
SW6010	Cadmium	ug/l			5	U	5	U				
SW6010	Calcium	ug/l			99600		97000					

TABLE 2 - RESULTS SUMMARY
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GROUNDWATER SAMPLING
IN SUPPORT OF THE REMEDIAL DESIGN
FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

		Sample Delivery Group	R0900339		R0900339		R0900339		R0900339		R0900339	
		Location	HA-123		MW-202		MW-202		MW-204S		MW-207S	
		Sample Date	1/21/2009		1/22/2009		1/22/2009		1/21/2009		1/21/2009	
		Sample ID	828128-HA-123155R1		828128-MW-202012R1		828128-MW-202012R1D		828128-MW-204S012R1		828128-MW-207S012R1	
		Qc Code	FS		FS		FD		FS		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW6010	Chromium	ug/l			10	U	10	U				
SW6010	Cobalt	ug/l			50	U	50	U				
SW6010	Copper	ug/l			20	U	20	U				
SW6010	Iron	ug/l			100	U	100	U				
SW6010	Lead	ug/l			5	U	5	U				
SW6010	Magnesium	ug/l			27200		26600					
SW6010	Manganese	ug/l			64		62.4					
SW6010	Nickel	ug/l			40	U	40	U				
SW6010	Potassium	ug/l			2000	U	2000	U				
SW6010	Selenium	ug/l			10	U	10	U				
SW6010	Silver	ug/l			10	U	10	U				
SW6010	Sodium	ug/l			62200		57600					
SW6010	Thallium	ug/l			10	U	10	U				
SW6010	Vanadium	ug/l			50	U	50	U				
SW6010	Zinc	ug/l			20	U	20	U				
SW7470	Mercury	ug/l			0.2	U	0.2	U				
E300_C	Chloride	mg/l										
E300_S	Sulfate	mg/l										
A2320B_B	Alkalinity, Bicarbonate	mg/l										
A2320B_C	Carbonate Alkalinity, as CaCO3	mg/l										
A2320B_T	Total Alkalinity, as CaCO3	mg/l										
E300_N	Nitrate as N	mg/l										
E353.2	Nitrite as N	mg/l										
E376.1	Sulfide	mg/l										
E415.1	Total Organic Carbon	mg/l										
SM 4500-CO2 D	Carbon Dioxide	mg/l										
RSK 175	Ethane	ug/l										
RSK 175	Ethene	ug/l										
RSK 175	Methane	ug/l										
E150.1	pH	ph units										

Notes:
ug/l = micorgram per liter
mg/l = milligrams per liter
Qualifiers
U = not detected at the reporting limit
J = estimated concentration
QC Code
FS = Field Sample, FD = Field Duplicate
TB = Trip Blank, EB = Equipment Rinse blank

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DATA USABILITY SUMMARY REPORT
GROUNDWATER SAMPLING
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FORMER SPEEDY'S CLEANERS SITE
BRIGHTON, NEW YORK

Sample Delivery Group			R0900339		R0900339		R0900339		R0900339		R0900550	
Location			MW-209S		MW-212		QC		QC		MW-201	
Sample Date			1/21/2009		1/21/2009		1/21/2009		1/22/2009		2/2/2009	
Sample ID			828128-MW-209S014R1		828128-MW-212010R1		TB-002		TB-003		828128-MW-201017R1	
Qc Code			FS		FS		TB		TB		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260	1,1,1-Trichloroethane	ug/l	1	U			1	U	1	U	1	U
SW8260	1,1,2,2-Tetrachloroethane	ug/l	1	U			1	U	1	U	1	U
SW8260	1,1,2-Trichloro-1,2,2-Trifluoroethan	ug/l	1	U			1	U	1	U	1	U
SW8260	1,1,2-Trichloroethane	ug/l	1	U			1	U	1	U	1	U
SW8260	1,1-Dichloroethane	ug/l	1	U			1	U	1	U	1	U
SW8260	1,1-Dichloroethene	ug/l	1	U			1	U	1	U	1	U
SW8260	1,2,4-Trichlorobenzene	ug/l	1	U			1	U	1	U	1	U
SW8260	1,2-Dibromo-3-chloropropane	ug/l	2	U			2	U	2	U	2	UJ
SW8260	1,2-Dibromoethane	ug/l	1	U			1	U	1	U	1	UJ
SW8260	1,2-Dichlorobenzene	ug/l	1	U			1	U	1	U	1	U
SW8260	1,2-Dichloroethane	ug/l	1	U			1	U	1	U	1	U
SW8260	1,2-Dichloropropane	ug/l	1	U			1	U	1	U	1	U
SW8260	1,3-Dichlorobenzene	ug/l	1	U			1	U	1	U	1	U
SW8260	1,4-Dichlorobenzene	ug/l	1	U			1	U	1	U	1	U
SW8260	2-Butanone	ug/l	5	U			5	U	5	U	5	U
SW8260	2-Hexanone	ug/l	5	U			5	U	5	U	5	U
SW8260	4-Methyl-2-pentanone	ug/l	5	U			5	U	5	U	5	U
SW8260	Acetic acid, methyl ester	ug/l	10	U			10	U	10	U	10	U
SW8260	Acetone	ug/l	10	U			10	J	10	U	10	U
SW8260	Benzene	ug/l	1	U			1	U	1	U	0.63	J
SW8260	Bromodichloromethane	ug/l	1	U			1	U	1	U	1	U
SW8260	Bromoform	ug/l	1	U			1	U	1	U	1	U
SW8260	Bromomethane	ug/l	2	U			2	U	2	U	2	U
SW8260	Carbon disulfide	ug/l	1	U			1	U	1	U	1	U
SW8260	Carbon tetrachloride	ug/l	1	U			1	U	1	U	1	U
SW8260	Chlorobenzene	ug/l	1	U			1	U	1	U	1	U
SW8260	Chlorodibromomethane	ug/l	1	U			1	U	1	U	1	U
SW8260	Chloroethane	ug/l	2	U			2	U	2	U	2	U
SW8260	Chloroform	ug/l	1	U			1	U	1		1	U
SW8260	Chloromethane	ug/l	2	U			2	U	2	U	2	U
SW8260	Cis-1,2-Dichloroethene	ug/l	1	U			1	U	1	U	240	D
SW8260	cis-1,3-Dichloropropene	ug/l	1	U			1	U	1	U	1	U
SW8260	Cyclohexane	ug/l	1	U			1	U	1	U	3.6	
SW8260	Dichlorodifluoromethane	ug/l	1	U			1	U	1	U	1	U
SW8260	Ethyl benzene	ug/l	1	U			1	U	1	U	4.6	
SW8260	Isopropylbenzene	ug/l	1	U			1	U	1	U	0.4	J
SW8260	Methyl cyclohexane	ug/l	1	U			1	U	1	U	0.51	J
SW8260	Methyl Tertbutyl Ether	ug/l	1	U			1	U	1	U	1	U
SW8260	Methylene chloride	ug/l	1	U			1	U	1	U	1	U
SW8260	o-Xylene	ug/l	1	U			1	U	1	U	1	U
SW8260	Styrene	ug/l	1	U			1	U	1	U	1	U
SW8260	Tetrachloroethene	ug/l	1	U			1	U	1	U	1	U
SW8260	Toluene	ug/l	1	U			1	U	1	U	0.37	J
SW8260	trans-1,2-Dichloroethene	ug/l	1	U			1	U	1	U	3.7	
SW8260	trans-1,3-Dichloropropene	ug/l	1	U			1	U	1	U	1	U
SW8260	Trichloroethene	ug/l	1	U			1	U	1	U	0.93	J
SW8260	Trichlorofluoromethane	ug/l	1	U			1	U	1	U	1	U
SW8260	Vinyl chloride	ug/l	1	U			1	U	1	U	19	
SW8260	Xylene, m/p	ug/l	2	U			2	U	2	U	0.43	J
SW8270	1,2,4-Trichlorobenzene	ug/l										
SW8270	1,2-Dichlorobenzene	ug/l										
SW8270	1,3-Dichlorobenzene	ug/l										
SW8270	1,4-Dichlorobenzene	ug/l										
SW8270	2,4,5-Trichlorophenol	ug/l										
SW8270	2,4,6-Trichlorophenol	ug/l										
SW8270	2,4-Dichlorophenol	ug/l										
SW8270	2,4-Dimethylphenol	ug/l										
SW8270	2,4-Dinitrophenol	ug/l										
SW8270	2,4-Dinitrotoluene	ug/l										
SW8270	2,6-Dinitrotoluene	ug/l										
SW8270	2-Chloronaphthalene	ug/l										
SW8270	2-Chlorophenol	ug/l										
SW8270	2-Methylnaphthalene	ug/l										
SW8270	2-Methylphenol	ug/l										
SW8270	2-Nitroaniline	ug/l										
SW8270	2-Nitrophenol	ug/l										
SW8270	3,3`-Dichlorobenzidine	ug/l										
SW8270	3-Nitroaniline	ug/l										
SW8270	4,6-Dinitro-2-methylphenol	ug/l										
SW8270	4-Bromophenyl phenyl ether	ug/l										
SW8270	4-Chloro-3-methylphenol	ug/l										
SW8270	4-Chloroaniline	ug/l										
SW8270	4-Chlorophenyl phenyl ether	ug/l										
SW8270	4-Methylphenol	ug/l										
SW8270	4-Nitroaniline	ug/l										

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BRIGHTON, NEW YORK

		Sample Delivery Group	R0900339		R0900339		R0900339		R0900339		R0900550	
		Location	MW-209S		MW-212		QC		QC		MW-201	
		Sample Date	1/21/2009		1/21/2009		1/21/2009		1/22/2009		2/2/2009	
		Sample ID	828128-MW-209S014R1		828128-MW-212010R1		TB-002		TB-003		828128-MW-201017R1	
		Qc Code	FS		FS		TB		TB		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8270	4-Nitrophenol	ug/l										
SW8270	Acenaphthene	ug/l										
SW8270	Acenaphthylene	ug/l										
SW8270	Anthracene	ug/l										
SW8270	Benzo(a)anthracene	ug/l										
SW8270	Benzo(a)pyrene	ug/l										
SW8270	Benzo(b)fluoranthene	ug/l										
SW8270	Benzo(ghi)perylene	ug/l										
SW8270	Benzo(k)fluoranthene	ug/l										
SW8270	Benzyl alcohol	ug/l										
SW8270	Bis(2-Chloroethoxy)methane	ug/l										
SW8270	Bis(2-Chloroethyl)ether	ug/l										
SW8270	Bis(2-Chloroisopropyl)ether	ug/l										
SW8270	Bis(2-Ethylhexyl)phthalate	ug/l										
SW8270	Butylbenzylphthalate	ug/l										
SW8270	Carbazole	ug/l										
SW8270	Chrysene	ug/l										
SW8270	Di-n-butylphthalate	ug/l										
SW8270	Di-n-octylphthalate	ug/l										
SW8270	Dibenz(a,h)anthracene	ug/l										
SW8270	Dibenzofuran	ug/l										
SW8270	Diethylphthalate	ug/l										
SW8270	Dimethylphthalate	ug/l										
SW8270	Fluoranthene	ug/l										
SW8270	Fluorene	ug/l										
SW8270	Hexachlorobenzene	ug/l										
SW8270	Hexachlorobutadiene	ug/l										
SW8270	Hexachlorocyclopentadiene	ug/l										
SW8270	Hexachloroethane	ug/l										
SW8270	Indeno(1,2,3-cd)pyrene	ug/l										
SW8270	Isophorone	ug/l										
SW8270	N-Nitrosodi-n-propylamine	ug/l										
SW8270	N-Nitrosodimethylamine	ug/l										
SW8270	N-Nitrosodiphenylamine	ug/l										
SW8270	Naphthalene	ug/l										
SW8270	Nitrobenzene	ug/l										
SW8270	Pentachlorophenol	ug/l										
SW8270	Phenanthrene	ug/l										
SW8270	Phenol	ug/l										
SW8270	Pyrene	ug/l										
SW8081	4,4`-DDD	ug/l										
SW8081	4,4`-DDE	ug/l										
SW8081	4,4`-DDT	ug/l										
SW8081	Aldrin	ug/l										
SW8081	Alpha-BHC	ug/l										
SW8081	Alpha-Chlordane	ug/l										
SW8081	Beta-BHC	ug/l										
SW8081	Delta-BHC	ug/l										
SW8081	Dieldrin	ug/l										
SW8081	Endosulfan I	ug/l										
SW8081	Endosulfan II	ug/l										
SW8081	Endosulfan sulfate	ug/l										
SW8081	Endrin	ug/l										
SW8081	Endrin aldehyde	ug/l										
SW8081	Endrin ketone	ug/l										
SW8081	Gamma-BHC/Lindane	ug/l										
SW8081	Gamma-Chlordane	ug/l										
SW8081	Heptachlor	ug/l										
SW8081	Heptachlor epoxide	ug/l										
SW8081	Methoxychlor	ug/l										
SW8081	Toxaphene	ug/l										
SW8082	Aroclor-1016	ug/l										
SW8082	Aroclor-1221	ug/l										
SW8082	Aroclor-1232	ug/l										
SW8082	Aroclor-1242	ug/l										
SW8082	Aroclor-1248	ug/l										
SW8082	Aroclor-1254	ug/l										
SW8082	Aroclor-1260	ug/l										
SW6010	Aluminum	ug/l			129							
SW6010	Antimony	ug/l			60	U						
SW6010	Arsenic	ug/l			10	U						
SW6010	Barium	ug/l			109							
SW6010	Beryllium	ug/l			5	U						
SW6010	Cadmium	ug/l			5	U						
SW6010	Calcium	ug/l			124000							

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Sample Delivery Group			R0900339		R0900339		R0900339		R0900339		R0900550	
Location			MW-209S		MW-212		QC		QC		MW-201	
Sample Date			1/21/2009		1/21/2009		1/21/2009		1/22/2009		2/2/2009	
Sample ID			828128-MW-209S014R1		828128-MW-212010R1		TB-002		TB-003		828128-MW-201017R1	
Qc Code			FS		FS		TB		TB		FS	
Analysis	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW6010	Chromium	ug/l			10	U						
SW6010	Cobalt	ug/l			50	U						
SW6010	Copper	ug/l			20	U						
SW6010	Iron	ug/l			155						1420	
SW6010	Lead	ug/l			5	U						
SW6010	Magnesium	ug/l			31900							
SW6010	Manganese	ug/l			45.4						82.5	
SW6010	Nickel	ug/l			40	U						
SW6010	Potassium	ug/l			2000	U						
SW6010	Selenium	ug/l			10	U						
SW6010	Silver	ug/l			10	U						
SW6010	Sodium	ug/l			124000							
SW6010	Thallium	ug/l			10	U						
SW6010	Vanadium	ug/l			50	U						
SW6010	Zinc	ug/l			49.2							
SW7470	Mercury	ug/l			0.2	U						
E300_C	Chloride	mg/l									86.5	
E300_S	Sulfate	mg/l									39.3	
A2320B_B	Alkalinity, Bicarbonate	mg/l									281	
A2320B_C	Carbonate Alkalinity, as CaCO3	mg/l									20	U
A2320B_T	Total Alkalinity, as CaCO3	mg/l									281	
E300_N	Nitrate as N	mg/l									0.5	U
E353.2	Nitrite as N	mg/l									0.01	U
E376.1	Sulfide	mg/l									1	U
E415.1	Total Organic Carbon	mg/l									2	
SM 4500-CO2 D	Carbon Dioxide	mg/l									264	
RSK 175	Ethane	ug/l									1.1	
RSK 175	Ethene	ug/l									2.6	
RSK 175	Methane	ug/l									17	
E150.1	pH	ph units									7.48	

Notes:
ug/l = micorgram per liter
mg/l = milligrams per liter
Qualifiers
U = not detected at the reporting limit
J = estimated concentration
QC Code
FS = Field Sample, FD = Field Duplicate
TB = Trip Blank, EB = Equipment Rinse blank

APPENDIX F

CALCULATIONS

Physical properties of PCE:

Contaminant	**Vapor pressure (mm Hg)**	**Henry's Law constant (atm-m^3/mol)**	**Density constant (g/cm^3)**	**Water solubility (mg/L)**	**Octanol-water partition coefficient (K_{ow})**	**Organic carbon partition coefficient (K_{oc})**
Tetrachloroethene (PCE)	1.78E+01	2.59E-02	1.6311	1.50E+02	398	364

Reference (USEPA, 1990)

The Csat equation, assuming saturated conditions is as follows:

$C\ sat = S/\rho_b\ (K_d\ \rho_b + \theta_w)$

Parameter = Definition (units)
Csat = soil saturation concentration (mg/Kg)
S = solubility in water (mg/L-water)
ρ_b = dry soil bulk density (kg/L) = assume 1.5
Kd = soil-water partition coefficient (L/kg) = K oc x foc
Koc /organic carbon partition coefficient (L/Kg)
Foc = fraction organic carbon in soil (g/g) = 0.006 (0.6%)
θ_w = water-filled soil porosity (Lwater /Lsoil) = 0.43

C sat = 150/1.5*([364*.006]*1.5 + 0.43)

C sat = 370.6 mg/Kg for PCE

Based on the solubility (150 mg/L), Henry's Constant (0.754-unitless) and organic carbon partition coefficient (364 mg/g) of PCE and using the Soil Saturation Limit (C_{sat}[1]) equation assuming saturated conditions, dense nonaqueous phase liquids (DNAPL) is possible if concentrations in soil exceed 370.6 mg/Kg.

Based on the maximum detection of PCE at the Former Speedy's Cleaners site of 830 mg/Kg exceeding 370.6 mg/Kg, PCE as a DNAPL is possible at the Site.

---

[1] C_{sat} is the concentration in soil at which the solubility limits of the soil pore water, the vapor phase limits of the soil pore air, and the absorptive limits of the soil particles have been reached. C_{sat} is a theoretical threshold above which a free phase liquid hazardous substance may exist. The equation is described in the USEPA "Soil Screening Guidance" (USEPA, 1996).

United States Environmental Protection Agency (USEPA), 1996. "Soil Screening Guidance: Users Guide". Office of Emergency and Remedial Response; EPA/540/R-96/018; April 1996.

