SITE CHARACTERIZATION REPORT

REGION 8 DRY CLEANING SITES
FORMER AMERICAN DRY CLEANERS SITE
HORSEHEADS, NEW YORK

WORK ASSIGNMENT NO. D003826-20

SITE NO. 8-08-036

Submitted to:

New York State Department of Environmental Conservation
Albany, New York

Submitted by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine
MACTEC No. 3612052036

SEPTEMBER 2006

SITE CHARACTERIZATION REPORT

REGION 8 DRY CLEANING SITES
FORMER AMERICAN DRY CLEANERS SITE
HORSEHEADS, NEW YORK

WORK ASSIGNMENT NO. D003826-20

SITE NO. 8-08-036

Submitted to:

New York State Department of Environmental Conservation
Albany, New York

Submitted by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine
MACTEC No. 3612052036

SEPTEMBER 2006

Submitted by:
John Peterson
Project Manager

Approved by:
William J. Weber, P.E.
Program Manager

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

1,1,1-TCA	1,1,1-trichloroethane
ABB-ES	ABB Environmental Services
ASP	Analytical Services Protocol
ASTM	America Society for Testing and Materials
bgs	below ground surface
Chemtech	Chemtech Consulting Group, Inc.
EDR	Environmental Data Resources, Inc.
ºF	degrees Fahrenheit
GPS	global positioning system
MACTEC	MACTEC Engineering and Consulting, P.C.
ml/min	milliliter per minute
msl	mean sea level
NAD	North American Datum
NAVD	North American Vertical Datum
NYCRR	Title 6 New York Codes, Rules, and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	State of New York Department of Health
PCE	tetrachloroethene
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
PVC	polyvinyl chloride
QAPP	Quality Assurance Program Plan
Report	Site Characterization Report
SC	Site Characterization
Site	Former American Dry Cleaners Site
SVOC	semivolatile organic compound
TCE	trichloroethene
TCL	Target Compound List
TIC	tentatively identified compounds

µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WA	Work Assignment

EXECUTIVE SUMMARY

The Former American Dry Cleaners site (Site) is located at 3045 Lake Road in a mixed residential/commercial neighborhood in the Town of Horseheads, Chemung County, New York (Figure 1.1). The Site, Site No. 8-08-036, is currently listed as a potential hazardous waste site, or "P" site, by the New York State Department of Environmental Conservation (NYSDEC), because insufficient information exists to determine whether wastes were disposed of at the Site and whether, if present, those wastes pose a potential significant threat to public health or the environment (New York State [NYS], 1998). MACTEC Engineering and Consulting, P.C. (MACTEC) conducted field investigations as part of a Site Characterization (SC). The purpose of the SC is to gather sufficient information to evaluate environmental problems present at a site. The SC seeks to identify whether a source of waste is present at a site, determine if the waste poses a significant threat to human health or the environment, and evaluate migration routes to the surrounding environment through groundwater, soil gas, or surficial pathways.

The Former American Dry Cleaners property consists of approximately 0.25 acres and contains a cement block facility and a small dirt parking area. The location was reportedly used as a dry cleaner from the late 1940's to the mid-1990's, when the Site was changed into a carpet repair business (NYSDEC, 2005). The building is currently vacant. A real estate office is located just north of the Site property, and residential property borders the Site to the West and South. Forested property and the Newtown Creek border the property to the east.

The Site came to the attention of the NYSDEC after low concentrations (less than 11 micrograms per liter [µg/L]) of chlorinated solvents (specifically trichlorethene [TCE]) were first detected in the City of Elmira's Sullivan supply wells in the mid 1980's. These wells are located approximately 1.6 miles south of the Site, on the west side Newtown Creek (Figure 1.1). Although other sources of chlorinated solvents exit in the greater Horseheads/Elmira valley, it was not known if this Site is contributing to the contamination plume.

To determine whether the chlorinated solvent contamination detected in the City of Elmira's public supply wells originated from the Site and to collect sufficient information to allow re-classification of the Site, MACTEC conducted the following tasks:

- completed a file review of the Site;
- collected a groundwater sample from one existing private well;
- collected 5 direct-push soil samples from above the water table at five locations;
- collected 23 direct-push groundwater samples at 18 locations;
- installed four microwells for the purpose of measuring groundwater table elevations;
- collected three soil gas samples from around the Site property; and
- conducted a land survey of the Site.

A review of physical and chemical data collected during the SC resulted in the following findings:

1) The Site is located in a residential neighborhood that is serviced by public water. Low concentrations of TCE (<10.3 µg/L) have been detected in the City of Elmira's Sullivan Street public supply well, located approximately 1.6 miles south of the Site. Groundwater measurements collected at the Site indicate that groundwater flow is generally to the south south-east, towards this supply well.
2) TCE, a NYS listed hazardous waste, was detected in groundwater samples collected upgradient, at, and downgradient of the Site at concentrations ranging from 25 to 35 µg/L (compared to the NYS Class GA standard for TCE of 5 µg/L). Based on this data, it does not appear that the Site is a contributing source to the chlorinated solvent groundwater contamination.
3) Tetrachloroethene (PCE), the most common dry cleaning solvent, was only detected in one groundwater sample (from boring GW-11). The trace concentration (1 J µg/L) was below the NYS Class GA standard of 5 µg/L and not at a concentration that would indicate a source area.
4) Trace concentrations of 1.1.1-trichloroethane (1,1,1-TCA), PCE, and TCE were detected in soil gas samples collected around the Site property (highest concentrations of 7 BJ $\mu g/m^3$, 9 $\mu g/m^3$, and 21 $\mu g/m^3$, respectively). These concentrations are not indicative of source area concentrations.

Due to Site building access not being granted by the property owner, no soil, soil gas, or groundwater samples were collected below the Site building, and although not anticipated, it can not be confirmed that PCE contamination does not exist below the Site building.

1.0 INTRODUCTION

MACTEC Engineering and Consulting, P.C. (MACTEC), is submitting this Site Characterization Report (Report) to the New York State Department of Environmental Conservation (NYSDEC). This Report addresses the Site Characterization (SC) at the Former American Dry Cleaners site (Site) in Horseheads, New York (Figure 1.1). This Report was prepared in response to Work Assignment (WA) No. D0003826-20 (NYSDEC, 2005), and in accordance with the requirements of the July 1997 Superfund Standby Contract No. D003826 between the NYSDEC and MACTEC.

This Report is one of five Site-specific SC reports for the Region 8 Dry Cleaning Sites multiple Site Characterizations WA. The other four SC reports address the sites listed below:

- Loohn's Corning (Site No. 8-51-028 - replaces Former Your Way Cleaners)
- Castle Cleaners (Site No. 8-08-034)
- Crystal Cleaners (Site No. 8-51-022)
- Former Helwigs Dry Cleaners (Site No. 8-51-023)

The Former American Dry Cleaners site, Site No. 8-08-036, is currently listed as a potential hazardous waste site, or "P" site, by the NYSDEC, because insufficient information exists to determine whether wastes were disposed of at the Site and whether, if present, those wastes pose a potential significant threat to public health or the environment (New York State (NYS), 1998).

The purpose of the SC is to provide information to be used by the NYSDEC to reclassify the Site to one of the following categories:

Class 1 — Hazardous waste constitutes a significant threat to the environment, as described in Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375 (NYS, 1998); and the significant threat to the environment is causing, or presents an imminent danger of causing, either irreversible or irreparable damage to the environment.

Class 2 Hazardous waste constitutes a significant threat to the environment as described in NYCRR Part 375 (NYS, 1998).

Class 3 Hazardous waste does not presently constitute a significant threat to the environment, as described in NYCRR Part 375 (NYS, 1998).

To complete its reclassification, the NYSDEC requires information to establish the following:

- The existence of documented hazardous waste disposal, as defined in NYCRR Part 371 (NYS, 1999a).
- The Site's significance with respect to the threat it poses to public health and the environment as defined in 6 NYCRR Part 375 (NYSDEC, 1998).
- Identification of contaminant source.

MACTEC collected reclassification documentation and is presenting it to the NYSDEC so it can recommend follow up action for the Site (i.e., reclassify, delist, or perform additional investigation).

The WA was divided into three tasks. During Task 1-Work Plan Development, MACTEC conducted a search of state and county Site records, and performed a Site inspection to develop information necessary for reclassification or delisting. The information collected is presented in Section 2 of this document. Task 1 activities did not develop adequate data on which to base a delist or reclassification recommendation. Therefore, additional field investigations were conducted under Task 2 – Subsurface Investigations.