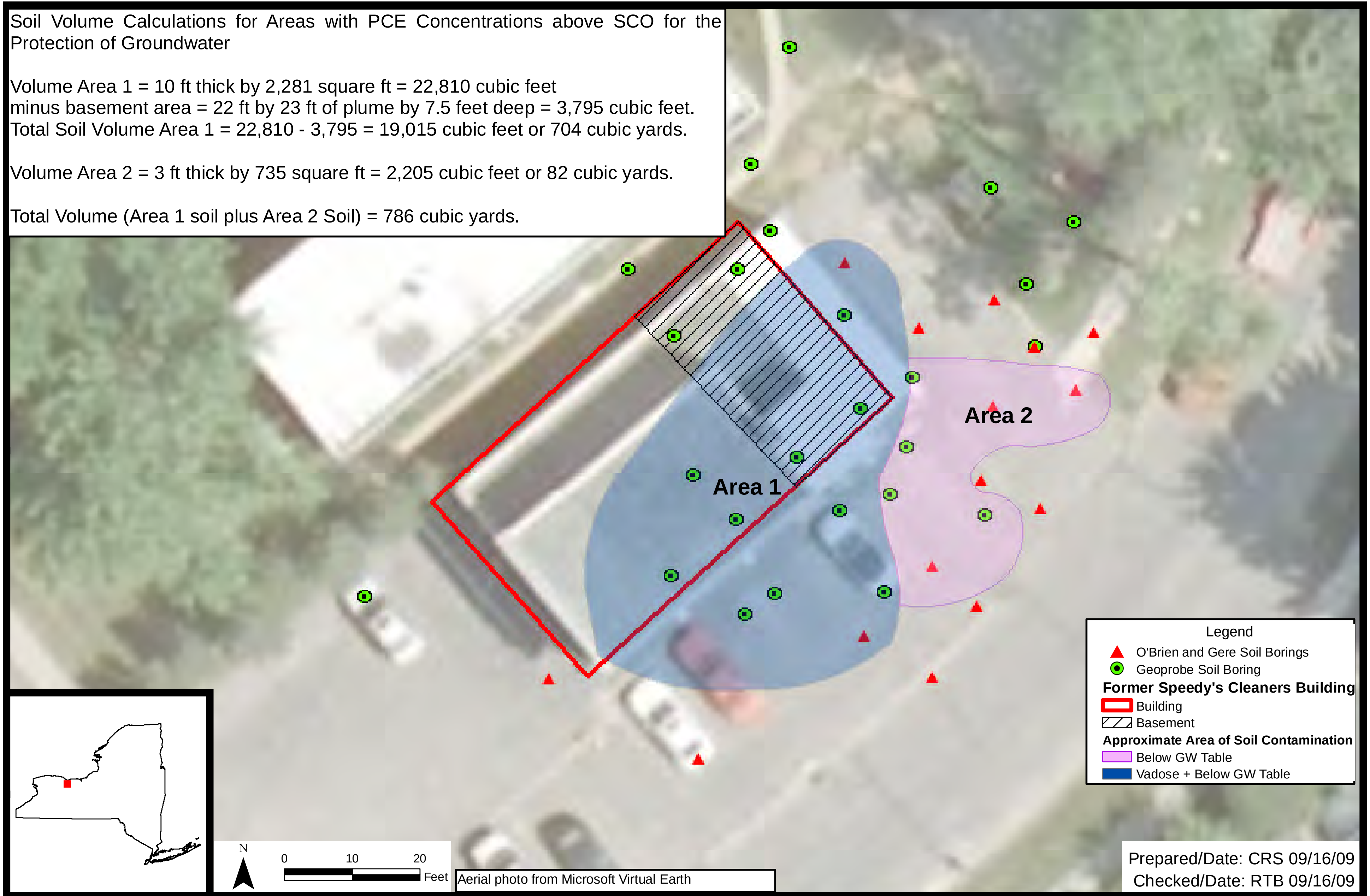
Document: P:\Projects\nysdec1\projects\Former Speedy's Cleaners\4.0_Deliverables\4.5_Databases\GIS\Map_Documents\Speedy_features-updated.mxd PDF: P:\Projects\nysdec1\projects\Former Speedy's Cleaners\4.0_Deliverables\4.1_Reports\RI Report\Appendices\App-F - calculations\Soil-Volume-Calculations.pdf 09/16/2009 11:

Soil Volume Calculations for Areas with PCE Concentrations above SCO for the Protection of Groundwater

Volume Area 1 = 10 ft thick by 2,281 square ft = 22,810 cubic feet
minus basement area = 22 ft by 23 ft of plume by 7.5 feet deep = 3,795 cubic feet.
Total Soil Volume Area 1 = 22,810 - 3,795 = 19,015 cubic feet or 704 cubic yards.

Volume Area 2 = 3 ft thick by 735 square ft = 2,205 cubic feet or 82 cubic yards.

Total Volume (Area 1 soil plus Area 2 Soil) = 786 cubic yards.



Aerial photo from Microsoft Virtual Earth

Prepared/Date: CRS 09/16/09
Checked/Date: RTB 09/16/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Approximate Area of Soil Contamination

Project 3612-08-2109

Figure F.1

APPENDIX G

NYSDEC LABORATORY FORM I'S

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 11th Floor
Albany, New York 12233-7015
Phone: (518) 402-9625 • **Fax:** (518) 402-9020 / (518) 402-9627
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

Division of Environmental Remediation Laboratory Analytical Report

The case narrative and analytical reports for the Former Speedy Dry Cleaners site are attached.

Case Narrative

Site Name: Former Speedy Dry Cleaners Date received: 07/17/09

For sample delivery group(s): 198-01

For 624/8260B Volatiles Analysis -

The calibration verification that these samples were initially run under had two target analytes - dichlorodifluoromethane and chloromethane - exceeding the the calibration criteria that is associated with this analytical method. However, since the initial calibration that the samples were quantitated against was valid, any reported values for these two analytes should be considered valid. Neither of these analytes that exceeded the calibration verification criteria were detected in any of these samples.

In general, all other QA/QC associated with these samples were within acceptable method criteria.

Note:

For sample 809-198-0013, the result for tetrachloroethene is qualified with a ‘B’ because of the presence of tetrachloroethene in the associated method blank at 3.0ug/L. Due to insufficient sample a re-analysis was not possible.

Samples 809-198-004, ...-009, ...-011, ...-012, and ...-014 were re-analyzed due to the carryover of tetrachloroethene from a previous sample. The re-analysis is the final report with the samples identified as such with an ‘RE’.

For the dilution run for samples 809-198-0007 and 809-198-008 the result for tetrachloroethene is qualified with both a ‘B’ and an ‘E’ because of the presence of tetrachloroethene, at 2.0ug/L, in the method blank associated with these dilutions; and because the dilutions were still just outside of the calibration range, with insufficient sample to run a higher dilution level.

For the dilution run for sample 809-198-010, the result for tetrachloroethene is qualified with an ‘E’ because the dilution was still outside the instruments calibration range, with insufficient sample to run a second dilution.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **MW-1**

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-001

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1005.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichloroflurometharie	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	1	J
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	1	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	48	
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-1

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-001

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1005.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID: **MW-1**

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-001

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1005.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-6

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-002

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1006.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	110	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	47	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	3300	E
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-6

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-002

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1006.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID: **MW-6**

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-002

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1006.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-6

Site Name: Former Speedy Cleaners

Contract:

Site Code: 828128

Case No.:

SAS No.:

SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-002DL

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1034.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 20.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	200	U
75-87-3	Chloromethane	200	U
75-01-4	Vinyl Chloride	200	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	200	U
75-69-4	Trichlorofluromethane	200	U
75-35-4	1,1-Dichloroethene	200	U
75-15-0	Carbon Disulfide	200	U
67-64-1	Acetone	300	U
75-09-2	Methylene Chloride	200	U
540-59-0	trans 1,2-Dichloroethene	200	U
1634-04-4	Methyl-tert butyl ether	200	U
75-34-4	1,1-Dichloroethane	200	U
108-05-4	Vinyl Acetate	200	U
540-59-0	cis 1,2-Dichloroethene	200	U
78-93-3	2-Butanone	200	U
67-66-3	Chloroform	200	U
71-55-6	1,1,1-Trichloroethane	200	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	200	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	200	U
78-87-5	1,2-Dichloropropane	200	U
75-27-4	Bromodichloromethane	200	U
10061-01-5	cis-1,3-Dichloropropene	200	U
108-10-1	4-Methyl-2-pentanone	200	U
108-88-3	Toluene	200	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	29000	D
591-78-6	2-Hexanone	200	U
124-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	200	U
100-41-4	Ethylbenzene	200	U
1330-20-7	m,p-Xylenes	200	U
1330-20-7	o-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2,-Tetrachloroethane	200	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-6

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-002DL

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1034.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 20.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	200	U
106-43-4	4-Chlorotoluene	200	U
541-73-1	1,3-Dichlorobenzene	200	U
106-46-7	1,4-Dichlorobenzene	200	U
95-50-1	1,2-Dichlorobenzene	200	U
120-82-1	1,2,4-Trichlorobenzene	200	U
87-61-6	1,2,3-Trichlorobenzene	200	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

EW-1

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-003

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1007.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	77	
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	2	J
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	640	E
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	170	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	1	J
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	990	E
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	14	
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

EW-1

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-003

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1007.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID: **EW-1**

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-003

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1007.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Number TICs found: 10

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 109	Pentane	6.78	20	J
2. 107	Pentane, 2-methyl-	8.89	150	J
3. 96	Pentane, 3-methyl-	9.43	28	J
4. 96	Cyclopentane, methyl-	11.31	80	J
5. 110	Cyclohexane	12.71	57	J
6. 589	Hexane, 3-methyl-	12.89	18	J
7. 2453	Cyclopentane, 1,3-dimethyl-	13.40	8	JN
8. 103	Benzene, propyl-	23.85	10	J
9. 767	Indan, 1-methyl-	28.13	10	J
10. 2039	Benzene, 2-ethenyl-1,4-dimethyl-	29.90	11	JN

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

EW-1

Site Name: Former Speedy Cleaners
Contract:

Site Code: 828128
Case No.:
SAS No.:
SDG No.: 198-01

Matrix: (soil/water) WATER
Lab Sample ID: 809-198-003DL

Sample wt/vol: 5.0 (g/ml) ML
Lab File ID: 09C1036.D

Level: (low/med) LOW
Date Received: 7/17/2009

% Moisture: not dec.
Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)
Dilution Factor: 5.0

Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	50	U
75-87-3	Chloromethane	50	U
75-01-4	Vinyl Chloride	50	U
74-83-9	Bromomethane	50	U
75-00-3	Chloroethane	50	U
75-69-4	Trichlorofluromethane	50	U
75-35-4	1,1-Dichloroethene	50	U
75-15-0	Carbon Disulfide	50	U
67-64-1	Acetone	75	U
75-09-2	Methylene Chloride	50	U
540-59-0	trans 1,2-Dichloroethene	50	U
1634-04-4	Methyl-tert butyl ether	50	U
75-34-4	1,1-Dichloroethane	50	U
108-05-4	Vinyl Acetate	50	U
540-59-0	cis 1,2-Dichloroethene	1200	D
78-93-3	2-Butanone	50	U
67-66-3	Chloroform	50	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon Tetrachloride	50	U
71-43-2	Benzene	50	U
107-06-2	1,2-Dichloroethane	50	U
79-01-6	Trichloroethene	50	U
78-87-5	1,2-Dichloropropane	50	U
75-27-4	Bromodichloromethane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
108-10-1	4-Methyl-2-pentanone	50	U
108-88-3	Toluene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
79-00-5	1,1,2-Trichloroethane	50	U
127-18-4	Tetrachloroethene	2100	D
591-78-6	2-Hexanone	50	U
124-48-1	Dibromochloromethane	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
1330-20-7	m,p-Xylenes	50	U
1330-20-7	o-Xylene	50	U
100-42-5	Styrene	50	U
75-25-2	Bromoform	50	U
79-34-5	1,1,2,2,-Tetrachloroethane	50	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

EW-1

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-003DL

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1036.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 5.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
95-49-8	2-Chlorotoluene	50	U
106-43-4	4-Chlorotoluene	50	U
541-73-1	1,3-Dichlorobenzene	50	U
106-46-7	1,4-Dichlorobenzene	50	U
95-50-1	1,2-Dichlorobenzene	50	U
120-82-1	1,2,4-Trichlorobenzene	50	U
87-61-6	1,2,3-Trichlorobenzene	50	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-201

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-004RE

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1027.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	7	J
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	18	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-201

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-004RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1027.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

MW-201

Site Name: Former Speedy Cleaners
Contract:

Site Code: 828128
Case No.:
SAS No.:
SDG No.: 198-01

Matrix: (soil/water) WATER
Lab Sample ID: 809-198-004RE

Sample wt/vol: 5.0 (g/ml) ML
Lab File ID: 09C1027.D

Level: (low/med) LOW
Date Received: 7/17/2009

% Moisture: not dec.
Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)
Dilution Factor: 1.0

Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

HA114

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-005

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1009.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	22	
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	1	J
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	320	E
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	7	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	16	
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

HA114

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-005

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1009.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

HA114

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-005

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1009.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

HA114

Site Name: Former Speedy Cleaners
Contract:
Site Code: 828128
Case No.:
SAS No.:
SDG No.: 198-01
Matrix: (soil/water) WATER
Lab Sample ID: 809-198-005DL
Sample wt/vol: 5.0 (g/ml) ML
Lab File ID: 09C1040.D
Level: (low/med) LOW
Date Received: 7/17/2009
% Moisture: not dec.
Date Analyzed: 7/24/2009
GC Column: RTX-624 ID: 0.25 (mm)
Dilution Factor: 2.0
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	20	U
75-87-3	Chloromethane	20	U
75-01-4	Vinyl Chloride	20	U
74-83-9	Bromomethane	20	U
75-00-3	Chloroethane	20	U
75-69-4	Trichlorofluromethane	20	U
75-35-4	1,1-Dichloroethene	20	U
75-15-0	Carbon Disulfide	20	U
67-64-1	Acetone	30	U
75-09-2	Methylene Chloride	20	U
540-59-0	trans 1,2-Dichloroethene	20	U
1634-04-4	Methyl-tert butyl ether	20	U
75-34-4	1,1-Dichloroethane	20	U
108-05-4	Vinyl Acetate	20	U
540-59-0	cis 1,2-Dichloroethene	510	D
78-93-3	2-Butanone	20	U
67-66-3	Chloroform	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
71-43-2	Benzene	20	U
107-06-2	1,2-Dichloroethane	20	U
79-01-6	Trichloroethene	20	U
78-87-5	1,2-Dichloropropane	20	U
75-27-4	Bromodichloromethane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
108-10-1	4-Methyl-2-pentanone	20	U
108-88-3	Toluene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
79-00-5	1,1,2-Trichloroethane	20	U
127-18-4	Tetrachloroethene	20	U
591-78-6	2-Hexanone	20	U
124-48-1	Dibromochloromethane	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
1330-20-7	m,p-Xylenes	20	U
1330-20-7	o-Xylene	20	U
100-42-5	Styrene	20	U
75-25-2	Bromoform	20	U
79-34-5	1,1,2,2,-Tetrachloroethane	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

HA114

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-005DL

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1040.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/24/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 2.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
95-49-8	2-Chlorotoluene	20	U
106-43-4	4-Chlorotoluene	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
95-50-1	1,2-Dichlorobenzene	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
87-61-6	1,2,3-Trichlorobenzene	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

DEC-Well

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-006

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1010.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	2	J
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	27	
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	110	
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	4	J
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	6	J
1330-20-7	m,p-Xylenes	530	E
1330-20-7	o-Xylene	240	E
100-42-5	Styrene	7	J
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

DEC-Well

Site Name: Former Speedy Cleaners   Contract:

Site Code: 828128   Case No.:   SAS No.:   SDG No.: 198-01

Matrix: (soil/water) WATER   Lab Sample ID: 809-198-006

Sample wt/vol: 5.0 (g/ml) ML   Lab File ID: 09C1010.D

Level: (low/med) LOW   Date Received: 7/17/2009

% Moisture: not dec.   Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume: (uL)   Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

DEC-Well

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-006

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1010.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 10

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 109	Pentane	6.79	200	J
2. 75	Butane, 2,2-dimethyl-	7.93	210	J
3. 107	Pentane, 2-methyl-	8.90	550	J
4. 96	Pentane, 3-methyl-	9.44	230	J
5. 96	Cyclopentane, methyl-	11.32	650	J
6. 110	Cyclohexane	12.72	410	J
7. 000620-14-4	Benzene, 1-ethyl-3-methyl-	24.07	220	JN
8. 611	Benzene, 1-ethyl-2-methyl-	24.79	250	J
9. 000108-67-8	Benzene, 1,3,5-trimethyl-	25.22	460	JN
10. 526	Benzene, 1,2,3-trimethyl-	26.26	170	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

DEC-Well

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-006DL

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1041.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/24/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 2.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	20	U
75-87-3	Chloromethane	20	U
75-01-4	Vinyl Chloride	20	U
74-83-9	Bromomethane	20	U
75-00-3	Chloroethane	20	U
75-69-4	Trichlorofluromethane	20	U
75-35-4	1,1-Dichloroethene	20	U
75-15-0	Carbon Disulfide	20	U
67-64-1	Acetone	30	U
75-09-2	Methylene Chloride	20	U
540-59-0	trans 1,2-Dichloroethene	20	U
1634-04-4	Methyl-tert butyl ether	20	U
75-34-4	1,1-Dichloroethane	20	U
108-05-4	Vinyl Acetate	20	U
540-59-0	cis 1,2-Dichloroethene	20	U
78-93-3	2-Butanone	20	U
67-66-3	Chloroform	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
71-43-2	Benzene	20	U
107-06-2	1,2-Dichloroethane	20	U
79-01-6	Trichloroethene	20	U
78-87-5	1,2-Dichloropropane	20	U
75-27-4	Bromodichloromethane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
108-10-1	4-Methyl-2-pentanone	20	U
108-88-3	Toluene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
79-00-5	1,1,2-Trichloroethane	20	U
127-18-4	Tetrachloroethene	20	U
591-78-6	2-Hexanone	20	U
124-48-1	Dibromochloromethane	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
1330-20-7	m,p-Xylenes	640	D
1330-20-7	o-Xylene	400	D
100-42-5	Styrene	20	U
75-25-2	Bromoform	20	U
79-34-5	1,1,2,2,-Tetrachloroethane	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

DEC-Well

Site Name: Former Speedy Cleaners   Contract:

Site Code: 828128   Case No.:   SAS No.:   SDG No.: 198-01

Matrix: (soil/water) WATER   Lab Sample ID: 809-198-006DL

Sample wt/vol: 5.0 (g/ml) ML   Lab File ID: 09C1041.D

Level: (low/med) LOW   Date Received: 7/17/2009

% Moisture: not dec.   Date Analyzed: 7/24/2009

GC Column: RTX-624 ID: 0.25 (mm)   Dilution Factor: 2.0

Soil Extract Volume: (uL)   Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	20	U
106-43-4	4-Chlorotoluene	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
95-50-1	1,2-Dichlorobenzene	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
87-61-6	1,2,3-Trichlorobenzene	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID: **X-1**

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-007

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1011.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	4	J
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	65	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	12	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	520	E
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

X-1

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-007

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1011.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

X-1

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-007

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1011.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

X-1

Site Name: Former Speedy Cleaners

Contract:

Site Code: 828128

Case No.:

SAS No.:

SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-007DL

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1042.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/24/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 2.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	20	U
75-87-3	Chloromethane	20	U
75-01-4	Vinyl Chloride	20	U
74-83-9	Bromomethane	20	U
75-00-3	Chloroethane	20	U
75-69-4	Trichlorofluromethane	20	U
75-35-4	1,1-Dichloroethene	20	U
75-15-0	Carbon Disulfide	20	U
67-64-1	Acetone	30	U
75-09-2	Methylene Chloride	20	U
540-59-0	trans 1,2-Dichloroethene	20	U
1634-04-4	Methyl-tert butyl ether	20	U
75-34-4	1,1-Dichloroethane	20	U
108-05-4	Vinyl Acetate	20	U
540-59-0	cis 1,2-Dichloroethene	20	U
78-93-3	2-Butanone	20	U
67-66-3	Chloroform	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
71-43-2	Benzene	20	U
107-06-2	1,2-Dichloroethane	20	U
79-01-6	Trichloroethene	20	U
78-87-5	1,2-Dichloropropane	20	U
75-27-4	Bromodichloromethane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
108-10-1	4-Methyl-2-pentanone	20	U
108-88-3	Toluene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
79-00-5	1,1,2-Trichloroethane	20	U
127-18-4	Tetrachloroethene	1000	EBD
591-78-6	2-Hexanone	20	U
124-48-1	Dibromochloromethane	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
1330-20-7	m,p-Xylenes	20	U
1330-20-7	o-Xylene	20	U
100-42-5	Styrene	20	U
75-25-2	Bromoform	20	U
79-34-5	1,1,2,2,-Tetrachloroethane	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

X-1

Site Name: Former Speedy Cleaners

Contract:

Site Code: 828128

Case No.:

SAS No.:

SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-007DL

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1042.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/24/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 2.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
95-49-8	2-Chlorotoluene	20	U
106-43-4	4-Chlorotoluene	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
95-50-1	1,2-Dichlorobenzene	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
87-61-6	1,2,3-Trichlorobenzene	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-202

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-008

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1012.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	4	J
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	68	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	12	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	580	E
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-202

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-008

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1012.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

MW-202

Site Name: Former Speedy Cleaners Contract: ______

Site Code: 828128 Case No.: ______ SAS No.: ______ SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-008

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1012.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. ______ Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: ______ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-202