Section 3 of this Report presents the work conducted during the field investigations. Section 4 presents results of the field investigation. Section 5 presents an investigation summary.

Task 3-Reporting, was the preparation of this Report. Resources used to prepare this Report include:

- (1) information provided in the Work Assignment,
- (2) appropriate guidelines in the NYSDEC Draft DER-10 Guidance (NYSDEC, 2002),

- (3) results of previous investigations, if applicable, and
- (4) results of the SC investigation.

2.0 SITE BACKGROUND AND PHYSICAL SETTING

On September 9 and 10, 2005, MACTEC personnel reviewed available records from the NYSDEC office in Albany, New York, and visited the City of Elmira/Horseheads, New York town offices. Information was also collected from the Site owner by the NYSDEC. As part of the review, MACTEC ordered a copy of an Environmental Data Resources, Inc. (EDR) report which provides a listing of federal and state governmental information pertaining to potential and documented environmental impacts, both at the Site and within the American Society for Testing Materials (ASTM) recommended search radii. Complete lists of all recommended ASTM record searches for standard due diligence requirements are included in the EDR report provided under separate cover. This information was reviewed to support a Site classification, and to help prepare the scope of work for the SC field investigations. The information collected from these sources is summarized below.

2.1 SITE LOCATION

Former American Dry Cleaners is located at 3045 Lake Road in a mixed residential/commercial neighborhood in the Town of Horseheads, Chemung County, New York (Figure 1.1). The Former American Dry Cleaners property consists of approximately 0.25 acres and contains a cement block facility and a small dirt parking area.

A real estate office is located just north of the Site property, and residential property borders the site to the West and South. Forested property and the Newtown Creek border the property to the east.

2.2 SITE HISTORY

According to the Horseheads Town Assessors, the Former American Dry Cleaners facility was built in 1947. This date is confirmed based on the Dry Cleaner listed in the 1949 Elmira City Directory, but not the 1944 Directory. The City Directory's reviewed from 1949 to 1987 list the property address as 3039 Lake Road. The location was reportedly used as a dry cleaner from the late 1940's to the mid-1990's, when the Site was changed into a carpet repair business (NYSDEC, 2005). The building is currently vacant.

According to the Horseheads Water Department, the water main along Lake Road was installed in the mid-1940's, and the property at 3045 Lake (formerly 3039 Lake) was connected in 1954. The Sewer line was installed along Lake Road in 1963 and 1964. Horseheads water records indicated that the property was connected to the sewer line in 1965. The sewer line flows to a sewer treatment plant located approximately one mile south of the Site along Lake Road. Based on the dates of the sewer and water line installations, it is assumed that American Dry Cleaners used both a private supply well and septic system prior to connecting to public water and sewer. Additional homes within Horseheads/Elmira Heights were connected to public water supply when chlorinated solvents were detected in private wells in the Horseheads/Elmira Heights area in the mid 1980's (LaDouce, 2005).

2.3 PREVIOUS INVESTIGATIONS

It is not known if any previous site investigations have been completed for the Site property.

The site is of concern based on the presence of chlorinated solvents in the City of Elmira's Sullivan Street Supply Well. Although other sources of chlorinated solvents exit in the greater Horseheads/Elmira Valley, it is not known if this Site is contributing to the contamination plume. Chlorinated solvents (primarily trichloroethene [TCE]) were first detected in the City Sullivan supply wells in the mid 1980's. Samples collected between 1981 and 1992 indicated concentrations of TCE in the Sullivan Street Wells ranging from 5.0 to 10.3 micrograms per liter (µg/L), in relation to a NYS Groundwater Standard of 5 µg/L (NYSDOH, 1994). These wells are located approximately 1.6 miles south of the Site, on the west side of Newtown Creek (Figure 1.1). There are two supply wells in close proximity to each other. These wells can each produce approximately 3 million gallons per day. The 18-ich diameter wells have casings set to approximately 60 feet below ground surface (bgs), with shutter screen down to 98 feet bgs. Although an air stripper was installed in the late 1990's, the wells are currently not used (LaDouce, 2005). They are turned on twice per year and sampled.