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-008DL

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1043.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/24/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	20	U
75-87-3	Chloromethane	20	U
75-01-4	Vinyl Chloride	20	U
74-83-9	Bromomethane	20	U
75-00-3	Chloroethane	20	U
75-69-4	Trichloroflurometnane	20	U
75-35-4	1,1-Dichloroethene	20	U
75-15-0	Carbon Disulfide	20	U
67-64-1	Acetone	30	U
75-09-2	Methylene Chloride	20	U
540-59-0	trans 1,2-Dichloroethene	20	U
1634-04-4	Methyl-tert butyl ether	20	U
75-34-4	1,1-Dichloroethane	20	U
108-05-4	Vinyl Acetate	20	U
540-59-0	cis 1,2-Dichloroethene	20	U
78-93-3	2-Butanone	20	U
67-66-3	Chloroform	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
71-43-2	Benzene	20	U
107-06-2	1,2-Dichloroethane	20	U
79-01-6	Trichloroethene	20	U
78-87-5	1,2-Dichloropropane	20	U
75-27-4	Bromodichloromethane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
108-10-1	4-Methyl-2-pentanone	20	U
108-88-3	Toluene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
79-00-5	1,1,2-Trichloroethane	20	U
127-18-4	Tetrachloroethene	1100	EBD
591-78-6	2-Hexanone	20	U
124-48-1	Dibromochloromethane	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
1330-20-7	m,p-Xylenes	20	U
1330-20-7	o-Xylene	20	U
100-42-5	Styrene	20	U
75-25-2	Bromoform	20	U
79-34-5	1,1,2,2,-Tetrachloroethane	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-202

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-008DL

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1043.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/24/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	20	U
106-43-4	4-Chlorotoluene	20	U
541-73-1	1,3-Dichlorobenzene	20	U
106-46-7	1,4-Dichlorobenzene	20	U
95-50-1	1,2-Dichlorobenzene	20	U
120-82-1	1,2,4-Trichlorobenzene	20	U
87-61-6	1,2,3-Trichlorobenzene	20	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-211

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-009RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1028.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	32	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	2	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	3	J
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-211

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-009RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1028.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

MW-211

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-009RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1028.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-212

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-010

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1014.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	2	J
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	110	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	180	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	2500	E
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-212

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-010

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1014.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID: **MW-212**

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-010

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1014.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/20/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-212

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-010DL

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1035.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	100	U
75-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	100	U
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-69-4	Trichlorofluromethane	100	U
75-35-4	1,1-Dichloroethene	100	U
75-15-0	Carbon Disulfide	100	U
67-64-1	Acetone	150	U
75-09-2	Methylene Chloride	100	U
540-59-0	trans 1,2-Dichloroethene	100	U
1634-04-4	Methyl-tert butyl ether	100	U
75-34-4	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	100	U
540-59-0	cis 1,2-Dichloroethene	100	U
78-93-3	2-Butanone	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-pentanone	100	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	22000	ED
591-78-6	2-Hexanone	100	U
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U
1330-20-7	m,p-Xylenes	100	U
1330-20-7	o-Xylene	100	U
100-42-5	Styrene	100	U
75-25-2	Bromoform	100	U
79-34-5	1,1,2,2,-Tetrachloroethane	100	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-212

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-010DL

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1035.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	UG/L	Q
95-49-8	2-Chlorotoluene	100	U
106-43-4	4-Chlorotoluene	100	U
541-73-1	1,3-Dichlorobenzene	100	U
106-46-7	1,4-Dichlorobenzene	100	U
95-50-1	1,2-Dichlorobenzene	100	U
120-82-1	1,2,4-Trichlorobenzene	100	U
87-61-6	1,2,3-Trichlorobenzene	100	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-206

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-011RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1029.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	3	J
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichloroflurometh ane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	12	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	1	J
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	4	J
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-206

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-011RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1029.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

MW-206

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-011RE

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1029.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 3

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1. 78	Butane, 2-methyl-	6.29	5	J
2. 109	Pentane	6.78	7	J
3. 96	Cyclopentane, methyl-	11.32	14	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-206S

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-012RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1030.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	9	J
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	2	J
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-206S

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-012RE

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1030.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

MW-206S

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-012RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1030.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:
MW-210

Site Name: Former Speedy Cleaners
Contract:
Site Code: 828128
Case No.:
SAS No.:
SDG No.: 198-01
Matrix: (soil/water) WATER
Lab Sample ID: 809-198-013
Sample wt/vol: 5.0 (g/ml) ML
Lab File ID: 09C1020.D
Level: (low/med) LOW
Date Received: 7/17/2009
% Moisture: not dec.
Date Analyzed: 7/21/2009
GC Column: RTX-624 ID: 0.25 (mm)
Dilution Factor: 1.0
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	48	
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	18	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	64	B
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

MW-210

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-013

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1020.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/21/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

MW-210

Site Name: Former Speedy Cleaners Contract: ____

Site Code: 828128 Case No.: ____ SAS No.: ____ SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-013

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1020.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. ____ Date Analyzed: 7/21/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

Trip Blank

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER

Lab Sample ID: 809-198-014RE

Sample wt/vol: 5.0 (g/ml) ML

Lab File ID: 09C1031.D

Level: (low/med) LOW

Date Received: 7/17/2009

% Moisture: not dec.

Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	10	U
75-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichloroflurometháne	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon Disulfide	10	U
67-64-1	Acetone	15	U
75-09-2	Methylene Chloride	10	U
540-59-0	trans 1,2-Dichloroethene	10	U
1634-04-4	Methyl-tert butyl ether	10	U
75-34-4	1,1-Dichloroethane	10	U
108-05-4	Vinyl Acetate	10	U
540-59-0	cis 1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	m,p-Xylenes	10	U
1330-20-7	o-Xylene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2,-Tetrachloroethane	10	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Field Sample ID:

Trip Blank

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-014RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1031.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
95-49-8	2-Chlorotoluene	10	U
106-43-4	4-Chlorotoluene	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
87-61-6	1,2,3-Trichlorobenzene	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Sample ID:

Trip Blank

Site Name: Former Speedy Cleaners Contract:

Site Code: 828128 Case No.: SAS No.: SDG No.: 198-01

Matrix: (soil/water) WATER Lab Sample ID: 809-198-014RE

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: 09C1031.D

Level: (low/med) LOW Date Received: 7/17/2009

% Moisture: not dec. Date Analyzed: 7/23/2009

GC Column: RTX-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

APPENDIX H

NATURAL ATTENUATION SCREENING PROTOCOL FORMS

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

MW-203S

Score: 9

Scroll to End of Table

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

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

End of Form

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

MW-205S

Score: 9

Scroll to End of Table

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

* required analysis.

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

End of Form

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

MW-206

Score: 8

Scroll to End of Table

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

* required analysis.

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

End of Form

Natural Attenuation Screening Protocol

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

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

MW-211

Score: 9

Scroll to End of Table

* reductive dechlorination

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

* required analysis.

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

End of Form

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

MW-212

Score: 11

Scroll to End of Table

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

* required analysis.

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

End of Form

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

HA-114

Score: 14

Scroll to End of Table

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

* required analysis.

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

End of Form

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

HA-119

Score: 14

Scroll to End of Table

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

* required analysis.

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

End of Form

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

MW-201

Score: 9

Scroll to End of Table

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

* required analysis.

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

End of Form

Natural Attenuation Screening Protocol

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

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

* reductive dechlorination

MW-201I

Score: 10

Scroll to End of Table

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

* required analysis.

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

End of Form

APPENDIX I

COST BACKUP

Alternative 2 - No Further Action with Site Management
Prepared By/Date: JDW 1/6/2010
Checked By/Date: KLS 01/12/2010

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
CAPITAL COSTS								
Institutional Controls								
33022037	Overnight Delivery, 8 oz Letter	4	EA	$ 14.43	$ -	$ -	$ 57.72	RSMeans 2004 ECHOS
33220102	Project Manager	16	HR	$ -	$ 51.77	$ -	$ 828.32	RACER 2007
33220105	Project Engineer	20	HR	$ -	$ 50.20	$ -	$ 1,004.00	RACER 2007
33220106	Staff Engineer	40	HR	$ -	$ 43.93	$ -	$ 1,757.20	RACER 2007
33220110	QA/QC Officer	16	HR	$ -	$ 42.34	$ -	$ 677.44	RACER 2007
33220114	Word Processing/Clerical	40	HR	$ -	$ 22.35	$ -	$ 894.00	RACER 2007
33220115	Draftsman/CADD	40	HR	$ -	$ 29.22	$ -	$ 1,168.80	RACER 2007
33220120	Computer Data Entry	40	HR	$ -	$ 20.08	$ -	$ 803.20	RACER 2007
33220505	Attorney, Senior Associate, Real Estate	4	HR	$ -	$ 175.00	$ -	$ 700.00	RACER 2007
33220509	Paralegal, Real Estate	4	HR	$ -	$ 100.00	$ -	$ 400.00	RACER 2007
33240101	Other Direct Costs	1	LS	$ 751.16	$ -	$ -	$ 751.16	RACER 2007
99041205	Portable GPS Set with Mapping, 5 cm Accuracy	1	MO	$ 689.22	$ -	$ -	$ 689.22	RACER 2007 RACER 2007
99130602	Local Fees	1	LS	$ 200.00	$ -	$ -	$ 200.00	RACER 2007
	Task Subtotal						**$ 9,931.06**	
ALTERNATIVE ANNUAL AND PERIODIC COSTS								
Annual Institutional Control Inspections and Reporting								
MACTEC	Inspection	4	HR	$ -	$ 90.00	$ 25.00	$ 460.00	RACER 2006
MACTEC	Report	1	LS	$ -	$ 1,000.00	$ -	$ 1,000.00	RACER 2006
	Task Subtotal						**$ 1,460.00**	
Long-Term Monitoring for Natural Attenuation (per sampling event - 8 wells)								
Groundwater Monitoring								
33010102	Van Rental	3	DAY	$ 44.61	$ -	$ -	$ 133.83	
33220112	Field Technician	30	HR	$ 11.01	$ 40.57	$ -	$ 1,547.63	1 person 3 days (includes per diem)
33231189	DOT steel drums, 55 gal., open, 17C	1	EA	$ 97.66			$ 97.66	
33021509	Monitor well sampling equipment, rental, water quality testing parameter device rental	1	WK	$ 264.04	$ -	$ -	$ 264.04	
33020401	Disposable Materials per Sample	8	EA	$ 9.74	$ -	$ -	$ 77.93	
33020402	Decontamination Materials per Sample	8	EA	$ 8.22	$ -	$ -	$ 65.78	
33232407	PVC bailers, disposable polyethylene, 1.50" OD x 36"	8	EA	$ 11.15	$ -	$ -	$ 89.22	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	9	EA	$ 245.42	$ -	$ -	$ 2,208.79	Includes additional 10% for QC
	Task Subtotal						**$ 4,484.87**	

Alternative 2 - No Further Action with Site Management

Prepared By/Date: JDW 1/6/2010
Checked By/Date: KLS 01/12/2010

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
Annual Reporting								
95010102	Annual Report	1	LS	$ -	$ 4,000.00	$ -	$ 4,000.00	Including bioremediation evaluation
	Task Subtotal						**$ 4,000.00**	

PRESENT VALUE OF ANNUAL AND PERIODIC COSTS FOR ALTERNATIVE 2 (No Further Action with Site Management)

Year	Cost*	Number of Annual Periods	Annual Discount Rate	Number of 2-Year Periods	2-Year Discount Rate	Number of 4-Year Periods	4-Year Discount Rate	Total Non-Discounted Cost	Present Value Cost
Capital (Year 0)	$ 19,000	1	0	NA	NA	NA	NA	$ 19,000.00	$ 19,000.00
Quarterly Monitoring (Years 1-2)	$ 23,000	2	0.05	NA	NA	NA	NA	$ 46,000.00	$ 42,766.44
Semi-Annual Monitoring (Years 3-4)	$ 12,000	2	0.05	1	0.1025	NA	NA	$ 24,000.00	$ 20,238.48
Annual Monitoring (Years 5-30)	$ 6,000	26	0.05	NA	NA	1	0.215506	$ 156,000.00	$ 70,959.00
Annual Institutional Control Inspections and Reporting (Years 1-30)	$ 2,000	30	0.05	NA	NA	NA	NA	$ 60,000.00	$ 30,744.90
Annual Long Term Monitoring Reporting (Years 1-30)	$ 5,000	30	0.05	NA	NA	NA	NA	$ 150,000.00	$ 76,862.26
Totals								**$ 455,000.00**	**$ 260,571.08**

*Annual and periodic costs include 10% for technical support and 15% contingency for unforeseen project complexities, including insurance, taxes, and licensing costs.
Capital costs include 15% contingency, as well as project management, remedial design, and construction management costs per DER-10 guidance.
Discount rate of 5% (for 30-years) percent based on NYSDEC PRAP Outline / Instructions.

Prepared By/Date: **JDW 1/6/2010**
Checked By/Date: **KLS 01/12/2010**

Alternative 3 - Soil Vapor Extraction and Air Sparging
Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Mateiral Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
CAPITAL COSTS								
Pre-Design Investigation								
Subsurface Soil, Soil Vapor and GW Sampling (five locations, 2 soil, 1 water, 1 vapor at each location + 2 in building)								
33220112	Field Technician	50	HR	$ 11.01	$ 40.57	$ -	$ 2,579.38	2 days soil/GW sampling, 1 day vapor, 2 days survey
33010102	Van Rental	5	DAY	$ 44.61	$ -	$ -	$ 223.04	
33010101	Mobilize/DeMobilize Drilling Rig & Crew	1	LS	$ -	$ 1,574.76	$ 1,124.22	$ 2,698.98	
33231101	Hollow stem auger, 8" diameter Borehole, Depth <= 100'	75	LF	$ -	$ 12.11	$ 22.69	$ 2,610.11	5 borings to 15'
33231178	Move Rig/Equipment Around Site	5	EA	$ 68.11	$ 226.37	$ 161.60	$ 2,280.41	
33231813	Portland Cement Grout	75	LF	$ 11.34	$ -	$ -	$ 850.33	
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	1	DAY	$ 20.45	$ 614.53	$ -	$ 634.98	
33020605	Screw augers, hand auger rental	2	DAY	$ 74.25	$ -	$ -	$ 148.50	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	16	EA	$ 170.30	$ -	$ -	$ 2,724.76	15 plus 1 QAQC
Lab Quote	TO-15 VOC analysis for Vapor	8	EA	$ 235.00	$ -	$ -	$ 1,880.00	7 plus 1 for QAQC
33231189	DOT steel drums, 55 gal., open,	3	EA	$ 93.90	$ -	$ -	$ 281.70	
20836142	Load soil into 55 gal drums	3	EA	$ -	$ 34.00	$ -	$ 102.00	
33190303	Transport/Dispose (non-haz)	3	EA	$ 296.51	$ -	$ -	$ 889.52	
Surveying								
33029903	Ground penetrating radar	1	DAY	$ 1,538.68	$ -	$ -	$ 1,538.68	
99041201	Surveying - 2-man Crew	2	DAY	$ -	$ 1,164.79	$ 279.35	$ 2,888.28	
	Task Subtotal						**$ 22,330.68**	
SVE / Air Sparge Pilot Test								
Wells								2 SVE wells to 8 feet, 2 AS well to 20, 2 monitoring pts to 10 ft
33220112	Field Technician	70	HR	$ 11.01	$ 40.57	$ -	$ 3,611.14	5 days
33010102	Van Rental	7	DAY	$ 44.61	$ -	$ -	$ 312.26	
33010101	Mobilize/DeMobilize Drilling Rig & Crew	1	LS	$ -	$ 1,574.76	$ 1,124.22	$ 2,698.98	
33020303	Organic Vapor Analyzer Rental, per Day	5	DAY	$ 140.36	$ -	$ -	$ 701.82	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	4	EA	$ 245.42	$ -	$ -	$ 981.68	one water one soil at AS wells
Lab Quote	TO-15 VOC analysis for Vapor	4	EA	$ 235.00	$ -	$ -	$ 940.00	1 at each SVE well & monitoring well
33231101	Hollow Stem Auger, 8" Dia Borehole, Depth <=100 ft	90	LF	$ -	$ 7.43	$ 35.45	$ 3,859.34	
33231178	Move Rig/Equipment Around Site	6	EA	$ 68.11	$ 226.37	$ 161.60	$ 2,736.49	
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	5	DAY	$ 20.45	$ 614.53	$ -	$ 3,174.90	
33230102	4" PVC, Schedule 40, Well Casing	40	LF	$ 3.06	$ 3.93	$ 11.77	$ 750.28	4" for SVE & Air Sparge
33230202	4" PVC, Schedule 40, Well Screen	20	LF	$ 6.87	$ 5.26	$ 15.78	$ 558.31	
33230302	4" PVC, Well Plug	4	EA	$ 26.63	$ 5.65	$ 17.26	$ 198.14	
33231402	4" Screen, Filter Pack	20	LF	$ 5.98	$ 3.93	$ 11.78	$ 433.80	
33231812	4" Well, Portland Cement Grout	40	LF	$ 1.89	$ -	$ -	$ 75.58	
33232102	4" Well, Bentonite Seal	4	EA	$ 24.62	$ 22.11	$ 66.23	$ 451.84	
33230101	2" PVC, Schedule 40, Well Casing	10	LF	$ 1.33	$ 2.72	$ 7.73	$ 117.90	2" for monitoring pts
33230201	2" PVC, Schedule 40, Well Screen	20	LF	$ 3.10	$ 3.50	$ 9.97	$ 331.32	
33230301	2" PVC, Well Plug	2	EA	$ 6.52	$ 4.07	$ 11.59	$ 44.35	

Alternative 3 - Soil Vapor Extraction and Air Sparging
Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Mateiral Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
33231401	2" Screen, Filter Pack	20	LF	$ 3.48	$ 2.31	$ 6.57	$ 247.16	
33231811	2" Well, Portland Cement Grout	10	LF	$ 1.30	$ -	$ -	$ 12.98	
33232101	2" Well, Bentonite Seal	2	EA	$ 10.33	$ 9.15	$ 26.08	$ 91.12	
33232205	Well Vault for equipment	4	EA	$ 1,094.69	$ 967.16	$ 2,356.80	$ 17,674.62	
33232203	8'X7.5" Manhole Cover	2	EA	$ 47.73	$ 50.81	$ 144.90	$ 486.87	
33231189	DOT steel drums, 55 gal., open,	5	EA	$ 93.90	$ -	$ -	$ 469.51	
20836142	Load soil into 55 gal drums	5	EA	$ -	$ 34.00	$ -	$ 170.01	
33190303	Transport/Dispose (non-haz)	5	EA	$ 296.51	$ -	$ -	$ 1,482.54	
System Components/Equipment								
33260430	4" PVC, Schedule 80, Connection Piping	50	LF	$ 2.89	$ 6.13	$ -	$ 450.96	Piping above ground for pilot test
33260460	4" PVC, Schedule 80, Manifold Piping	10	LF	$ 3.05	$ 10.34	$ -	$ 133.90	
33270126	4" PVC, Schedule 80, Tee	3	EA	$ 21.85	$ -	$ -	$ 65.56	
33270136	4" PVC, Schedule 80, 90 Degree, Elbow	3	EA	$ 15.60	$ -	$ -	$ 46.81	
33270441	4" PVC, Sch 80, Ball Valve	3	EA	$ 308.39	$ -	$ -	$ 925.17	
33310209	Pressure Gauges	3	EA	$ 75.38	$ 76.48	$ -	$ 455.56	
33132333	5 HP, 90 SCFM Vapor Extraction Blower (Rental) - 2 units	2	MO	$ -	$ -	$ 1,478.07	$ 2,956.15	Rent 2 units (one for SVE and one for AS)
33131908	Carbon Adsorption - 250CFM, 400 lbs	1	EA	$ 2,753.28	$ 278.00	$ -	$ 3,031.28	Will need 2nd one for full scale
33310209	Pressure Gauges	2	EA	$ 75.38	$ 76.48	$ -	$ 303.71	
33132343	Knockout Drum	1	EA	$ -	$ -	$ 93.90	$ 93.90	Need 2nd one for full scale
33132001	Carbon Adsorption (Liquids) - 5 gpm DOT disposable drum	1	EA	$ 573.84	$ 80.50	$ -	$ 654.34	Need 2nd one for full scale
Assumed	Miscellaneous parts	1	EA	$ 5,796.37	$ -	$ -	$ 5,796.37	
	Task Subtotal						**$ 57,526.64**	
FULL SCALE								
Temporary Utilities (assume up to two months for drilling, trenching, system start-up, ETC)								
99040101	Temporary Office 20' x 8'	2.00	MO	$ 206.42	$ -	$ -	$ 412.84	RSMeans 2004 ECHOS
99140201	Temporary Storage Trailer 16' x 8'	2.00	MO	$ 80.72	$ -	$ -	$ 161.44	RSMeans 2004 ECHOS
99040501	Portable Toilets	2.00	MO	$ 82.65	$ -	$ -	$ 165.30	RSMeans 2004 ECHOS
01510.050.0040	Temporary Power Service, overhead feed, 3 use, 200 amp	2.00	EA	$ 745.00	$ 335.00	$ -	$ 2,160.00	RSMeans Site Work & Landscape Cost Data 2006
01520.550.0140	Telephone utility fee	2.00	MO	$ 210.00	$ -	$ -	$ 420.00	RSMeans Site Work & Landscape Cost Data 2006
MACTEC	Electrical utility fee	2.00	MO	$ 200.00	$ -	$ -	$ 400.00	
01520.550.0100	Field office expenses, office equipment rental, average	2.00	MO	$ 145.00	$ -	$ -	$ 290.00	RSMeans Site Work & Landscape Cost Data 2006
01560.250.0200	Rented chain link, 6' high, to 1,000'	1000	LF	$ 3.03	$ 1.10	$ -	$ 4,130.00	RSMeans Site Work & Landscape Cost Data 2006
02220.350.0725	Dumpster, weekly rental, 1 dump/week , 20 cy capacity (8 tons)	8	WK	$ 420.00	$ -	$ -	$ 3,360.00	RSMeans Site Work & Landscape Cost Data 2006
Decontamination Facility								
33290401	25 gpm, 1-1/2" discharge, cast iron sump p	1	EA	$ -	$ -	$ 2,317.00	$ 2,317.00	
33290704	50' Flexible, Product Discharge Hose	1	EA	$ -	$ -	$ 175.00	$ 175.00	
02060.150.030	3/4" crushed stone borrow, spread w/ 200 HP dozer, no compaction, 2 mi rt haul	56	CY	$ 27.50	$ 1.43	$ 3.12	$ 1,780.56	
02315.310.510	Compaction, General, riding vibrating roller, 12" lifts, 4 passes	56	ECY	$ -	$ 0.16	$ 0.16	$ 17.78	
3308544	60-mil Polymeric Liner, Very Low Density	167	SF	$ 1.97	$ -		$ 328.33	
33080534	16 oz/sy nonwoven geotextile	167	SY	$ 2.39	$ -		$ 398.33	
33170814	1,800 psi pressure washer, 6HP, 4.8 gpm	1	EA	$ -	$ -	$ 1,635.00	$ 1,635.00	
19040605	2,000 gal steel sump, aboveground w/ supports and fittings	1	EA	$ 2,233.00	$ 853.69	$ 123.26	$ 3,209.95	

Alternative 3 - Soil Vapor Extraction and Air Sparging
Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Mateiral Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
33170823	Operation of pressure washer, including water, soap, electricity, and labor	8	HR	$ -	$ -	$ 41.69	$ 333.52	
33410101	Pump and motor maintenance/repair	1	EA	$ -	$ -	$ 431.15	$ 431.15	
Erosion and Sediment Control Measures								
18050206	Filter Barrier, Silt Fences, Vinyl, 3' High with 7.5' Posts	500	LF	$ 0.70	$ 1.41	$ -	$ 1,055.00	RSMeans 2004 ECHOS, around work area
Soil Vapor Extraction and Air Sparging Wells								
SVE and AS Wells (10 additional SVE Wells, 8 additional AS wells, and 8 additional monitoring points)								
33010101	Mobilize/DeMobilize Drilling Rig & Crew	1	LS	$ -	$ 1,574.76	$ 1,124.22	$ 2,698.98	Includes Mob for GW extraction
33220112	Field Technician	120	HR	$ 11.01	$ 40.57	$ -	$ 6,190.52	
33010102	Van Rental	120	DAY	$ 44.61	$ -	$ -	$ 5,353.06	
33020303	Organic Vapor Analyzer Rental, per Day	7	DAY	$ 140.36	$ -	$ -	$ 982.55	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	17	EA	$ 245.42	$ -	$ -	$ 4,172.16	one water one soil at AS wells (+1 QAQC)
Lab Quote	TO-15 VOC analysis for Vapor	10	EA	$ 235.00	$ -	$ -	$ 2,350.00	1 at each new SVE well
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	7	DAY	$ -	$ 125.90	$ -	$ 881.28	
33231178	Move Rig/Equipment Around Site	14	EA	$ 68.11	$ 226.37	$ 161.60	$ 6,385.14	
33231101	Hollow Stem Auger, 8" Dia Borehole, Depth <=100 ft	390	LF	$ -	$ 7.43	$ 35.45	$ 16,723.80	SVE wells to 8 ft, AS wells to 20 ft, Monitoring pts to 15 ft
33230102	4" PVC, Schedule 40, Well Casing	170	LF	$ 3.06	$ 3.93	$ 11.78	$ 3,190.67	4" for SVE and AS
33230202	4" PVC, Schedule 40, Well Screen	90	LF	$ 6.87	$ 5.26	$ 15.78	$ 2,512.38	
33230302	4" PVC, Well Plug	18	EA	$ 26.63	$ 5.65	$ 17.26	$ 891.64	
33231402	4" Screen, Filter Pack	90	LF	$ 5.98	$ 3.93	$ 11.78	$ 1,952.10	
33231812	4" Well, Portland Cement Grout	170	LF	$ 1.89	$ -	$ -	$ 321.23	
33232102	4" Well, Bentonite Seal	18	EA	$ 25.20	$ 22.11	$ 66.23	$ 2,043.71	
33230101	2" PVC, Schedule 40, Well Casing	40	LF	$ 1.33	$ 2.72	$ 7.73	$ 471.59	2" for monitoring pts
33230201	2" PVC, Schedule 40, Well Screen	80	LF	$ 3.10	$ 3.50	$ 9.97	$ 1,325.28	
33230301	2" PVC, Well Plug	8	EA	$ 6.52	$ 4.07	$ 11.59	$ 177.42	
33231401	2" Screen, Filter Pack	80	LF	$ 3.48	$ 2.31	$ 6.57	$ 988.63	
33231811	2" Well, Portland Cement Grout	40	LF	$ 1.30	$ -	$ -	$ 51.94	
33232101	2" Well, Bentonite Seal	8	EA	$ 10.33	$ 9.15	$ 26.08	$ 364.48	
33232203	8'X7.5" Manhole Cover	8	EA	$ 47.73	$ 50.81	$ 144.90	$ 1,947.49	
33232205	Well Vault for equipment	18	EA	$ 1,094.69	$ 967.16	$ 2,356.80	$ 79,535.78	
33231189	DOT steel drums, 55 gal., open,	30	EA	$ 93.90	$ -	$ -	$ 2,817.04	
20836142	Load soil into 55 gal drums	30	EA	$ -	$ 34.00	$ -	$ 1,020.05	
33190303	Transport/Dispose (non-haz)	30	EA	$ 296.51	$ -	$ -	$ 8,895.23	
Treatment System Componants	**System Components/Equipment**							
TRENCHING & CONVEYANCE PIPING								Piping from wells to treatment system,
33220112	Field Technician	100	HR	$ 11.01	$ 40.57	$ -	$ 5,158.77	Assume 2 Weeks
33010102	Van Rental	10	DAY	$ 44.61	$ -	$ -	$ 446.09	
20461760	Remove Pavement	975	SF	$ -	$ 2.89	$ 1.38	$ 4,159.48	Assume paved throughout (325'), trench 3' wide
17030255	Trenching, backfill & Compaction	144	CY	$ -	$ 4.42	$ 1.18	$ 808.79	325 feet long, 4 feet deep, 3 feet wide
18010102	Gravel, Delivered, Dumped & graded	40	CY	$ 24.47	$ 2.06	$ 1.88	$ 1,136.55	Around pipes (~1 feet)
18010105	Asphalt Base Course	20	CY	$ 37.54	$ 0.71	$ 1.48	$ 794.57	Assume 6 inch throughout
18010312	Asphalt Wearing Course	20	TON	$ 35.91	$ 16.53	$ 16.51	$ 1,379.07	
33260430	4", sch80 PVC	325	LF	$ 2.81	$ 6.46	$ -	$ 3,010.34	Piping from wells to GWTS, then to catch basin

Alternative 3 - Soil Vapor Extraction and Air Sparging
Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Mateiral Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
33260460	4" PVC, Schedule 80, Manifold Piping	20	LF	$ 3.05	$ 10.34	$ -	$ 267.79	
33270126	4" PVC, Schedule 80, Tee	14	EA	$ 21.85	$ -	$ -	$ 305.93	
33270136	4" PVC, Schedule 80, 90 Degree, Elbow	14	EA	$ 15.60	$ -	$ -	$ 218.45	
33270441	4" PVC, Sch 80, Ball Valve	14	EA	$ 308.39	$ -	$ -	$ 4,317.46	
33310209	Pressure Gauges	14	EA	$ 75.38	$ 76.48	$ -	$ 2,125.95	
Vendor	Excess Soil Transport and Disposal Assume <60ppm VOCs	72	Ton	$ 115.88	$ -	$ -	$ 8,343.36	
System Components/Equipment								
33220112	Field Technician	100	HR	$ 11.01	$ 40.57	$ -	$ 5,158.77	Assume 2 Weeks to assemble & test
33010102	Van Rental	10	DAY	$ 44.61	$ -	$ -	$ 446.09	
18020322	8" Structural Slab on Grade	170	SF	$ 4.52	$ 5.04	$ 0.15	$ 1,651.50	Slab for under treatment building
33132377	Equipment enclosure,8'x15' Portable building/shed; lined, insulated, skid mounted with exhaust fan	1	EA	$ 3,044.44	$ -	$ -	$ 3,044.44	
33132361	1000 SCFM Vapor Recovery System	1	EA	$ 28,290.92	$ -	$ -	$ 28,290.92	
33139003	15HP, 163SCFM Blower (buy)	1	EA	$ -	$ -	$ 5,593.50	$ 5,593.50	For air sparge
33021502	Thermostat & Humidity Control Devices	1	EA	$ 109.77	$ 135.57	$ -	$ 245.34	
33131908	Carbon Adsorption (Air)- 250CFM, 400 lbs	1	EA	$ 2,753.28	$ 278.00	$ -	$ 3,031.28	In addition to unit purchased for pilot
33132343	Knockout Drum	1	EA	$ -	$ -	$ 93.90	$ 93.90	In addition to unit purchased for pilot
33132001	Carbon Adsorption (Liquids) - 5 gpm DOT disposable drum	1	EA	$ 573.84	$ 80.50	$ -	$ 654.34	In addition to unit purchased for pilot
Assumed	Miscellaneous parts, connections, plumbing	1	LS	$ 5,000.00	$ 5,000.00		$ 10,000.00	
	Task Subtotal						**$ 268,108.02**	
ALTERNATIVE ANNUAL AND PERIODIC COSTS								
Operation and Maintenance								
Weekly Site Visits								
33220106	Staff Engineer	104	HR	$ -	$ 62.11	$ -	$ 6,459.85	report preparation
33220112	Field Technician	624	HR	$ 11.01	$ 40.57	$ -	$ 32,190.72	
33010102	Van Rental	52	DAY	$ 44.61	$ -	$ -	$ 2,319.66	
Soil Vapor Extraction								
99020110	Annual Maintenance Materials and Labor	1	LS	$ 289.82	$ 289.82	$ 289.82	$ 869.46	
Lab Quote	TO-15 VOC analysis for Vapor	24	EA	$ 235.00	$ -	$ -	$ 5,640.00	Influent & Effluent each month, no QAQC
33420101	Electrical Charge	15000	KWH	$ 0.16	$ -	$ -	$ 2,434.48	Treatment Train Misc/SVE
33132001	Carbon Adsorption (Liquids) - 5 gpm DOT disposable drum	2	EA	$ 573.84	$ 80.50	$ -	$ 1,308.68	Replace liquid GAC drums 1/year
33131942	Air & process gas purification, carbon	800	LB	$ 1.28	$ -	$ -	$ 1,020.16	Replacement Vapor GAC, assume 1/year

Alternative 3 - Soil Vapor Extraction and Air Sparging
Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Mateiral Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
	adsorption, vapor phase activated carbon, coal based, 4 mm pellet, for solvent recovery, 1-5 tons							
33132065	Removal, Transport, Regeneration of Spent Carbon, < 2K lb	800	LB	$ 0.78	$ -	$ -	$ 621.37	
Vapor Sampling								
Lab Quote	TO-15 VOC analysis for Vapor	52	EA	$ 235.00	$ -	$ -	$ 12,220.00	Quarterly sampling each SVE well (12 + 1 QAQC per quarter)
	Task Subtotal						**$ 65,084.37**	
ANNUAL AND PERIODIC COSTS								
Long-Term Monitoring (per sampling event - assume 8 wells)								
Groundwater Monitoring								
33010102	Van Rental	3	DAY	$ 44.61	$ -	$ -	$ 133.83	
33220112	Field Technician	30	HR	$ 11.01	$ 40.57	$ -	$ 1,547.63	person 1 week(includes per diem)
33231186	Well Development Equipment Rental (weekly)	1	WK	$ 264.04	$ -	$ -	$ 264.04	
33231189	DOT steel drums, 55 gal., open, 17C	3	EA	$ 97.66			$ 292.97	
33021509	Monitor well sampling equipment, rental, water quality testing parameter device rental	1	WK	$ 264.04	$ -	$ -	$ 264.04	assumes 4 well per day
33020401	Disposable Materials per Sample	12	EA	$ 9.74	$ -	$ -	$ 116.90	12 sampling locations (all existing on-site wells)
33020402	Decontamination Materials per Sample	12	EA	$ 8.22	$ -	$ -	$ 98.67	
33232407	PVC bailers, disposable polyethylene, 1.50" OD x 36"	12	EA	$ 11.15	$ -	$ -	$ 133.83	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	13	EA	$ 245.42	$ -	$ -	$ 3,190.47	12 + 1 for QAQC
	Task Subtotal						**$ 6,042.37**	
Annual Reporting								
95010102	Annual Report	1	LS	$ -	$ 12,000.00	$ -	$ 12,000.00	Including bioremediation evaluation
	Task Subtotal						**$ 12,000.00**	
Periodic Costs								
	System Repair	1	LS	$ -	$ 53,621.60	$ -	$ 53,621.60	Assume 20% of original costs for upgrades at year 7.
	Task Subtotal						**$ 53,621.60**	

PRESENT VALUE OF ANNUAL AND PERIODIC COSTS FOR ALTERNATIVE 3 (Soil Vapor Extraction and Air Sparging)

Year	Cost*	Number of Annual Periods	Annual Discount Rate	Number of 2-Year Periods	2-Year Discount Rate	Number of 4-Year Periods	4-Year Discount Rate	Number of 7-Year Periods	7-Year Discount Rate	Total Non-Discounted Cost	Present Value Cost
Capital (Year 0)	$ 559,000	1	0	NA	NA	NA	NA	NA	NA	$ 559,000.00	$ 559,000.00
Annual OM&M (Years 1-10)	$ 82,000	10	0.05	NA	NA	NA	NA	NA	NA	$ 820,000.00	$ 633,182.26
Quarterly Monitoring (Years 1-2)	$ 31,000	2	0.05	NA	NA	NA	NA	NA	NA	$ 62,000.00	$ 57,641.72
Semi-Annual Monitoring (Years 3-4)	$ 16,000	2	0.05	1	0.1025	NA	NA	NA	NA	$ 32,000.00	$ 26,984.64
Annual Monitoring (Years 5-30)	$ 8,000	26	0.05	NA	NA	1	0.21550625	NA	NA	$ 208,000.00	$ 94,612.00
Annual Long Term Monitoring Reporting (Years 1-30)	$ 15,000	30	0.05	NA	NA	NA	NA	NA	NA	$ 450,000.00	$ 230,586.77
Periodic Costs - System Upgrades (Year 7)	$ 54,000	1	0.05					1	0.407100423	$ 54,000.00	$ 38,376.79
Totals										**$ 2,185,000.00**	**$ 1,640,384.19**

*Annual and periodic costs include 10% for technical support and 15% contingency for unforeseen project complexities, including insurance, taxes, and licensing costs.
Capital costs include 20% contingency, as well as project management, remedial design, and construction management costs per DER-10 guidance.
Discount rate of 5% (for 30-years) percent based on NYSDEC PRAP Outline / Instructions.

Prepared By/Date:	**JDW 1/7/2010**
Checked By/Date:	**KLS 01/12/2010**

Alternative 4 - In-Situ Enhanced Biodegradation
Modified By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
CAPITAL COSTS								
Pre-Design Investigation								
Geoprobe Sampling of Soil and Groundwater								Collect soil and groundwater from two locations for VOC testing as well as bench scale testing for dehalococcoides.
33220112	Field Technician	20	HR	$ -	$ 40.57	$ -	$ 811.49	2 day
33010102	Van Rental	2	DAY	$ 44.61	$ -	$ -	$ 89.22	
33020303	Organic Vapor Analyzer Rental, per Day	2	DAY	$ 134.33	$ -	$ -	$ 268.67	
Recent Quote	Mobilize Geoprobe Rig & Crew	1	LS	$ -	$ 1,000.00	$ -	$ 1,000.00	
Recent Quote	Day Rate for Geoprobe Rig & Crew	2	Day	$ -	$ 1,600.00	$ -	$ 3,200.00	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	4	EA	$ 245.42	$ -	$ -	$ 981.68	two soil and two water samples
	Task Subtotal						**$ 6,351.06**	
Bench Scale Testing								
	Bench scale test	1	LS	$ 2,000.00	$ -	$ -	$ 2,000.00	
	Task Subtotal						**$ 2,000.00**	Dehalococcoides Test - SiREM.
Full Scale								
Temporary Utilities (assume up to two weeks)								
99040101	Temporary Office 20' x 8'	0.50	MO	$ 206.42	$ -	$ -	$ 103.21	
99140201	Temporary Storage Trailer 16' x 8'	0.50	MO	$ 80.72	$ -	$ -	$ 40.36	
99040501	Portable Toilets	0.50	MO	$ 82.65	$ -	$ -	$ 41.33	
01510.050.0040	Temporary Power Service, overhead feed, 3 use, 200 amp	0.50	EA	$ 745.00	$ 335.00	$ -	$ 540.00	
01520.550.0140	Telephone utility fee	0.50	MO	$ 210.00	$ -	$ -	$ 105.00	
MACTEC	Electrical utility fee	0.50	MO	$ 200.00	$ -	$ -	$ 100.00	
01520.550.0100	Field office expenses, office equipment rental, average	0.50	MO	$ 145.00	$ -	$ -	$ 72.50	
02220.350.0725	Dumpster, weekly rental, 1 dump/week , 20 cy capacity (8 tons)	2	WK	$ 420.00	$ -	$ -	$ 840.00	
Temporary 3dme Injection Points (10), 2 monitoring wells & development								10 injection points, assume 2/day (5 days). 2 monitoring wells & development, 2 days. Baseline Sampling 1 day.
33220112	Field Technician	80	HR	$ -	$ 40.57	$ -	$ 3,245.97	includes per diem
33010102	Van Rental	8	DAY	$ 44.61	$ -	$ -	$ 356.87	
33020303	Organic Vapor Analyzer Rental, per Day	8	DAY	$ 134.33	$ -	$ -	$ 1,074.66	
Geoprobe Injections								
Recent Quote	Mobilize Geoprobe Rig & Crew	1	LS	$ -	$ 1,000.00	$ -	$ 1,000.00	
Recent Quote	Day Rate for Geoprobe Rig & Crew	5	Day	$ -	$ 1,600.00	$ -	$ 8,000.00	
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	5	DAY	$ -	$ 125.90	$ -	$ 629.49	
HRC/3dme Backup	3dme Material	4620	LBS	$ 0.56	$ -	$ -	$ 2,605.68	Including 20% for tax & shipping
HRC/3dme Backup	HRC Material	105	LBS	$ 3.36	$ -	$ -	$ 352.80	Including 20% for tax & shipping
Monitoring Well Installation								
33010101	Mobilize/Demobilize Drilling Rig & Crew	1	LS	$ -	$ 3,309.73	$ 1,124.22	$ 4,433.95	Assume level D
33231178	Move Rig/Equipment Around Site	2	EA	$ 67.24	$ 116.85	$ 161.60	$ 691.39	
33231504	Surface Pad, Concrete, 2' x 2' x	2	EA	$ 46.13	$ 85.32	$ 2.04	$ 266.98	