2.4 PHYSICAL SETTING

Topography

The Site is located in the Newtown Creek Valley, which runs north-south, joining the Chemung River Valley to the south, which runs east-west. The Site property is located at 870 feet above mean sea level (msl) and is relatively flat. The valley slopes slightly down to the south and east. Newtown Creek is located at an elevation of approximately 860 feet above msl 650 feet east of the Site. Newtown Creek runs south, joining the Chemung River in 3.5 miles. The Chemung River is located at an elevation of approximately 835 feet above msl at the confluence with Newtown Creek. The topography to the west of the Site is relatively flat for approximately 0.8 miles, and then rises to a ridge at 1600 feet above msl approximately 2.5 miles from the Site. The topography east of Newtown Creek is flat for approximately 0.3 miles, and then rises sharply to a ridge at 1600 feet above msl approximately 1.3 miles from the Site.

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 35 inches. Average annual snowfall is 43 inches (National Climatic Data Center, 2004).

Surface Water Hydrology

Surface drainage from the Site generally follows the topography, flowing toward low areas and then infiltrating into the ground. A storm drain dry well is located on the southern edge of the south west edge of the Site property, by the Site parking area. According to the Town of Horseheads Highway Department, the dry well does not tie into storm sewer lines. The Site is not located within a 500 year flood zone (EDR, 2006).

Groundwater Hydrology

The Newtown Creek and eventually the Chemung River are local groundwater discharge areas. Groundwater at the Site was encountered at approximately 19 feet bgs, and is interpreted to flow southeast towards Newtown Creek.

Geology

Overburden soils at the Site consist of lacustrine silts, sands and gravels. Surficial geology is mapped as oxidized, non calcareous, fine sand to gravel (Muller, 1986). Based on regional geologic mapping (Rickard and Fisher, 1970) bedrock is expected to consist of shale and siltstones associated with the Upper Devonian West Falls Group. Specifically, the Beers Hill Shale; Grimes Siltstone; Dunn Hill, Millport, and Moreland Shales (Rickard and Fisher, 1970).

Site Walkover

On September 9, 2005 the MACTEC Site Lead, Chuck Staples, and the NYSDEC Project Manager, Matthew Dunham, conducted a walkover of the Site area.

The Site walkover consisted of viewing the Former American Dry Cleaners property (from the outside), and the surrounding neighborhood to assess possible contamination sources and the logistical concerns for the field program. MACTEC personnel documented the walkover with photographs (Appendix A).

Observable sources of contamination (e.g., leaking drums) were not noted during the Site walkover, however, detailed inspections of potential sources (such as Site soils and potential floor drains) were not conducted during the Site walkover. Additional information for the purpose of identifying potential sources was obtained during Task 2.

2.5 FILE REVIEW

MACTEC reviewed files from various state and local agency offices to develop information to support a reclassification or delisting, and to help prepare the scope of work for the SC field

investigations. The Site EDR report was also reviewed in preparation of this report.

2.6 SUMMARY OF DATA RECORDS SEARCH AND ASSESSMENT FINDINGS

Under Federal and State regulations a solid waste may be regulated as a hazardous waste if it is a material included in one of the United States Environmental Protection Agency's (USEPA) or the NYSDEC's lists of hazardous wastes. If a material is regulated because of its inclusion on a federal or state list, it is commonly referred to as a "listed hazardous waste." A waste may also be regulated under the Resource Conservation and Recovery Act as a "characteristic hazardous waste" if it exhibits one of the characteristics of toxicity, corrosivity, reactivity, or flammability.

Results of sampling and analysis of the Sullivan Street Supply Wells indicated the presence of TCE in groundwater. Spent chlorinated solvents not originating from a household sources, including TCE are included on both the USEPA's and the NYSDEC's lists of hazardous wastes. Under 6 NYCRR Part 371.4(a) (1), these spent solvents constitute hazardous waste from non-specified sources. Disposal of these chlorinated solvents has been confirmed by available analytical results from the Sullivan Street Wells, but the source area has not been identified.

As defined by 6 NYCRR Part 375, significant threat can be established by documenting a contravention of environmental standards. Surface water and groundwater are the only media for which NYS has promulgated standards. Under NYS Water Quality Regulations (6 NYCRR Parts 700-705) the state has set numeric standards that are the maximum concentration of compounds in groundwater and surface water that protect public health and/or the environment (NYS, 1999b).

Analytical data had not been collected from the Site and therefore it was not known if the Site was the source of the TCE contamination or if the Site posed a significant threat. As a result, Task 2, the SC Field Investigation, was conducted to:

- collect the data necessary to verify the likelihood of uncontrolled waste disposal;
- determine if potential contamination is present on the Site and is migrating offsite; and
- provide sufficient information to allow the NYSDEC to re-classify the Site.

3.0 SCOPE OF WORK

To reclassify the Site, the NYSDEC requires data documenting hazardous waste disposal as set forth in 6 NYCRR Part 371, and the potential significant threat to human health and the environment as defined by 6 NYCRR Part 375. Because data necessary to determine if the chlorinated compounds present in the Sullivan Street Wells originated from the Site or if potential contamination present in Site media is migrating off-site and poses a potential significant threat to human health and the environment was not available in Federal and State files reviewed during Task 1, additional field investigations were performed as described below. Task 2 activities included the Field Investigation. The objective of Task 2 activities was to determine, if possible, whether the volatile organic compounds (VOCs) detected in the city supply well originated from the Site, or whether potential onsite VOCs contamination is migrating offsite. Task 3 was the preparation and distribution of this Report.

TASK 2 - FIELD INVESTIGATIONS

The following subsections describe the activities conducted during the field investigation portion of the Site SC. The work generally followed the Scope of Work as outlined in the SC Work Plan (MACTEC, 2005), with the exception that no access was given for the Site property. The field investigation was conducted in accordance with the specifications presented in the Quality Assurance Program Plans (QAPPs) (ABB Environmental Services [ABB-ES], 1995) and the site specific Quality Assurance Project Plans. Off-site laboratory analyses were performed by Chemtech Consulting Group, Inc. (Chemtech), a New York State Department of Health (NYSDOH) approved laboratory. Off-site laboratory analysis complied with the NYSDEC Analytical Services Protocols (ASP) (NYSDEC, 2000).

3.1 GENERAL FIELD ACTIVITIES

General field activities, including mobilization, health and safety, and decontamination, are described in the following subsections.

3.1.1 Mobilization

After receiving the NYSDEC authorization to begin fieldwork, MACTEC and its subcontractors conducted utility clearance, mobilized to the Site and began the field exploration program.

A field team orientation meeting was held on-Site with MACTEC personnel to familiarize field workers with Site history, health and safety requirements, equipment calibration procedures, and other field procedures.

3.1.2 Health and Safety

Field investigation activities were conducted at Level D Personal Protection Equipment (PPE). Based on photoionization detector (PID) readings, no upgrades of personal protection were warranted.

3.1.3 Decontamination

Sampling methods and equipment for this field program were chosen to minimize investigation derived wastes and minimize possibility of cross contamination. Disposable sampling equipment was used as much as practical to minimize decontamination time and water disposal.

Non disposable sampling equipment was decontaminated by 1) scrubbing the sample collection equipment with potable water and Liquinox, rinsing with potable water, rinsing with deionized water, and then allowing the equipment to air dry, or 2) steam cleaning the equipment and then allowing the equipment to air dry. Decontamination fluids did not exhibit visual or olfactory evidence of contamination and were released to the ground surface in the area of the exploration, so as to allow the liquids to infiltrate into the soil.

3.1.4 Investigation Derived Wastes

The field investigation did not result in the generation of wastes that were considered hazardous (i.e., no visual or olfactory signs of contamination, and no PID readings above 5 parts per million (ppm) were detected). Therefore drill cuttings and purge water resulting from the investigation were placed on the ground surface in the area of exploration, or used as backfill for the borings, and PPE and disposable sampling equipment were double bagged and disposed of as non-hazardous refuse.

3.2 PRIVATE WELL SAMPLING

MACTEC personnel collected samples from one existing homeowner well in the vicinity of the Site. The 25 foot deep well was located adjacent to the Site (Figure 3.1) and was sampled using a peristaltic pump. Groundwater parameters including water levels, turbidity, temperature, dissolved oxygen, specific conductance, pH and redox potential were recorded on a field log (included in Appendix B). A minimum of one sample tubing volume was purged before sampling and the sample was analyzed for target compound list (TCL) VOCs using USEPA OLM04.2 Methods as described in the NYSDEC ASP of June 2000.