Alternative 4 - In-Situ Enhanced Biodegradation
Modified By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
	4"							
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	2	DAY	$ -	$ 125.90	$ -	$ 251.79	
33231101	Hollow Stem Auger, 8" Dia Borehole, Depth <=100 ft	30	LF	$ -	$ 7.43	$ 35.45	$ 1,286.45	2 wells to 15 feet
33230101	2" PVC, Schedule 40, Well Casing	10	LF	$ 1.39	$ 2.71	$ 8.28	$ 123.76	
33230201	2" PVC, Schedule 40, Well Screen	20	LF	$ 3.22	$ 3.50	$ 10.68	$ 347.94	10 ft screens
33230301	2" PVC, Well Plug	2	EA	$ 6.78	$ 4.07	$ 12.40	$ 46.50	
33231401	2" Screen, Filter Pack	20	LF	$ 3.62	$ 2.31	$ 7.04	$ 259.21	
33231811	2" Well, Portland Cement Grout	10	LF	$ 1.35	$ -	$ -	$ 13.50	
33232101	2" Well, Bentonite Seal	2	EA	$ 10.74	$ 9.15	$ 27.92	$ 95.61	
33231189	DOT steel drums, 55 gal., open,	2	EA	$ 93.90	$ -	$ -	$ 187.80	
20836142	Load soil into 55 gal drums	2	EA	$ -	$ 34.00	$ -	$ 68.00	
33190303	Transport/Dispose (non-haz)	2	EA	$ 296.51	$ -	$ -	$ 593.02	
Monitoring Well Development (2) & sampling								Sample 2 new wells
33231186	Well Development Equipment Rental (weekly)	1	WK	$ 264.04	$ -	$ -	$ 264.04	
33231189	DOT steel drums, 55 gal., open,	3	EA	$ 93.90			$ 281.70	1.5 drum each new well for development
33190303	Transport/Dispose (non-haz)	3	EA	$ 296.51	$ -	$ -	$ 889.52	
33021509	Monitor well sampling equipment, rental, water quality testing parameter device rental	1	WK	$ 264.04	$ -	$ -	$ 264.04	
33020401	Disposable Materials per Sample	2	EA	$ 9.74	$ -	$ -	$ 19.48	
33020402	Decontamination Materials per Sample	2	EA	$ 8.22	$ -	$ -	$ 16.44	
33232407	PVC bailers, disposable polyethylene, 1.50" OD x 36"	2	EA	$ 11.15	$ -	$ -	$ 22.30	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	2	EA	$ 245.42	$ -	$ -	$ 490.84	
Assume Re-injections at 6-months								
Temporary 3dme Injection Points (10), 2 monitoring wells & development								10 injection points, assume 2/day (5 days).
33220112	Field Technician	50	HR	$ -	$ 40.57	$ -	$ 2,028.73	includes per diem
33010102	Van Rental	5	DAY	$ 44.61	$ -	$ -	$ 223.04	
33020303	Organic Vapor Analyzer Rental, per Day	5	DAY	$ 134.33	$ -	$ -	$ 671.66	
Geoprobe Injections								
Recent Quote	Mobilize Geoprobe Rig & Crew	1	LS	$ -	$ 1,000.00	$ -	$ 1,000.00	
Recent Quote	Day Rate for Geoprobe Rig & Crew	10	Day	$ -	$ 1,600.00	$ -	$ 16,000.00	
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	10	DAY	$ -	$ 125.90	$ -	$ 1,258.97	
	3dme Material	4620	LBS	$ 0.56	$ -	$ -	$ 2,605.68	HRC/3dme Backup W/20% for shipping/tax
	HRC Material	105	LBS	$ 3.36	$ -	$ -	$ 352.80	HRC/3dme Backup W/20% for shipping/tax
	Task Subtotal						**$ 52,320.64**	

Alternative 4 - In-Situ Enhanced Biodegradation
Modified By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
ANNUAL AND PERIODIC COSTS								
Long-Term Monitoring (per sampling event - assume 12 wells)								
Groundwater Monitoring								Includes additional 20% for QC
33010102	Van Rental	4	DAY	$ 44.61	$ -	$ -	$ 178.44	
33220112	Field Technician	40	HR	$ 11.01	$ 40.57	$ -	$ 2,063.51	1 person 4 days (includes per diem)
33231189	DOT steel drums, 55 gal., open, 17C	2	EA	$ 97.66			$ 195.31	
33021509	Monitor well sampling equipment, rental, water quality testing parameter device rental	1	WK	$ 264.04	$ -	$ -	$ 264.04	assumes 4 well per day
33020401	Disposable Materials per Sample	12	EA	$ 9.74	$ -	$ -	$ 116.90	
33020402	Decontamination Materials per Sample	12	EA	$ 8.22	$ -	$ -	$ 98.67	
33232407	PVC bailers, disposable polyethylene, 1.50" OD x 36"	12	EA	$ 11.15	$ -	$ -	$ 133.83	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	13	EA	$ 245.42	$ -	$ -	$ 3,190.47	12 plus 1 for QAQC
	Task Subtotal						**$ 6,241.16**	
Annual Reporting								
95010102	Annual Report	1	LS	$ -	$ 12,000.00	$ -	$ 12,000.00	Including bioremediation evaluation
	Task Subtotal						**$ 12,000.00**	

PRESENT VALUE OF ANNUAL AND PERIODIC COSTS FOR ALTERNATIVE 4 (In-Site Enhanced Biodegradation)

Year	Cost*	Number of Annual Periods	Annual Discount Rate	Number of 2-Year Periods	2-Year Discount Rate	Number of 4-Year Periods	4-Year Discount Rate	Total Non-Discounted Cost	Present Value Cost
Capital (Year 0)	$ 105,000	1	0	NA	NA	NA	NA	$ 105,000.00	$ 105,000.00
Quarterly Monitoring (Years 1-2)	$ 32,000	2	0.05	NA	NA	NA	NA	$ 64,000.00	$ 59,501.13
Semi-Annual Monitoring (Years 3-4)	$ 16,000	2	0.05	1	0.1025	NA	NA	$ 32,000.00	$ 26,984.64
Annual Monitoring (Years 5-30)	$ 8,000	26	0.05	NA	NA	1	0.21550625	$ 208,000.00	$ 94,612.00
Annual Long Term Monitoring Reporting (Years 1-30)	$ 15,000	30	0.05	NA	NA	NA	NA	$ 450,000.00	$ 230,586.77
Totals								**$ 859,000.00**	**$ 516,684.54**

*Annual and periodic costs include 10% for technical support and 15% contingency for unforeseen project complexities, including insurance, taxes, and licensing costs.
Capital costs include 25% contingency, as well as project management, remedial design, and construction management costs per DER-10 guidance.
Discount rate of 5% (for 30-years) percent based on NYSDEC PRAP Outline / Instructions.

Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Alternative 5 - On-Site Excavation and In-Situ Enhanced Biodegradation

Prepared By/Date: **JDW 1/7/2010**

Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
CAPITAL COSTS								
Pre-Design Investigation								
Geoprobe Sampling of Soil and Groundwater								Collect soil and groundwater from two locations for bench scale testing for dehalococcoides. Perform injection test. Also 6 geoprobes in the vicinity of MW-212 to delineate excavation.
33220112	Field Technician	50	HR	$ -	$ 40.57	$ -	$ 2,028.73	
33010102	Van Rental	5	DAY	$ 44.61	$ -	$ -	$ 223.04	
33020303	Organic Vapor Analyzer Rental, per Day	5	DAY	$ 134.33	$ -	$ -	$ 671.66	
Recent Quote	Mobilize Geoprobe Rig & Crew	1	LS	$ -	$ 1,000.00	$ -	$ 1,000.00	
Recent Quote	Day Rate for Geoprobe Rig & Crew	5	Day	$ -	$ 1,600.00	$ -	$ 8,000.00	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	30	EA	$ 245.42	$ -	$ -	$ 7,362.63	two soil and two water samples for benchscale. 12 soil around MW-212, 12 soil samples around DP-13. + 2 dupe.
33021705	Targeted TCLP (metals, VOCs, SVOCs)	2	EA	$ 661.18	$ -	$ -	$ 1,322.36	One sample per each excavation area disposal characterization.
	Task Subtotal						**$ 20,608.43**	
Bench Scale Testing								
	Bench scale test	1	LS	$ 2,000.00	$ -	$ -	$ 2,000.00	
	Task Subtotal						**$ 2,000.00**	Dehalococcoides Test - SiREM.
Full Scale								
Temporary Utilities and Controls (assume up to one month for excavation, backfill, and injections)								
99140201	Temporary Storage Trailer 16' x 8'	1.00	MO	$ 80.72	$ -	$ -	$ 80.72	
99040501	Portable Toilets	1.00	MO	$ 82.65	$ -	$ -	$ 82.65	
01560.250.0200	Rented chain link, 6' high, to 1,000'	500	LF	$ 3.03	$ 1.10	$ -	$ 2,065.00	
02220.350.0725	Dumpster, weekly rental, 1 dump/week , 20 cy capacity (8 tons)	4	WK	$ 420.00	$ -	$ -	$ 1,680.00	
Stockpile Containment Areas (soil for re-use, Dry)								
01540.800.0700	Tarpaulins, 8.5 mils, black	2000	SF	$ 0.24	$ -	$ -	$ 480.00	
Decontamination Facility								
33290401	25 gpm, 1-1/2" discharge, cast iron sump pun	1	EA	$ -	$ -	$ 2,317.00	$ 2,317.00	
33290704	50' Flexible, Product Discharge Hose	1	EA	$ -	$ -	$ 175.00	$ 175.00	
02060.150.03	3/4" crushed stone borrow, spread w/ 200 HP dozer, no compaction, 2 mi rt haul	56	CY	$ 27.50	$ 1.43	$ 3.12	$ 1,780.56	
02315.310.51	Compaction, General, riding vibrating roller, 12" lifts, 4 passes	56	ECY	$ -	$ 0.16	$ 0.16	$ 17.78	
3308544	60-mil Polymeric Liner, Very Low Density P	167	SF	$ 1.97	$ -		$ 328.33	
33080534	16 oz/sy nonwoven geotextile	167	SY	$ 2.39	$ -		$ 398.33	
33170814	1,800 psi pressure washer, 6HP, 4.8 gpm	1	EA	$ -	$ -	$ 1,635.00	$ 1,635.00	
19040605	2,000 gal steel sump, aboveground w/ supports and fittings	1	EA	$ 2,233.00	$ 853.69	$ 123.26	$ 3,209.95	

Alternative 5 - On-Site Excavation and In-Situ Enhanced Biodegradation
Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
33170823	Operation of pressure washer, including water, soap, electricity, and labor	10	HR	$ -	$ -	$ 41.69	$ 416.90	
33410101	Pump and motor maintenance/repair	1	EA	$ -	$ -	$ 431.15	$ 431.15	
Erosion and Sediment Control Measures								
18050206	Filter Barrier, Silt Fences, Vinyl, 3' High with 7.5' Posts	500	LF	$ 0.70	$ 1.41	$ -	$ 1,055.00	RSMeans 2004 ECHOS, around work area
Temporary Groundwater Extraction System								
33109660	Storage Tanks, steel, above ground, single wall, 5,000 gallon, incl. cradles, coating & fittings, excl. foundation, pumps or piping	1	EA	$ 5,193.03	$ 886.30	$ -	$ 6,079.33	
33230521	4" Submersible Pump, 0.3-7 GPM, Head <=140', 1/3 hp, w/ controls	4	EA	$ 2,303.29	$ -	$ -	$ 9,213.17	
Temporary Discharge Monitoring								
MACTEC	Aqueous Sampling, Metals	6	EA	$ 130.00			$ 780.00	24-hr turn around expedited at additional 100% of cost
33021618	Volatile Organic Analysis (EPA 624)	6	EA	$ 245.42			$ 1,472.52	24-hr turn around expedited at additional 100% of cost
	Sub-Task Subtotal						**$ 33,698.38**	
Excavation, Transporation and Disposal								
Source Area Excavation (10' X 10' X 12') - Times 2								Assume use of trench boxes to excavate in vicinity of DP-13 and DP-17; direct load for disposal; stage upper 3 feet for re-use. Backfill with crushed stone, re-usable material and finish with asphalt. Will require dewatering. Assume 2 weeks.
33220112	Field Technician	100	HR	$ -	$ 40.57	$ -	$ 4,057.46	
33010102	Van Rental	10	DAY	$ 44.61	$ -	$ -	$ 446.09	
33020303	Organic Vapor Analyzer Rental, per Day	10	DAY	$ 134.33	$ -	$ -	$ 1,343.33	
Estimate	Mobilize Excavation Equipment Rig & Crew	1	LS	$ -	$ 5,000.00	$ -	$ 5,000.00	
22604500	Use Trench Box	6	DAY	$ -	$ -	$ 202.87	$ 1,217.24	
17030277	Excavate and load, 2CY Excavator, medium material. Soil for disposal.	90	CY	$ -	$ 0.94	$ 1.72	$ 238.93	
17030277	Excavate and stage, 2CY Excavator, medium material. Soil for re-use	30	CY	$ -	$ 0.94	$ 1.72	$ 79.64	Soil for re-use. Assume top 3 feet
Backfill								
33230223	6" SS Well Screen (5 ft sections)	10	ft	$ 281.39	$ -	$ -	$ 2,813.91	Install Well in both excavation areas for bioremediation.
33230123	6" SS Well Casing (5 ft sections)	20	ft	$ 287.99	$ -	$ -	$ 5,759.74	
33232103	6" Well, Bentonite Seal	2	EA	$ 36.58	$ 104.32	$ 41.29	$ 364.38	
33232205	Well Vault for equipment	2	EA	$ 1,094.69	$ 967.16	$ 2,356.80	$ 8,837.31	
18010102	Gravel, Delivered, Dumped & graded	90	CY	$ 24.47	$ 2.06	$ 1.88	$ 2,557.24	Crushed stone backfill
02315.120.32	Backfill, Structural, dozer or FE Loader, from existing stockpile, no compaction,	30	CY	$ -	$ 0.66	$ 0.76	$ 42.60	Re-usable fill
02315.310.70	Compaction, Walk behind, vibrating plate	30	ECY	$ -	$ 1.10	$ 0.13	$ 36.90	Compact re-usable fill

Alternative 5 - On-Site Excavation and In-Situ Enhanced Biodegradation

Prepared By/Date: **JDW 1/7/2010**

Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
	18" wide, 6" lifts, 2 passes							
18010105	Asphalt Base Course	10	CY	$ 37.54	$ 0.71	$ 1.48	$ 397.28	Assume 6 inch throughout
18010312	Asphalt Wearing Course	10	TON	$ 35.91	$ 16.53	$ 16.51	$ 689.54	
Soil Transportation and Disposal								
Vendor	Transportation and Disposal, VOCs							
	assume up to 180 ppm	135	Tons	210	$ -	$ -	$ 28,350.00	Model City Quote provided for another NYSDEC project.
	Sub-Task Subtotal						**$ 62,231.58**	
In-Situ Enhanced Biodegradation								
Add & Mix Amendments Into Bottom of Open Excavation								Assume one day
33220112	Field Technician	20	HR	$ -	$ 40.57	$ -	$ 811.49	includes per diem
	Equipment	2	LS	$ -	$ 2,500.00	$ -	$ 5,000.00	Assumed day rate to add/mix reagent into water.
	HRC Material	420	lb	$ 9.54	$ -	$ -	$ 4,006.80	HRC & 3dme Backup.Includes 20% tax & shipping
	HRC Primer	180	lb	$ 3.36	$ -	$ -	$ 604.80	HRC & 3dme Backup.Includes 20% tax & shipping
Temporary 3dme Injection Points (10), 4 monitoring wells & development								10 injection points, assume 2/day (5 days). 4 monitoring wells & development, 4 days. Baseline Sampling 1 day.
33220112	Field Technician	100	HR	$ -	$ 40.57	$ -	$ 4,057.46	includes per diem
33010102	Van Rental	10	DAY	$ 44.61	$ -	$ -	$ 446.09	
33020303	Organic Vapor Analyzer Rental, per Day	10	DAY	$ 134.33	$ -	$ -	$ 1,343.33	
Recent Quote	Mobilize Geoprobe Rig & Crew	1	LS	$ -	$ 1,000.00	$ -	$ 1,000.00	
Recent Quote	Day Rate for Geoprobe Rig & Crew	5	Day	$ -	$ 1,600.00	$ -	$ 8,000.00	
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	5	DAY	$ -	$ 125.90	$ -	$ 629.49	
	3Dme Material	4620	LBS	$ 0.56	$ -	$ -	$ 2,605.68	HRC/3dme BackupIncluding 20% for tax & shipping
	HRC Primer	105	LBS	$ 3.36	$ -	$ -	$ 352.80	HRC/3dme BackupIncluding 20% for tax & shipping
Assume Re-injections at 6-months								10 injection points, assume 2/day (5 days). Plus gravity feed into well within former excavation
Temporary 3dme Injection Points (10)								
33220112	Field Technician	50	HR	$ -	$ 40.57	$ -	$ 2,028.73	includes per diem
33010102	Van Rental	5	DAY	$ 44.61	$ -	$ -	$ 223.04	
33020303	Organic Vapor Analyzer Rental, per Day	5	DAY	$ 134.33	$ -	$ -	$ 671.66	
Recent Quote	Mobilize Geoprobe Rig & Crew	1	LS	$ -	$ 1,000.00	$ -	$ 1,000.00	
Recent Quote	Day Rate for Geoprobe Rig & Crew	5	Day	$ -	$ 1,600.00	$ -	$ 8,000.00	
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	5	DAY	$ -	$ 125.90	$ -	$ 629.49	
	3Dme Material	4620	LBS	$ 0.56	$ -	$ -	$ 2,605.68	HRC/3dme BackupIncluding 20% for tax & shipping
	HRC Primer	105	LBS	$ 3.36	$ -	$ -	$ 352.80	HRC/3dme BackupIncluding 20% for tax & shipping
Add Amendment to 6" wells								