Efforts were made to locate other private wells in the vicinity of the Site. The Elmira Water Board was contacted and a list of all properties that were either not connected to the public water supply, or were connected later than 1980 was created. Since most of the homes in the area were constructed prior to 1980, it was thought that homes connected after 1980 may have private wells. MACTEC personnel contacted homeowners on this list to determine if any of them had serviceable wells. Only one residence claimed to have a well that had not been filled in. MACTEC personnel attempted to collect a sample from the well that was located in the residence basement, but the pump was not in operation, and the well cap could not be opened. An additional residence that reportedly had a functioning well was vacant and the home boarded up.

3.3 GEOPROBE® BORINGS AND SAMPLING

Field investigation activities included the completion of Geoprobe® borings, the collection and analysis of groundwater, soil, and soil gas samples, and the installation of microwells. The six days of Geoprobe sampling was conducted from February 7, 2006 to February 14, 2006. The purpose of the activities was to provide groundwater data for comparison to NYS Class GA Groundwater Quality Standards set forth under 6 NYCRR Parts 700-705 (NYS, 1999b), and to assist the NYSDEC in evaluating significant threat to public health and the environment as defined by 6 NYCRR Part 375 (NYS, 1998). Soil sample analyses were used to assess whether hazardous waste constituents were present in Site soils, and, if possible, confirm a source of chlorinated solvents. Soil gas sample results were used to evaluate whether VOCs present in soil and/or groundwater are migrating towards occupied buildings via vapor migration.

MACTEC used a Geoprobe® sampling device to collect groundwater soil, and soil gas samples to identify potential chlorinated solvents. The Geoprobe® pushes and/or hammers rods and probe tips into the subsurface for sample collection. A total of 18 borings and three soil gas collection points were completed, including the installation of four microwells. A total of 23 groundwater samples and 5 soil, as well as 3 soil gas samples were collected.

MACTEC worked closely with the NYSDEC, the Former American Dry Cleaners owner, the neighboring property owners, and utility companies to obtain access to the exploration locations. Boring locations for borings GW-1 to GW-11, GW-19, and GV-1 to GV-3 are shown on Figure 3.1. Boring locations along Lake Road (GW-12 to GW-18, as well as GW-7) are shown on Figure 3.2. Locations were chosen to determine groundwater conditions upgradient and downgradient of, as well as adjacent to, the Site building. In addition, borings were located along Lake Road between Sullivan Street Wells and the Site to characterize general groundwater in the path between the Site and the supply wells.

Soil Sampling. Soil samples were collected using a 4-foot long 1-to-2 inch diameter core sampler with an acrylic liner for the collection of discrete subsurface soil samples. Soil samples were collected continuously from the ground surface to the top of the groundwater table. PID headspace readings were used to screen soil samples for the presence of VOCs as each soil sample was removed from the sample collection tube. One soil boring was selected for continuous soil

sampling to 25 feet bgs, to better characterize Site soils. Samples were described using the Unified Soil Classification System (USCS). The sample description and classification, VOC headspace reading, and boring observations were recorded on the Field Data Record, included in Appendix B. Based on the PID readings and physical evidence such as color or odor, five unsaturated soil samples were collected (one each from borings GW-1, GW-2, GW-4. GW-5, and GW-11) and submitted to the laboratory for analysis. Samples exhibiting the highest PID readings and physical evidence of contamination were selected for analysis. Soil samples were shipped to Chemtech Laboratory for analyses of TCL VOCs using USEPA OLM04.2 Methods as described in the NYSDEC ASP of June 2000. Off-site laboratory analysis included Category B deliverables.

Groundwater Sampling. Groundwater samples were collected using a small diameter stainless steel wire wound screen that was exposed to the aquifer, after being pushed to the desired depth interval. A peristaltic pump was used for the collection of discrete groundwater samples. One tubing volume of water was purged and one set of parameters including temperature, conductivity, pH, and turbidity was collected before sampling. VOC samples were collected at a low purge rate (approximately 100 milliliters per minute) to minimize potential volatilization.