Alternative 5 - On-Site Excavation and In-Situ Enhanced Biodegradation

Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
	HRC Material	420	lb	$ 9.54	$ -	$ -	$ 4,006.80	HRC/3dme BackupIncluding 20% for tax & shipping
	HRC Primer	180	lb	$ 3.36	$ -	$ -	$ 604.80	HRC/3dme BackupIncluding 20% for tax & shipping
	Sub-Task Subtotal						**$ 48,980.94**	
Monitoring Well Installation								
33010101	Mobilize/Demobilize Drilling Rig & Crew	1	LS	$ -	$ 3,309.73	$ 1,124.22	$ 4,433.95	4 monitoring wells to 15 ft, two to monitor geoprobe injections, two downgradient of excavation
33231178	Move Rig/Equipment Around Site	4	EA	$ 67.24	$ 116.85	$ 161.60	$ 1,382.79	
33231504	Surface Pad, Concrete, 2' x 2' x 4"	4	EA	$ 46.13	$ 85.32	$ 2.04	$ 533.96	
33170808	Decontaminate Rig, Augers, Screen (Rental Equipment)	4	DAY	$ -	$ 125.90	$ -	$ 503.59	
33231101	Hollow Stem Auger, 8" Dia Borehole, Depth <=100 ft	60	LF	$ -	$ 7.43	$ 35.45	$ 2,572.89	
33230101	2" PVC, Schedule 40, Well Casing	20	LF	$ 1.39	$ 2.71	$ 8.28	$ 247.53	5 ft riser
33230201	2" PVC, Schedule 40, Well Screen	40	LF	$ 3.22	$ 3.50	$ 10.68	$ 695.88	10 ft screens
33230301	2" PVC, Well Plug	4	EA	$ 6.78	$ 4.07	$ 12.40	$ 93.00	
33231401	2" Screen, Filter Pack	40	LF	$ 3.62	$ 2.31	$ 7.04	$ 518.43	
33231811	2" Well, Portland Cement Grout	20	LF	$ 1.35	$ -	$ -	$ 27.01	
33232101	2" Well, Bentonite Seal	4	EA	$ 10.74	$ 9.15	$ 27.92	$ 191.22	
33231189	DOT steel drums, 55 gal., open,	4	EA	$ 93.90	$ -	$ -	$ 375.60	
20836142	Load soil into 55 gal drums	4	EA	$ -	$ 34.00	$ -	$ 136.01	
33190303	Transport/Dispose (non-haz)	4	EA	$ 296.51	$ -	$ -	$ 1,186.03	
Monitoring Well Development (4) & sampling								Sample 4 new wells
33231186	Well Development Equipment Rental (weekly)	1	WK	$ 264.04	$ -	$ -	$ 264.04	
33231189	DOT steel drums, 55 gal., open,	6	EA	$ 93.90			$ 563.41	1.5 drum each new well for development
33190303	Transport/Dispose (non-haz)	6	EA	$ 296.51	$ -	$ -	$ 1,779.05	
33021509	Monitor well sampling equipment, rental, water quality testing parameter device rental	1	WK	$ 264.04	$ -	$ -	$ 264.04	assumes 4 well per day
33020401	Disposable Materials per Sample	4	EA	$ 9.74	$ -	$ -	$ 38.97	20 sampling locations (all existing on-site wells)
33020402	Decontamination Materials per Sample	4	EA	$ 8.22	$ -	$ -	$ 32.89	
33232407	PVC bailers, disposable polyethylene, 1.50" OD x 36"	4	EA	$ 11.15	$ -	$ -	$ 44.61	
33021618	Volatile Organic Analysis (EPA 624)	5	EA	$ 245.42	$ -	$ -	$ 1,227.11	1 extra for QAQC

Alternative 5 - On-Site Excavation and In-Situ Enhanced Biodegradation
Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 01/12/2010**

Task	Description	Quantity	Unit of Measure	Material Unit Cost	Labor Unit Cost	Equipment Unit Cost	Extended Cost	Comments/ Assumptions
	(624, 8260B)							
	Sub-Task Subtotal						**$ 17,111.97**	
	Full Scale Subtotal						**$ 162,022.87**	
ANNUAL AND PERIODIC COSTS								
Long-Term Monitoring (per sampling event - assume 12 wells)								
Groundwater Monitoring								Includes additional 20% for QC
33010102	Van Rental	4	DAY	$ 44.61	$ -	$ -	$ 178.44	
33220112	Field Technician	40	HR	$ 11.01	$ 40.57	$ -	$ 2,063.51	1 person 4 days (includes per diem)
33231189	DOT steel drums, 55 gal., open, 17C	2	EA	$ 97.66			$ 195.31	
33021509	Monitor well sampling equipment, rental, water quality testing parameter device rental	1	WK	$ 264.04	$ -	$ -	$ 264.04	assumes 4 well per day
33020401	Disposable Materials per Sample	14	EA	$ 9.74	$ -	$ -	$ 136.38	20 sampling locations (all existing on-site wells) plus 20% QA\QC
33020402	Decontamination Materials per Sample	14	EA	$ 8.22	$ -	$ -	$ 115.11	
33232407	PVC bailers, disposable polyethylene, 1.50" OD x 36"	14	EA	$ 11.15	$ -	$ -	$ 156.13	
33021618	Volatile Organic Analysis (EPA 624) (624, 8260B)	16	EA	$ 245.42	$ -	$ -	$ 3,926.74	Includes additional 20% for QC
	Task Subtotal						**$ 7,035.66**	
Annual Reporting								
95010102	Annual Report	1	LS	$ -	$ 12,000.00	$ -	$ 12,000.00	Including bioremediation evaluation
	Task Subtotal						**$ 12,000.00**	

PRESENT VALUE OF ANNUAL AND PERIODIC COSTS FOR ALTERNATIVE 5 (On-Site Excavation and In-Situ Enhanced Biodegradation)

Year	Cost*	Number of Annual Periods	Annual Discount Rate	Number of 2-Year Periods	2-Year Discount Rate	Number of 4-Year Periods	4-Year Discount Rate	Total Non-Discounted Cost	Present Value Cost
Capital (Year 0)	$ 311,000	1	0	NA	NA	NA	NA	$ 311,000.00	$ 311,000.00
Quarterly Monitoring (Years 1-2)	$ 36,000	2	0.05	NA	NA	NA	NA	$ 72,000.00	$ 66,938.78
Semi-Annual Monitoring (Years 3-4)	$ 18,000	2	0.05	1	0.1025	NA	NA	$ 36,000.00	$ 30,357.72
Annual Monitoring (Years 5-30)	$ 9,000	26	0.05	NA	NA	1	0.215506	$ 234,000.00	$ 106,438.50
Annual Performance Reporting (Years 1-30)	$ 15,000	30	0.05	NA	NA	NA	NA	$ 450,000.00	$ 230,586.77
Totals								**$ 1,103,000.00**	**$ 745,321.77**

*Annual and periodic costs include 10% for technical support and 15% contingency for unforeseen project complexities, including insurance, taxes, and licensing costs.
Capital costs include 25% contingency, as well as project management, remedial design, and construction management costs per DER-10 guidance.
Discount rate of 5% (for 30-years) percent based on NYSDEC PRAP Outline / Instructions.

Prepared By/Date: **JDW 1/7/2010**
Checked By/Date: **KLS 1/11/2010**

Alternative 6 – Source Area Excavation, On-Site and Off-Site In-Situ Enhanced Biodegradation, and Soil Vapor Extraction

Prepared By/Date: JDW 2/3/10
Checked By/Date: RTB 2/4/10

Task	Description	Extended Cost
CAPITAL COSTS		
Pre-Design Investigation		
	Investigations Similar to Alternative 5 (related to Excavation & Enhanced Bio)	$ 20,608.43
	Investigations Similar to Alternative 3 (related to SVE)	$ 22,330.68
	Additional Investigations for Downgradient	$ 10,000.00
Task Subtotal		**$ 52,939.12**
Bench Scale Testing		
	Bench scale test (similar to Alternative 5, additional 3 tests for Downgradient)	$ 8,000.00
Task Subtotal		**$ 8,000.00**
Pilot Test		
	Similar to Alternative 3 (does not require Air Sparge, but larger area, assume the same)	$ 57,526.64
Task Subtotal		**$ 57,526.64**
Full Scale		
	Temporary Utilities and Controls (Use double costs for Alternative 3 for additional time under building)	$ 22,999.16
	Decontamination Facility (use cost from Alternative 5)	$ 10,376.48
	Stockpile Area & Erosion Controls (use costs from Alternative 5)	$ 480.00
	Temporary Groundwater Extraction & Monitoring System (use cost from Alternative 5, only 1/2 the monitoring since less duration because only one excavation)	$ 17,545.01
	Excavation, Transportation and Disposal (from Alternative 5)	$ 62,231.58
	Enhanced Bioremediation Injections On-site (from Alternative 5, except only one excavation)	$ 41,463.59
	Additional On-site wells to monitor injections (from Alternative 5)	$ 17,111.97
	Enhanced Bioremediation Injections Downgradient (Assume 10 times cost of Alternative 5 based on 10 times the area)	$ 414,635.94
	Additional downgradient wells to monitor injections (Assume 10 times cost of Alternative 5 based on 10 times the area)	$ 171,119.68
	Install SVE Wells (from Alternative 3, does not require Air Sparge wells, but needs more SVE inside the building)	$ 154,244.14
	Install trenching and conveyance piping (use costs from Alternative 3+25% since under building)	$ 40,590.75
	Install treatment system including building and components (assume same as Alternative 3)	$ 58,210.08
Task Subtotal		**$ 1,011,008.38**
Long Term Monitoring		
	Groundwater sampling events (assume 2 times higher than Alternative 5 for additional wells)	$ 14,071.32
Task Subtotal (per event)		**$ 14,071.32**
Annual Costs		
	Annual O&M of SVE System (use costs from Alternative 3 - operate for 15 years)	$ 65,084.37
	Annual Reporting (same as both Alternative 3 & 5)	$ 12,000.00
Task Subtotal		**$ 77,084.37**
Periodic Costs		
	Capital Replacement (Assume year 7 - 20% of original SVE costs)	$ 50,608.99
Task Subtotal		**$ 50,608.99**

PRESENT VALUE OF ANNUAL AND PERIODIC COSTS FOR ALTERNATIVE 6 (Source Area Excavation, On-Site and Off-Site In-Situ Enhanced Biodegradation, and Soil Vapor Extraction)

Year	**Cost***	**Number of Annual Periods**	**Annual Discount Rate**	**Number of 2-Year Periods**	**2-Year Discount Rate**	**Number of 4-Year Periods**	**4-Year Discount Rate**	**Number of 7-Year Periods**	**7-Year Discount Rate**	**Total Non-Discounted Cost**	**Present Value Cost**
Capital (Year 0)	$ 1,783,000	1	0	NA	NA	NA	NA	NA	NA	$ 1,783,000.00	$ 1,783,000.00
Annual OM&M (Years 1-10)	$ 82,000	10	0.05	NA	NA	NA	NA	NA	NA	$ 820,000.00	$ 633,182.26
Quarterly Monitoring (Years 1-2)	$ 71,000	2	0.05	NA	NA	NA	NA	NA	NA	$ 142,000.00	$ 132,018.14
Semi-Annual Monitoring (Years 3-4)	$ 36,000	2	0.05	1	0.1025	NA	NA	NA	NA	$ 72,000.00	$ 60,715.44
Annual Monitoring (Years 5-30)	$ 18,000	26	0.05	NA	NA	1	0.215506	NA	NA	$ 468,000.00	$ 212,877.01
Annual Performance Reporting (Years 1-30)	$ 15,000	30	0.05	NA	NA	NA	NA	NA	NA	$ 450,000.00	$ 230,586.77
Periodic Costs - System Upgrades (Year 7)	$ 51,000	1	0.05					1	0.4071004	$ 51,000.00	$ 36,244.75
Totals										**$ 3,735,000.00**	**$ 3,052,379.62**

*Annual and periodic costs include 10% for technical support and 15% contingency for unforeseen project complexities, including insurance, taxes, and licensing costs.
Capital costs include 25% contingency, as well as project management, remedial design, and construction management costs per DER-10 guidance.
Discount rate of 5% (for 30-years) percent based on NYSDEC PRAP Outline / Instructions.

Prepared By/Date: **JDW 2/3/10**
Checked By/Date: **RTB 2/4/10**

SVE / AIR SPARGE ALTERNATIVE - CONCEPTUAL LAYOUT

10 A/S Wells; 100 Ft A/S Trench/pipe
12 SVE Wells; 225 FT SVE Trench/pipe

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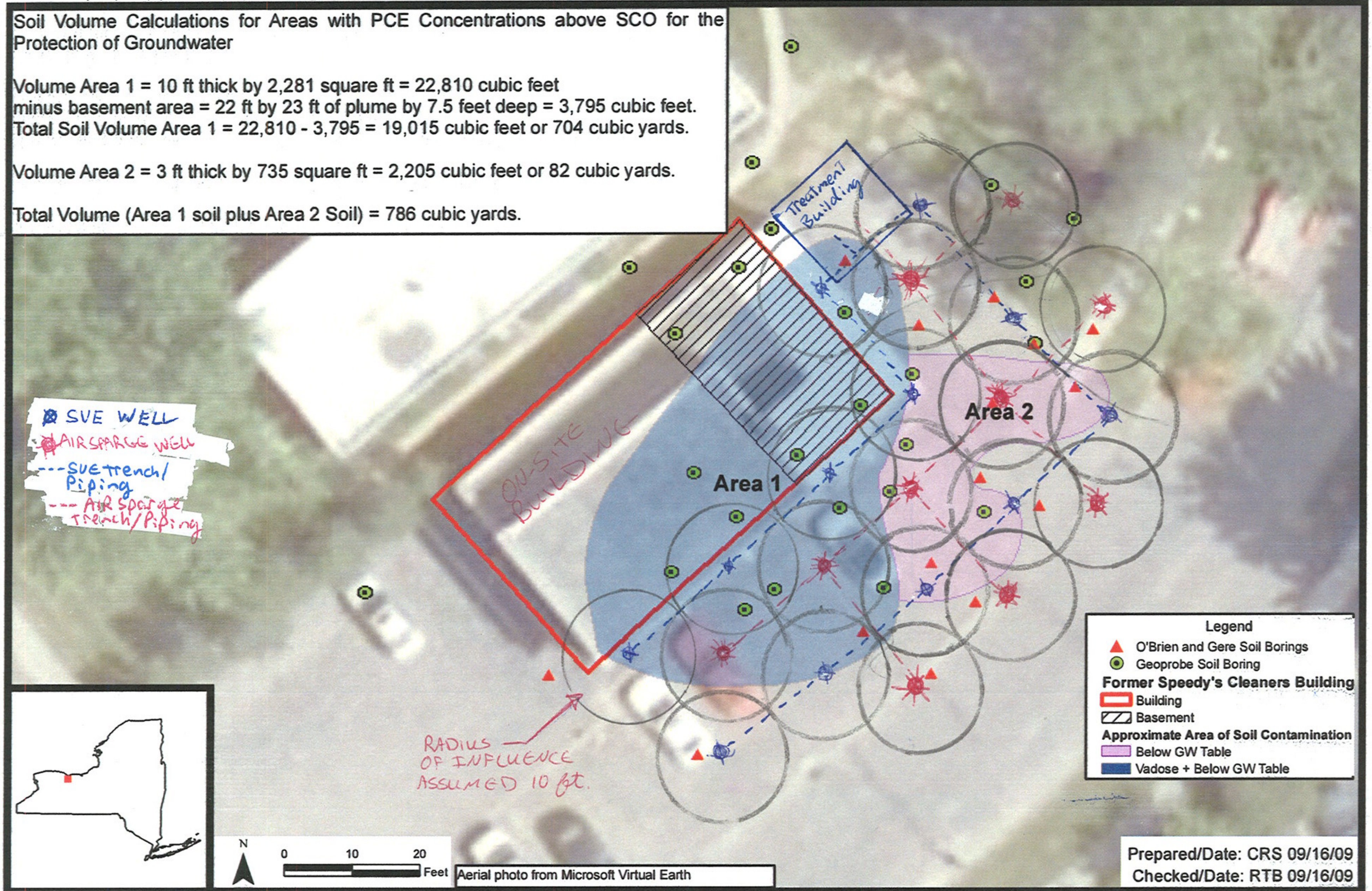
Soil Volume Calculations for Areas with PCE Concentrations above SCO for the Protection of Groundwater

Volume Area 1 = 10 ft thick by 2,281 square ft = 22,810 cubic feet
minus basement area = 22 ft by 23 ft of plume by 7.5 feet deep = 3,795 cubic feet.
Total Soil Volume Area 1 = 22,810 - 3,795 = 19,015 cubic feet or 704 cubic yards.

Volume Area 2 = 3 ft thick by 735 square ft = 2,205 cubic feet or 82 cubic yards.

Total Volume (Area 1 soil plus Area 2 Soil) = 786 cubic yards.



Aerial photo from Microsoft Virtual Earth

Prepared/Date: CRS 09/16/09
Checked/Date: RTB 09/16/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

~~Approximate Area of Soil Contamination~~
ALTERNATIVE 3 - CONCEPTUAL LAYOUT
Project 3612-08-2109 ~~Figure G.1~~

Bio Augmentation Option & Source Area Excavation

→ 10 Injection Points: Total of 9240 lbs 3DMe & 210 lbs HRC Primer
→ Excavation: 10'x10' → 210 lbs HCR + 90 lbs Primer.

2 excavations as follows:

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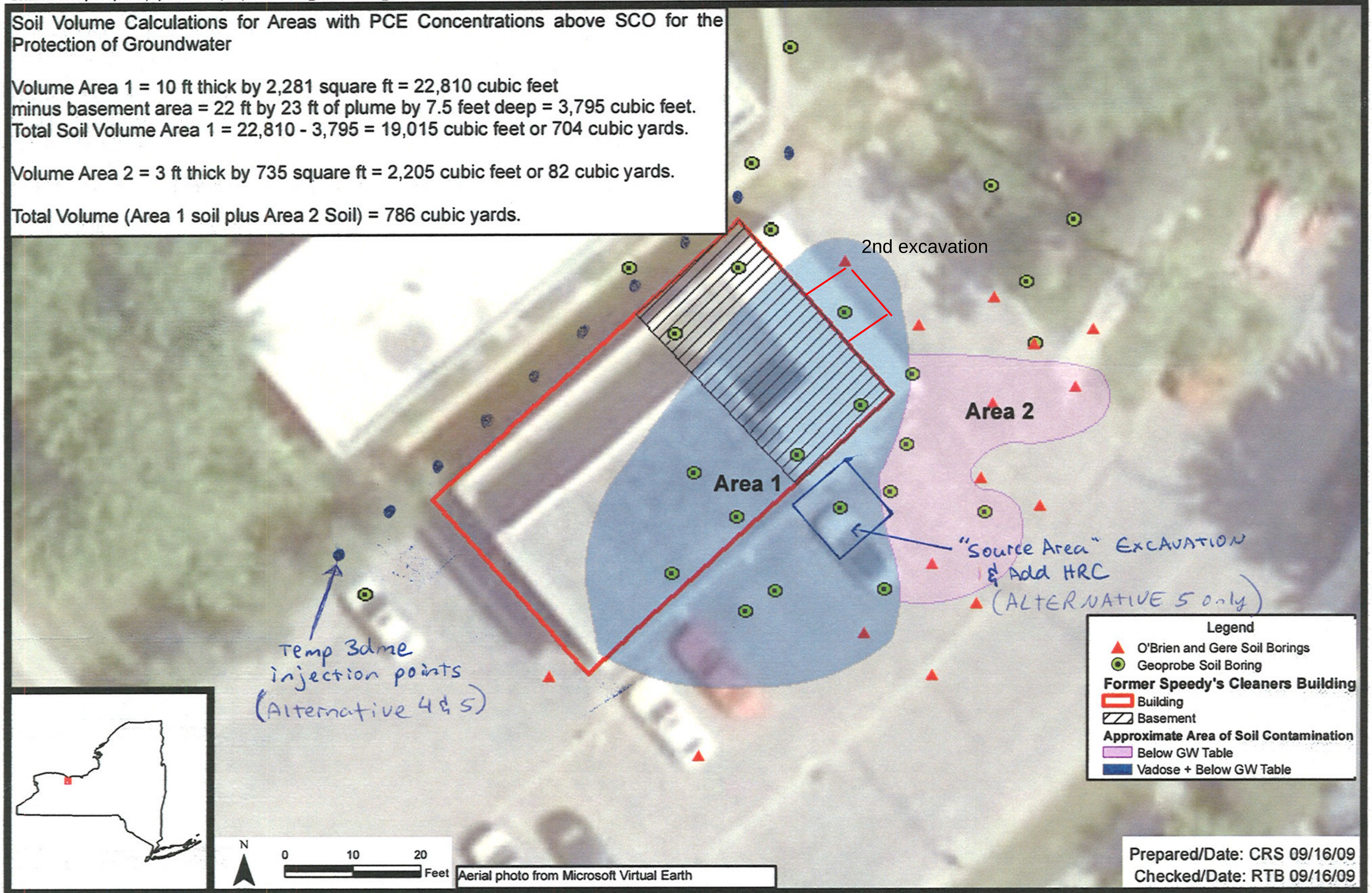
Total Volume (Area 1 soil plus Area 2 Soil) = 786 cubic yards.