To assess vertical extent of contamination, MACTEC attempted to collect groundwater samples from two locations in each boring, the water table and 10 feet into the water table (10 feet below the first sample). Samples from three depths (24, 32, and 38 feet bgs) were collected from GW-4. Due to cobble zones or tight soils, only one sample was collected (approximately 22-28 feet bgs) from borings GW-2, GW-5, GW-7, GW-9, GW-11, and GW-16. No groundwater samples were collected from four of the borings due to either refusal above the water table (GW-3, GW-6, and GW-8), or tight soils that did not produce water (GW-15 was dry at 24 feet bgs). Groundwater samples were shipped to Chemtech for analyses of TCL VOCs using USEPA OLM04.2 methods as described in the NYSDEC ASP of June 2000. Groundwater samples from GW-5 and GW-10 were also analyzed for SVOCs using USEPA OLM04.2 Methods. Off-site laboratory analysis included Category B deliverables.

Microwell Installation. To determine groundwater flow direction at the Site, four Geoprobe® borings, GW-2, GW-5, GW-9, and GW-11, were completed as microwells. Microwell locations are shown on Figure 3.1. Groundwater was encountered at approximately 19 feet bgs. Microwells were installed after soil and groundwater samples were collected from each boring. The

microwells were installed as piezometers and used for water level measurements only. Microwells were constructed with schedule 40 polyvinyl chloride (PVC), with 10 foot lengths of 0.01-inch machine slotted well screens. The well screens were set with approximately 2 to 8 feet of screen above the water table to determine water table elevations and create a potentiometric map. The wells were constructed with a # 0 sand pack or native backfill and sealed at the ground surface with bentonite. The wells were completed with a six inch flush mount cover. The wells were developed for twenty minutes with a peristaltic pump to clean the screen and determine if the wells were conductive with groundwater. Well diagrams are included in Appendix B.

One round of groundwater levels was collected from the six microwells and one existing private well. Well caps were opened to allow the water in the wells to equilibrate to atmospheric pressure. Depth to water was measured with a conductivity probe from the top of the well riser. Groundwater table elevations were calculated from the well riser elevations and are shown in Table 3.1.

Soil Gas Sampling. Based on proximity to nearby residences and/or businesses, and discussions with the NYSDEC, three soil gas samples were collected to evaluate the potential vapor migration of contaminants from the groundwater (Figure 3.1). Soil gas samples were collected using a Geoprobe® sampling device.

The Geoprobe® rods were pushed to between 6 and 8 feet bgs, or the expected level of neighboring basements (also expected to be below the rain infiltration line, but above the water table fringe zone). Soil gas collected at approximate basement levels may give an indication of the possible vapor migration from potentially contaminated groundwater, as well as possible health implications.

Soil gas samples were collected from the Geoprobe® points. Upon reaching 6 feet bgs, the Geoprobe® rods were pulled back 0.5 feet, exposing the bottom of the open rods to the soil. The soil vapor sample was then collected using a sealed tubing system. In addition, the outside of the rods were sealed at the ground surface with pre-hydrated bentonite. Approximately 2 liters of soil gas, plus the volume of the tubing, was purged at a rate of 400 milliliters per minute (ml/min) using 580B OVM PID pump before collecting samples. During the soil gas purge, vapors were screened using a PID. In addition, helium leak tests were conducted on a subset of the Region 8 Dry

Cleaners Sites soil gas samples to ensure samples were representative of sub-surface conditions and not outdoor ambient air. Helium tests were set up by encapsulating the sample point with a bucket sealed to the ground surface with bentonite. The soil gas samples were collected with one-liter SUMMA®-type canisters with flow valves (set to approximately 30 minutes per sample). Flow into the canisters was less than 0.1 liters per minute, as requested by the NYSDOH. Samples were sent to Chemtech for VOC analysis by USEPA Method TO-15.

3.4 OPTIONAL SUB-SLAB SOIL VAPOR SAMPLING

One sub-slab soil vapor sample was scoped to be collected from below the Site building concrete slab. Upon further discussions with the NYSDEC PM and the property owner, no property access was obtained, and therefore no sub-slab soil vapor sample was collected.