Legend
- ▲ O'Brien and Gere Soil Borings
- ● Geoprobe Soil Boring

Former Speedy's Cleaners Building
- 🟥 Building
- ▨ Basement

Approximate Area of Soil Contamination
- 🟪 Below GW Table
- 🟦 Vadose + Below GW Table

Prepared/Date: CRS 09/16/09
Checked/Date: RTB 09/16/09

NYSDEC
Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Alternatives 4, 5 and 6

Project 3612-08-2109

~~Figure G.1~~

3-D MicroEmulsion™
HRC ADVANCED®

ACHIEVE WIDE-AREA, RAPID AND SUSTAINED REDUCTIVE DECHLORINATION WITH CONTINUOUS DISTRIBUTION AND STAGED HYDROGEN RELEASE

PRODUCT FEATURES

- **Three Stage Electron Donor Release – Immediate, Mid-Range and Long- Term Hydrogen Production**
  Provides free lactic acid, controlled release lactic acid and long release fatty acids for effective hydrogen production for periods of of up to 3 to 5 years.

- **Low-Cost**
  3-D Microemulsion is 25¢ to 42¢ per pound as applied.

- **Maximum and Continuous Distribution via Micellar Transport**
  Unlike oil products, 3DMe forms micelles which are mobile in groundwater and significantly enhance electron donor distribution after injection.

- **Wide-Area/High Volume Microemulsion Application**
  High volume application increases contact with contaminants and reduces number of injection points required for treatment – minimizes overall project cost.

Photo 1. 3DMe™ prior to injection

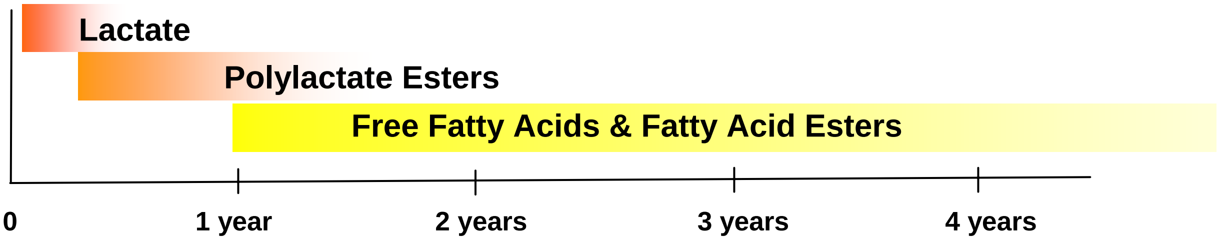
PRODUCT COMPOSITION

3-D Microemulsion (3DMe)™ formerly known as HRC Advanced™ has a molecular structure specifically designed to maximize the cost-effective anaerobic treatment of contaminants in subsurface soils and groundwater. This structure (patent pending) is composed of free lactic acid, controlled-release lactic acid (polylactate) and certain fatty acid components which are esterified to a carbon backbone molecule of glycerin..

3DMe produces a sequential, staged release of its electron donor components. The immediately available, free lactic acid, is fermented rapidly while the controlled release lactic acid is metabolized at a more controlled rate. The fatty acids are converted to hydrogen over a mid to long-range timeline giving 3DMe an exceptionally long electron donor release profile (Figure 1). This staged fermentation provides an immediate, mid-range and very long-term, controlled-release supply of hydrogen (electron donor) to fuel the reductive dechlorination process.

Typical 3DMe single application longevity is rated to between 3 and 5 years. With 5 years occurring under optimal conditions, e.g. low permeability, low consumption environments.

Figure 1. 3-D Microemulsion™ Release Profile



REGENESIS
Advanced Technologies for Groundwater Resources

APPLICATION AND DISTRIBUTION

3DMe applications can be configured in several different ways including: **grids, barriers and excavations.** The material itself can be applied to the subsurface through the use of **direct-push injection, hollow-stem auger, existing wells** or **re-injection wells.**

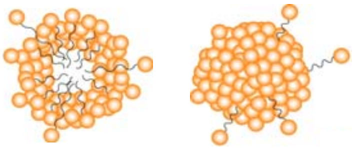
3DMe is typically applied in high-volumes as an emulsified, micellar suspension (microemulsion). The microemulsion is easily pumped into the subsurface and is produced on-site by mixing specified volumes of water and delivered 3DMe concentrate. Detailed preparation and installation instructions are available at www.regenesis.com.

3DMe is usually applied throughout the entire vertical thickness of the determined treatment area. Once injected, the emulsified material moves out into the subsurface pore spaces via micellar transport, eventually coating most all available surfaces. Over time the released soluble components of 3D Microemulsion are distributed within the aquifer via the physical process of advection and the concentration driven forces of diffusion.

More on Micelles

Micelles (Figure 2.) are groups (spheres) of molecules with the hydrophilic group facing out to the water and the "tails" or lipophilic moiety facing in. They are formed during the 3-D Microemulsion emulsification process and provide the added benefit of increased distribution via migration to areas of lower concentration.

Figure 2: Micelle Representation



MORE ON APPLICATIONS

3DMe is typically applied in large volumes and is easily injected using widely available, non-specialized remediation equipment.

3-D Microemulsion is delivered in 55 gallon drums, 300 gallon totes, tankers or buckets.

The microemulsion is easily prepared on-site and applied in high volumes for adequate subsurface distribution.

The material can be easily applied through existing wells or direct push-points.

PERFORMANCE

Case Study #1

A site in Massachusetts showed high levels of PCE and its daughter products TCE and cis-DCE which had been consistently present for more than two years. 3DMe was applied in a grid configuration around monitoring well #16. In Figure 3, the contaminant concentration results indicate a rapid decrease in the parent product PCE and evidence of reductive dechlorination as demonstrated by the relative increases in daughter products TCE and cis-DCE.

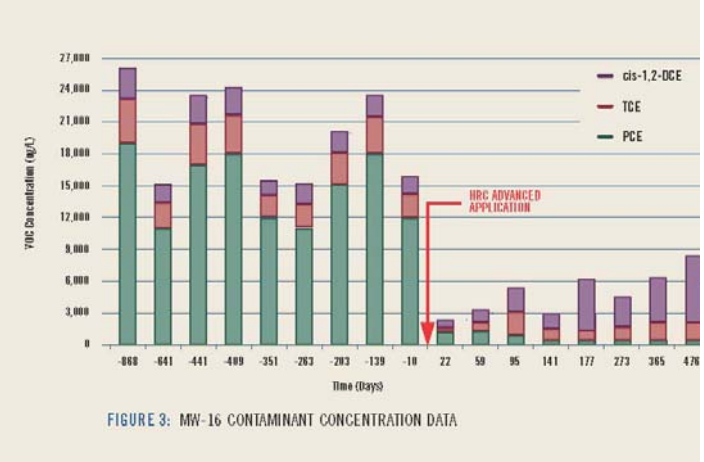


Figure 3. MW-16 Contaminant Concentration Data

Case Study #2

A site in Florida was characterized with PCE Contamination Approaching 225 ug/L. 1080 pounds of HRC Advanced was applied in a grid configuration through 16 direct-push points, with about 5 feet between each point and at a rate of approximately 5 lbs. per vertical foot. Monitoring in well 103 at 75 days post-3DMe injection indicated that PCE was reduced by 67% then leveled off for about 75 days then dropped another 22% for a total of 89% reduction over a 275 day period. TOC levels remain elevated at 17-19 mg/L after 275 days and daughter products remain at low levels (Figure 4).

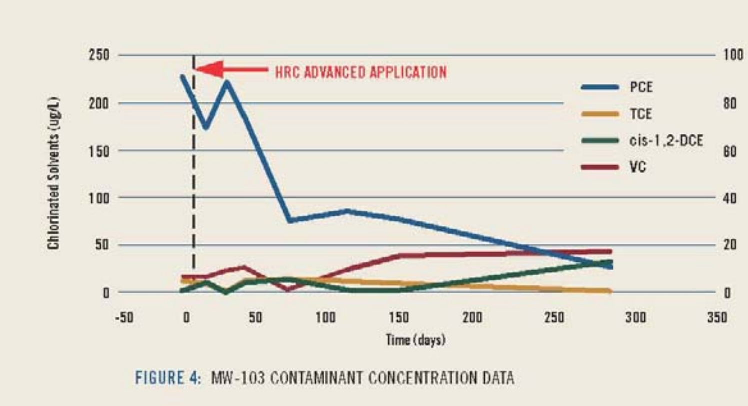


Figure 4. MW-103 Contaminant Concentration Data

For more information on 3-D Microemulsion, contact you local representative or call 949-366-8000.
You can also visit our website at www.regenesis.com.

REGENESIS
Advanced Technologies for Groundwater Resources

3-D Microemulsion (3DMe)™

INSTALLATION INSTRUCTIONS

High-Volume, Wide-Area, Microemulsion Application

Introduction

3-D Microemulsion (3DMe)™ formerly known as HRC Advanced® should ONLY be applied as a high-volume, microemulsion. In this form it offers greater physical distribution of the 3DMe material across a larger potential radius from a single injection point. The production of a 3DMe emulsion involves the on-site, volumetric mixing of 10 parts water with 1 part delivered 3DMe concentrate to form the injection-ready 3DMe microemulsion. This microemulsion suspension can then be injected directly or further diluted to a predetermined ratio of 3DMe to water. The following instructions provide details in the production and installation of 3DMe.

Material Overview Handling and Safety

3DMe concentrate is shipped and delivered in 4.25-gallon buckets. Each bucket has a gross weight of approximately 32 pounds. Each bucket contains 30 pounds of 3DMe concentrate (net weight) and a nominal volume of 3.7 gallons. At room temperature, 3DMe concentrate is a liquid material with a viscosity of approximately 500 centipoise, roughly the equivalent of pancake syrup. The viscosity of 3DMe is not temperature sensitive above 50 ºF (10 ºC). However, below 50 ºF the viscosity may increase significantly. If the user plans to apply the product in cold weather, consideration should be given to heating the material to above 60 ºF so that it can be easily handled. 3DMe concentrate should be stored in a warm, dry place that is protected from direct sunlight. It is common for stored 3DMe concentrate to settle somewhat in the bucket, a quick pre-mix stir by a hand held drill with a paint or "jiffy mixer" attachment will rapidly re-homogenize the material. 3DMe concentrate is non-toxic, however field personnel should take precautions while handling and applying the material. Field personnel should use appropriate personal protection equipment (PPE) including eye protection. Gloves should be used as appropriate based on the exposure duration and field conditions. A Material Safety Data Sheet is provided with each shipment. Personnel who operate field equipment during the installation process should have appropriate training, supervision, and experience and should review the MSDS prior to site operations.

Microemulsion Production 3DMe to Water Ratio

3DMe concentrate should be mixed with water on a volume to volume (v/v) basis to produce a microemulsion starting at 10 parts water: 1 part 3DMe. Although microemulsions can be easily produced using greater water volumes than 10 parts, e.g. 20 to 50 parts water to 1 part 3DMe, the initial microemulsion should never be produced below a ratio of less than 10 parts water: 1 part 3DMe v/v. **WARNING: Do not attempt to produce a microemulsion at less than 10 parts water to 1 part 3DMe ratio v/v. This will produce an undesirable and unstable solution.**

The field production of 3DMe microemulsion is a very simple procedure; however, it is critical that the user follow the mixing directions outlined below.

*****IMPORTANT - NEVER ATTEMPT TO ADD WATER TO THE 3DME CONCENTRATE AS THIS WILL PRODUCE AN UNDESIRABLE AND UNSTABLE EMULSION. ALWAYS ADD 3DME CONCENTRATE TO A LARGE VOLUME OF WATER***.**

As indicated previously the 10:1 ratio of water to 3DMe v/v is the minimum water ratio that can be used, a greater ratio (more dilute solution) can easily be achieved and is governed by: A) the volume of 3DMe required to treat the estimated contaminant mass, B) the pore volume in which the material is applied, C) the time available for installation (gallons/pump rate), and C) the estimated volume of 3DMe microemulsion that the target zone will accept over the time period allocated for installation.

Conceptually, although a higher volume of water to volume of 3DMe will produce a larger volume of the suspension, it will lower the concentration of 3DMe per gallon of solution. Thus, the benefit of using a high water/3DMe v/v ratio in order to affect a greater pore volume of the subsurface aquifer is offset by the dilution of the 3DMe per unit volume of suspension as well as by the limitations of the subsurface hydraulic conductivity and effective porosity (capacity of the aquifer to accept the volume of 3DMe microemulsion).

It is important that the user plan in advance the v/v 3DMe/water ratio to be employed at a project site. The resulting volume of solution will dictate the site water requirements and the time required for injection, etc. If upon injection of greater than 10:1 3DMe microemulsion, the subsurface does not readily accept the volume of solution as designed, the user can adjust downward the v/v water to 3DMe ratio until a more concentrated suspension is produced (this solution should never drop below the required 10 parts water:1 part 3DMe v/v production ratio). For more information on designing a 3DMe/water ratios to meet specific site conditions, please contact Regenesis Technical Services.

Direct-Push Application Requirements

One of the best methods to deliver the 3DMe microemulsion into the subsurface is to pressure inject the solution through direct-push rods using hydraulic equipment, or to pressure inject/gravity feed the microemulsion into the dedicated injection wells. The use of low-cost push points or temporary injection points allows the applier to more cost effectively distribute the 3DMe material across shallow sites by employing multiple points per site. In the case of treating deep aquifer sites, the use of the microemulsion applied via dedicated injection wells is likely to be the most cost-effective remediation approach. Please note that this set of instructions is specific to direct-push equipment. Please contact Regenesis Technical Services to assist you with dedicated injection well applications.

In general, Regenesis strongly recommends application of the 3DMe microemulsion using an injection pump with a minimum delivery rate of three gallons per minute (gpm) and a pressure rating of between 150 to 200 pounds per square inch (psi). **Note: the injection pump requirements are different than the requirements of the mixing pump (see Mixing to Generate 3DMe Microemulsion).** High pressure, positive displacement pumps and progressive cavity pumps are appropriate for injecting 3DMe. For low permeability lithologies (clay, silt) higher pressure pumps (800-1600 psi) may be necessary, while for more permeable lithologies (gravel, sand) a lower pressure pump may be adequate. Examples of appropriate pumps are: Rupe Models 6-2200, 9-1500 and 9-1600 (positive displacement), Geoprobe® GS-2000 (positive displacement) and DP-800 (progressive cavity), Yamada (air diaphragm), Moyno (progressive cavity), and Wilden (air diaphragm). Delivery rate is a critical factor in managing installation time and costs. Generally, higher delivery rates (>6 gpm) are more cost effective for these types of applications but pump selection should be on a site specific basis and account for the volume of 3DMe solution and specific aquifer conditions present at the site.

The installation of the 3DMe microemulsion should span the entire vertical contaminated saturated thickness. If the vertical extent of the application is confined to a limited interval, then the microemulsion should be placed across a vertical zone extending a minimum of one-foot above and one-foot below the screened interval of monitoring wells that are being used to evaluate the performance of the project.

Producing the 3DMe Microemulsion

The application of 3DMe requires the creation of a microemulsion. Technically the optimal suspension is a 3DMe-in-water suspension containing microemulsions. Before beginning the mixing procedure the user should have in mind the desired water to 3DMe ratio v/v desired.

It is critical that the microemulsion be produced using a high-shear apparatus such as a high speed centrifugal pump. The shearing provided by the vanes in these types of pumps is sufficient to form and maintain a homogeneous milky emulsion. **This pump will be a different pump than that used to inject the 3DMe microemulsion into the subsurface.** If the user is uncertain as to requirements for the pump or the applicability of a certain pump, please contact Regenesis Technical Services. Regenesis typically suggests using a water trailer/pump apparatus commonly found at equipment rental facilities. Regenesis recommends using a Magnum Products LLC model MWT500 or equivalent water trailer (fitted with centrifugal recirculation pump). This "trash pump" or transfer pump is an ideal high shear pump and the water tank (400 gallons) serves as an excellent mixing tank.

To ensure that proper microemulsion suspension is generated Regenesis suggests a two-step process that simply requires mixing at least 10 parts water to 1 part 3DMe concentrate using water at a temperature $\geq 60^{o}$F.

> Step 1) Regenesis recommends that the 3DMe concentrate in each bucket be re-homogenized using a drill equipped with a paint or “jiffy” mixer attachment as minor settling may have occurred during shipment.
>
> Step 2) to calculate the volume of water necessary to produce a 10:1 v/v microemulsion, each bucket of 3DMe concentrate containing 3.7 gallons of material should be mixed with 37 gallons of water.

Example: 6 buckets x 3.7 gallons 3DMe concentrate/bucket yields a total of 22.2 gallons of 3DMe concentrate. Thus, a 10:1 v/v solution will require 222 gallons of water (22.2 gallons 3DMe concentrate x 10 gallons water yields 222 gallons of water). A nominal total volume microemulsion would result from the summation of the 3DMe concentrate volume (22.2 gallons) and the water volume (222 gallons). This yields a total fluids delivery volume of approximately 244 gallons.

The previously calculated water volume (222 gallons) should be transferred into an appropriately sized mixing tank. The water should be circulated by the high shear centrifugal pump and each of the six 3DMe buckets slowly poured into the tank. Each bucket of 3DMe concentrate should be poured at a slow rate (approx. 1 minute per bucket) and the contents of the tank continually recirculated using the high hear centrifugal pump. A period of 1-2 minutes should be allowed between addition of each subsequent bucket of 3DMe concentrate to allow the centrifugal pump to continue to shear and mix the water/3DMe concentrate. Upon addition of the entire volume of 3DMe concentrate the pump should remain on to allow the solution mixture to recirulate. The recirculation of the 3DMe microemulsion should continue until the material is injected to maintain microemulsion consistency.

Application of Microemulsion Using Direct-Push Methods

1) Prior to the installation of the microemulsion, any surface or overhead impediments should be identified as well as the location of all underground structures. Underground structures include but are not limited to: utility lines, tanks, distribution piping, sewers, drains, and landscape irrigation systems.

2) The planned installation locations should be adjusted to account for all impediments and obstacles.

3) Pre-mark the installation locations, noting any points that may have different vertical application requirements or total depth.

4) Set up the direct-push unit over each specific point and follow the manufacturer’s standard operating procedures (SOP). Care should be taken to assure that probe holes remain vertical.

5) For most applications, Regenesis suggests using drive rods with an O.D. of at least 1.25-inches and an I.D. of at least 0.625-inches I.D (Geoprobe or equivalent). However, the lithologic conditions at some sites may warrant the use of larger 2.125-inch O.D./1.5-inch I.D. drive rods.

6) The most typical type of sub-assembly currently being used is designed for 1.25-inch direct-push rods and is manufactured by Geoprobe. Other brands of drive rods can also be used but require the fabrication of a sub-assembly that allows for a connection between the pump and drive rod.

7) For mixing large volumes of the microemulsion, Regenesis recommends using a Magnum Products LLC model MWT500 water trailer (fitted with centrifugal recirculation pump) or equivalent unit. However, single large volume poly tanks are adequate. We suggest filling the tank with an appropriate quantity (e.g. from the example above 222 gallons) of water before start of mixing operations. The tank should be configured so that both a hose and a fire hydrant or larger water tank can be connected to it simultaneously and filled with water quickly and easily. This will dramatically reduce the time needed to fill the tank with mixing water.

8) Regenesis highly recommends preparing the microemulsion before pushing any drive rods into the subsurface. NOTE: it is best if the micro-emulsion is produced a single day application volumes.

9) After the microemulsion mixing/shearing step has been completed as described above, the microemulsion is ready to be applied. Check to see if a hose has already been attached to the inlet side of the centrifugal pump. If this has not been done, do so now.

10) If a non-water trailer tank is being used for mixing the microemulsion a stand alone centrifugal pump and hose system should be used for the shearing and mixing operations.

11) Advance drive rods through the ground surface, as necessary, following SOP.

12) Push the drive rod assembly with an expendable tip to the desired maximum depth. Regenesis suggests pre-counting the number of drive rods needed to reach depth prior to starting injection activities to avoid any miscalculations.

13) After the drive rods have been pushed to the desired depth, the rod assembly should be withdrawn three to six inches. The expendable tip can be dropped from the drive rods, following SOP.

14) If an injection tool is used instead of a direct-push rod with an expendable tip, the application of material can take place without any preliminary withdrawal of the rods.

15) In some cases, introduction of a large column of air may be problematic. This is particularly the case in deep injections (>50 ft) with large diameter rods (>1.5-inch O.D.). To prevent the injection of air into the aquifer during the application, fill the drive rods with 3DMe emulsion

after they have been pushed to the desired depth and before the disposable tip has been dropped or before the injection tip is operational.

16) Transfer the appropriate quantity of the microemulsion from the water trailer to the working/application pump hopper or associated holding tank.

17) A volume check should be performed prior to the injection of the microemulsion. Determining the volume discharged per unit time/stroke using a graduated bucket and stopwatch or stroke counter.

18) Start the pump and use the graduated bucket to determine how many gallons of microemulsion are delivered each minute or stroke per unit volume.

19) Connect the 1.25-inch O.D., 1-inch I.D. delivery hose to the pump outlet and the appropriate sub-assembly. Circulate the microemulsion through the hose and the sub-assembly to displace any air present in the system.

20) Connect the sub-assembly to the drive rod. After confirming that all of the connections are secure, pump the microemulsion through the delivery system to displace any water or other fluids in the rods.

21) The pump engine RPM and hydraulic settings should remain constant throughout the day to maintain a constant discharge rate.

22) The material is now ready to be installed in the subsurface. Use the pumps discharge rate as calculated in step 18 to determine the withdrawal rate of the drive rods needed for the application.

23) Slowly withdraw the drive rods using Geoprobe Rod Grip or Pull Plate Assembly (Part AT1222-For 1.25-inch drive rods). While slowly withdrawing single lengths of drive rod (three or four feet), pump the pre-determined volume of microemulsion into the aquifer across the desired treatment interval.

24) Remove one or two sections of the drive rod at a time. The drive rod may contain some residual material so Regenesis suggests placing it in a clean, empty bucket and allowing the material to drain. Eventually, the material recovered in the bucket should be returned to the pump hopper for reuse.

25) Observe any indications of aquifer refusal such as "surfacing" around the injection rods or previously installed injection points. If aquifer acceptance appears to be low, allow enough time for the aquifer to equilibrate prior to removing the drive rod.

26) Repeat steps 19 through 25 until treatment of the entire contaminated vertical zone has been achieved.

27) Install an appropriate seal, such as bentonite, above the microemulsion injection zone. The seal should span across the entire vadose zone. Depending on soil conditions and local

regulations, a bentonite seal using chips or pellets can be used. If the injection hole remains open more than three or four feet below the ground surface sand can be used to fill the hole and provide a base for the bentonite seal. The installation of an appropriate seal assures that the microemulsion remains properly placed and prevents contaminant migration from the surface. If the microemulsion continues to "surface" up the direct-push borehole, an oversized disposable drive tip or wood plug/stake can be used to temporarily plug the hole until the aquifer equilibrates and the material stops surfacing.

28) Remove and clean the drive rods as necessary.

29) Finish the borehole at the surface as appropriate (concrete or asphalt cap, if necessary).

30) Periodically compare the pre- and post-injection discharge rates of the microemulsion in the pump hopper or holding tank using any pre-marked volume levels. If volume level indicators are not on the pumps hopper or holding tank use a pre-marked dipstick or alternatively temporary mark the hopper or holding tank with known quantities/volumes of water using a carpenter's grease pencil (Kiel crayon).

31) Move to the next probe point, repeating steps 11 through 29.

Helpful Hints

1) *Application in Cold Weather Settings*

As discussed in the Material Overview, Handling, and Safety section, cold weather tends to increase the viscosity of 3DMe as well as decrease the ease of microemulsion formation. To optimize an application in cold weather settings Regenesis recommends maintaining the 3DMe concentrate and the associated water at a temperature ≥60^{o}F (16^{o}C). The following procedures can be used to facilitate the production and installation of a 10:1 v/v 3DMe microemulsion.

- Raise and maintain the temperature of the 3DMe to at least 60°F (16°C) prior to mixing with water. A hot water bath can be used to heat up the 3DMe concentrate buckets. A Rubbermaid fiberglass Farm Trough Stock Tank (Model 4242-00-GRAY) has been used for this process. This trough can hold up to 16 buckets of 3DMe concentrate.
- Hot water (approximately 130-170°F or 54-77°C) should be added to the tank after the buckets of 3DMe have been placed inside. The hot water should be delivered from a heated pressure washer (Hotsy® Model No. 444 or equivalent) or steam cleaner unit.
- It is equally critical that a moderate water temperature (>60°F or 16^{o}C) be used in the production of the microemulsion. If on-site water supply is below 60^{o}F use a hot water or steam cleaner to generate a small volume (e.g. 5-10% of total water volume) of hot water (130–170^{o}F/54-77^{o}C). This small volume of hot water should be added to remaining cold water volume to raise the total volume temperature to >60^{o}F. When the 3DMe concentrate and water each reach a minimum temperature of 60°F or 16°C the two materials are ready for mixing.

- Upon achieving a minimum temperature of 60°F or 16°C (approximately 10-20 minutes). When the 3DMe and the associated water volumes have reached a minimum temperature of 60°F or 16°C (approximately 10-20 minutes) they are ready for mixing.
- In exceptionally harsh winter temperature settings use of a separate insulated pump containment structure and insulated delivery hoses may be necessary.
- Use a pump with a heater unit.
- Periodically check the temperature of the material in the hopper.
- Re-circulate the 3DMe microemulsion through the pump and hose to maintain temperature adequate temperatures.
- Care should be taken to avoid the re-circulation of material volumes that exceed the volume of the pump hopper or holding tank.

Table 1: Equipment Volume and 3DMe Microemulsion Weight per Unit Length of Hose (Feet)

Equipment	Volume	Product Weight
1-inch OD; 0.625-inch ID hose (10 feet)	0.2 gallon	1.6 lbs.
1.25-inch OD; 0.625-inch ID drive rod (3 feet):	0.05 gallon	0.4 lbs.
1.25-inch OD; 0.625-inch ID drive rod (4 feet):	0.06 gallon	0.5 lbs.

2) *Pump Cleaning*

For best results, use a heated pressure washer to clean equipment and rods periodically throughout the day. Internal pump mechanisms and hoses can be easily cleaned by re-circulating a solution of hot water and a biodegradable cleaner such as Simple Green through the pump and delivery hose. Further cleaning and decontamination (if necessary due to subsurface conditions) should be performed according to the equipment supplier's standard procedures and local regulatory requirements.

NOTE:

Before using the Rupe Pump, check the following:

- Fuel level prior to engaging in pumping activities (it would be best to start with a full tank)
- Remote control/pump stroke counter LCD display [if no display is present, the electronic counter will need to be replaced (Grainger Stock No. 2A540)]

Monitor pump strokes by observing the proximity switches (these are located on the top of the piston).

3) *Bedrock Applications*

When contaminants are present in competent bedrock aquifers, the use of direct-push technology as a delivery method is not possible. *Regenesis is in the process of developing methods for* *applying 3DMe via boreholes drilled using conventional rotary techniques.* To develop the best installation strategy for a particular bedrock site, it is critical that our customers call the Technical Services department at Regenesis early in the design process.

The microemulsion can be applied into a bedrock aquifer in cased and uncased boreholes. The microemulsion can be delivered by simply filling the borehole without pressure or by using a single or straddle packer system to inject the material under pressure. Selection of the appropriate delivery method is predicated on site-specific conditions. The following issues should be considered in developing a delivery strategy:

- Is the aquifer’s hydraulic conductivity controlled by fractures?
- Backfilling may be the better delivery method in massive, unfractured bedrock. This is particularly true in an aquifer setting with high permeability and little fracturing (such as that found in massive sandstone).
- Down-hole packer systems may be more advantageous in fractured bedrock aquifers.
    - In this case the fracture type, trends, and interconnections should be evaluated and identified.
- Are the injection wells and monitoring wells connected by the same fractures?
- Determine if it is likely that the injection zone is connected to the proposed monitoring points.
- If pressure injection via straddle packers is desired, consideration should be given to the well construction. Specific issues to be considered are:
    - Diameter of the uncased borehole (*will casing diameter allow a packer system to be used under high pressures*?).
    - Diameter of the casing (*same as above*).
    - Strength of the casing (*can it withstand the delivery pressures?*).
    - Length of screened interval (*screened intervals greater than 10 feet will require a straddle packer system*).

For further assistance or questions please contact Regenesis Technical Services at 949-366-8000.

3DMe Grid Treatment Summary Page - Consultant Output

Regenesis Technical Support: USA (949) 366-8000 www.regenesis.com

Site Name: Speedy's Cleaners
Location: Brighton NY
Consultant: Mactec

Aquifer Characteristics

Soil Type	silty sand	
Total Porosity	0.4	
Effective Porosity	0.2	
Hydraulic Conductivity	10.3	ft/day
Hydraulic Gradient	0.008	ft/ft
Seepage Velocity	150.5	ft/yr
Pore Volume	8,000	ft^3
Pore Volume	59,844	gals

Design Assumptions

Area of Application	4,000	ft^2
Thickness of Application	5	ft
Dissolved Contaminant Mass	4.00	lbs
Adsorbed Contaminant Mass	19.57	lbs
Mass of Competing Electron Acceptors	44.95	lbs

3DMe Grid Treatment Summary Page - Consultant Output

Regenesis Technical Support: USA (949) 366-8000 www.regenesis.com

Site Name: Speedy's Cleaners
Location: Brighton NY
Consultant: Mactec

Direct Push Injection Application

3DMe-Related

Concentrate Mass	840	lbs
Concentrate Volume	101	gals

Base 10:1 Emulsion Formulation

3DMe Concentrate Volume	101	gals
Water Volume	1,007	gals
Emulsion Total Volume	1,108	gals
Effective Pore Space Displaced	3.7%	%

Recommended Emulsion Formulation

Additional Water Volume	89	gals
Total Water Volume (base+recommended)	1,096	gals
Total Mass of Recommended Emulsion	9,986	lbs
Total Volume of Recommended Emulsion	1,197	gals

Application-Related

Number of Direct Push Injection Points	10	points
Mass of 3DMe 10:1 Base Emulsion per Point	924	lbs/point
Volume of 3DMe 10:1 Base Emulsion per Point	111	gals/point
Mass of 3DMe 10:1 Base Emulsion per Lineal Foot	184.8	lbs/ft
Volume of Recommended Emulsion per Point	120	gals/point
Volume of Recommended Emulsion per Foot	24	gals/ft
Estimated Application Rate	5	gpm
Estimated Application Time per Point	1	min/point

Purchasing-Related Information

Number of Buckets of 3DMe Concentrate	28	buckets
Estimated Number of Pallets	1	pallets
Total Required Volume of Water	1,096	gals
Mass of 10:1 Base Emulsion	9,240	lbs
Unit Price ($/lb) of 10:1 Base Emulsion	$ 0.47	
Material Cost at 10:1 Base Emulsion (total)	$ 4,343	
Sales Tax	$ -	
Shipping Estimate	$ -	Call Regenesis For Quote

3DMe Grid Treatment Summary Page - Consultant Output

Regenesis Technical Support: USA (949) 366-8000 www.regenesis.com

Site Name: Speedy's Cleaners
Location: Brighton NY
Consultant: Mactec

Fixed Well Application

3DMe-Related

Concentrate Mass	840	lbs
Concentrate Volume	101	gals

Base 10:1 Emulsion Formulation

3DMe Concentrate Volume	101	gals
Water Volume	1,007	gals
Emulsion Total Volume	1,108	gals
Effective Pore Space Displaced	3.7%	%

Recommended Emulsion Formulation

Additional Water Volume	89	gals
Total Water Volume (base+recommended)	1,096	gals
Total Mass of Recommended Emulsion	9,986	lbs
Total Volume of Recommended Emulsion	1,197	gals

Application-Related

Number of Wells	10	wells
Mass of 3DMe 10:1 Base Emulsion per Well	924	lbs/well
Volume of 3DMe 10:1 Base Emulsion per Well	111	gals/well
Mass of 3DMe 10:1 Base Emulsion per Lineal Foot	184.8	lbs/ft
Volume of Recommended Emulsion per Well	120	gals/well
Volume of Recommended Emulsion per Foot	24	gals/ft
Estimated Application Rate	10	gpm
Estimated Application Time per Well	1	min/well

Purchasing-Related Information

Number of Buckets of 3DMe Concentrate	28	buckets
Estimated Number of Pallets	1	pallets
Total Required Volume of Water	1,096	gals
Mass of 10:1 Base Emulsion	9,240	lbs
Unit Price ($/lb) of 10:1 Base Emulsion	$ 0.47	
Material Cost at 10:1 Base Emulsion (total)	$ 4,343	
Sales Tax	$ -	
Shipping Estimate	$ -	Call Regenesis For Quote

3DMe Grid Treatment Summary Page - Contractor Output

Regenesis Technical Support: USA (949) 366-8000 www.regenesis.com

Site Name: Speedy's Cleaners
Location: Brighton NY
Consultant: Mactec

Direct Push Application

Aquifer-Related Information

Soil Type	silty sand	
Area of Application	4,000	ft^2

Application Dimensions

Length	40	ft
Width	100	ft
Thickness	5	ft

3DMe-Related Information

3DMe Concentrate Mass	840	lbs
Number of Buckets of 3DMe Concentrate	28	buckets
Estimated Number of Pallets	1	pallets
Base 10:1 Emulsion Water Requirement	1,007	gals
Additional Water Needed to Make Recom. Emulsion	89	gals
Total Volume of Water Required	1,096	gals

Application-Related Information

Spacing Within Rows	10	ft
Spacing Between Rows	40	ft
Number of Direct Push Injection Points	10	points
Volume of 3DMe As Applied, Emulsion per Point	120	gals/point
Volume of 3DMe As Applied, Emulsion per Foot	24	gals/ft
Estimated Application Rate	5	gals/minute
Estimated Application Time Per Point	1	mins/point

Purchasing-Related Information

Number of Buckets of 3DMe Concentrate	28	buckets
Estimated Number of Pallets	1	pallets
Total Required Volume of Water	1,096	gals
Mass of 10:1 Base Emulsion	9,240	lbs
Unit Price ($/lb) of 10:1 Base Emulsion	$ 0.47	
Sales Tax	$ -	
Shipping Estimate	$ -	Call Regenesis For Quote

3DMe Grid Treatment Summary Page - Contractor Output

Regenesis Technical Support: USA (949) 366-8000 www.regenesis.com

Site Name: Speedy's Cleaners
Location: Brighton NY
Consultant: Mactec

Fixed Well Application

Aquifer-Related Information		
Soil Type	silty sand	
Area of Application	4,000	ft^2
Application Dimensions		
Length	40	ft
Width	100	ft
Thickness	5	ft
3DMe-Related Information		
3DMe Concentrate Mass	840	lbs
Number of Buckets of 3DMe Concentrate	28	buckets
Estimated Number of Pallets	1	pallets
Base 10:1 Emulsion Water Requirement	1,007	gals
Additional Water Needed to Make Recom. Emulsion	89	gals
Total Volume of Water Required	1,096	gals
Application-Related Information		
Spacing Within Rows	10	ft
Spacing Between Rows	40	ft
Number of Injection Wells	10	points
Volume of 3DMe As Applied, Emulsion per Well	120	gals/point
Volume of 3DMe As Applied, Emulsion per Foot	24	gals/ft
Estimated Application Rate	10	gals/minute
Estimated Application Time Per Point	1	mins/point
Purchasing-Related Information		
Number of Buckets of 3DMe Concentrate	28	buckets
Estimated Number of Pallets	1	pallets
Total Required Volume of Water	1,096	gals
Mass of 10:1 Base Emulsion	9,240	lbs
Unit Price ($/lb) of 10:1 Base Emulsion	$ 0.47	
Sales Tax	$ -	
Shipping Estimate	$ -	Call Regenesis For Quote

HRC Design Software for Excavation Applications

US Version 3.1

Regenesis Technical Support: USA (949) 366-8000, www.regenesis.com

Site Name: Former Speedy's Cleaner - Source Excavation
Location: Birghton, NY
Consultant: MACTEC

Site Conceptual Model/Extent of Plume Requiring Remediation

Planned Excavation:	Width of planned excavation	10	ft			
	Length of planned excavation	10	ft	=	100	sq. ft.
	Thickness of saturated zone to be excavated	1	ft		100	cu. ft.
GW Plume:	Width of plume area containing contaminant	20	ft			
	Length of plume area containing contaminant	20	ft	=	400	sq. ft.
	Thickness of contaminated saturated zone	5	ft		2,000	cu. ft.
	Total porosity	0.4				
Treatment Zone Pore Volume		800	ft^3	=	5,985	gallons

Dissolved Phase Electron Donor Demand

		Contaminant		Stoich. (wt/wt)
		Conc. (mg/L)	Mass (lb)	contam/H_2
Tetrachloroethene (PCE)	DNAPL?-Consider inc. add. dem. factor	13.00	0.6	20.7
Trichloroethene (TCE)		0.17	0.0	21.9
cis-1,2-dichloroethene (DCE)		0.13	0.0	24.2
Vinyl Chloride (VC)		0.00	0.0	31.2
Carbon tetrachloride		0.00	0.0	19.2
Chloroform		0.00	0.0	19.9
1,1,1-Trichloroethane (TCA)		0.00	0.0	22.2
1,1-Dichlorochloroethane (DCA)		0.00	0.0	24.7
Hexavalent Chromium		0.00	0.0	17.3
User added, also add stoichiometric demand		0.00	0.0	0.0
User added, also add stoichiometric demand		0.00	0.0	0.0

Sorbed Phase Electron Donor Demand

Soil bulk density	1.76	g/cm^3	=	110	lb/cf
Fraction of organic carbon: foc	0.005	range: 0.0001 to 0.01			

(Values are estimated using Soil Conc=foc*Koc*Cgw)	Koc	Contaminant		Stoich. (wt/wt)
(Adjust Koc as nec. to provide realistic estimates)	(L/kg)	Conc. (mg/kg)	Mass (lb)	contam/H_2
Tetrachloroethene (PCE)	371	24.12	5.0	20.7
Trichloroethene (TCE)	122	0.10	0.0	21.9
cis-1,2-dichloroethene (DCE)	80	0.05	0.0	24.2
Vinyl Chloride (VC)	2.5	0.00	0.0	31.2
Carbon tetrachloride	0	0.00	0.0	19.2
Chloroform	0	0.00	0.0	19.9
1,1,1-Trichloroethane (TCA)	304	0.00	0.0	22.2
1,1-Dichlorochloroethane (DCA)	33	0.00	0.0	24.7
User added, also add stoichiometric demand	0	0.00	0.0	0.0
User added, also add stoichiometric demand	0	0.00	0.0	0.0

	Electron Acceptor		Stoich. (wt/wt)
Competing Electron Acceptors:	Conc (mg/L)	Mass (lb)	elec acceptor/H_2
Oxygen	5.00	0.2	8.0
Nitrate	5.00	0.2	12.4
Est. Mn reduction demand (potential amt of Mn2+ formed)	5.00	0.2	27.5
Est. Fe reduction demand (potential amt of Fe2+ formed)	25.00	1.2	55.9
Estimated sulfate reduction demand	50.00	2.5	12.0

Microbial Demand Factor	3	Recommend 1-4x
Additional Demand Factor	3	Recommend 1-4x

Project Summary				
Approx HRC Dose (lb)			188	
Total Number of 30 lb Buckets			7	
Total Amt of HRC (lb)			210	
Volume of HRC (gal)			19	
% of excav. backfill pore space (assume 30% backfill porosity)			8.6%	
HRC Cost		$	7.95	List Price Adjust
Total Material Cost		**$**	**1,670**	
Shipping and Tax Estimates in US Dollars				
Sales tax	rate: 5%	$	83	
Total Matl. Cost		$	1,753	
Shipping of HRC (call for amount)		$	-	
Total Regenesis Material Cost		**$**	**1,753**	

Other Project Cost Estimates		
Design	$	-
Permitting and reporting	$	-
Excavation contractors	$	-
Construction management	$	-
Laboratory costs	$	-
Groundwater monitoring	$	-
Other	$	-
Other	$	-
Other	$	-
Other	$	-
Other	$	-
Total Project Cost	**$**	**1,753**