3.5 SITE SURVEY

Upon completion of field investigation activities, MACTEC's survey subcontractor, Lu Engineers, completed a survey of the Site and surrounding area and created a base map. Horizontal locations were tied to the New York State Plane Coordinate System using North American Datum (NAD) of 1983. The Site plan provides horizontal locations of relevant Site features, including surrounding homes and businesses at a scale of 1 inch to 50 feet. Relevant visible features include, but are not limited to all structures, buildings, roads, fences, new monitoring wells, underground utilities, fire plugs, and power poles.

Vertical elevations of the four new microwells were tied to msl, North Atlantic Vertical Datum (NAVD) of 1988, and measured to an accuracy of 0.01 feet. Horizontal well measurements were to an accuracy of 0.1 ft.

The base was used to accurately locate all Geoprobe® sample points, microwells, and any other media sampling locations. Temporary sample points were located using a Trimble global positioning system (GPS). Sample points are included on Figure 3.1 and Figure 3.2, and the Lu Engineers survey map is included in Appendix C.

4.0 DATA ASSESSMENT

This section presents results of the laboratory analyses for soil, groundwater, and air samples collected during Task 2, as well as results of the water level survey.

4.1 ANALYTICAL RESULTS

Soil and groundwater analytical results were compared to appropriate standards or guidelines. Reported concentrations of individual analytes indicating contravention of standards or guidelines are summarized in the following sections, and noted on Tables 4.1 to 4.4.

A Data Usability Summary Report was completed in accordance with the NYSDEC's Guidance for the Development of Data Usability Summary Reports (NYSDEC, 1997). This report and complete analytical results including tentatively identified compounds (TICs) are presented in Appendix D.

Based on laboratory or data usability review, some of the data was qualified with a J, B, and/or a D. Compounds were qualified J if the concentration listed was an estimated value, which was less than the specified minimum reporting limit but greater than the instrument detection limit. Compounds qualified J were analyzed for and determined to be present in the sample, and the mass spectrum of the compound met the identification criteria of the method. The reporting limits for most target VOCs using the OLM04.2 Methods, including the target chlorinated solvents compounds were 10 µg/L. This is above most of the NYS Class GA groundwater standards; however, the actual instrument detection limit was below the NYS Class GA groundwater standards. A list of Chemtech's instrument reporting limits for the OLM04.2 Method is included in Appendix D.

Compounds qualified B indicate that the compound was detected in the trip blank, or laboratory blank, and in the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.

Compounds qualified D indicate that the compound was reported from an analytical run that required a dilution due to concentrations greater than the highest calibration standard.

Analytical results were compared to the standards or guidelines described below.

Soil Samples. Analytical results were compared to the Recommended Soil Cleanup Objectives in the NYSDEC Technical and Administrative Guidance Memorandum No. 94-4046 (NYSDEC, 1994).

Groundwater Samples. Analytical results were compared to: (1) the NYS Class GA Groundwater Quality Standards from 6 NYCRR Parts 700-706 (NYS, 1999b) or, where applicable, (2) the NYS Class GA Groundwater Quality Guidance Values from the Division of Water Technical and Operational Guidance Series 1.1.1 "Ambient Water Quality Standards and Guidance Values" (NYSDEC, 1998).

Soil Gas Samples. Soil gas samples were looked at for the presence of potential contaminants of concern.

4.1.1 Soil Sample Results

A summary of target VOCs detected in soil samples is presented in Table 4.1.

VOCs were not detected in soil samples above the NYSDEC Soil Cleanup Objectives.

Trace concentrations (<10 µg/Kg) of one or more of the following compounds were detected in all five soil sample locations; 2-butanone, benzene, chloroform, ethyl benzene, toluene, TCE, and m/p-xylene.

4.1.2 Groundwater Sample Results

A summary of target VOCs and semi volatile organic compounds (SVOCs) detected in groundwater samples are presented in Tables 4.2 and 4.3, respectively. Maximum TCE detections per groundwater sample location are presented on Figures 4.1 and 4.2.

TCE was detected at fourteen of the fifteen sample locations with detections ranging from 0.86 J µg/L (GW-18) to 35 µg/L (GW-7). TCE concentrations in groundwater exceeded the NYS Class

GA groundwater standard for TCE of 5 µg/L at eleven of the fifteen sample locations (see Table 4.2).

m/p-Xylene was detected at two of the fifteen sample locations with detections ranging from 0.85 J µg/L (GW-4) to 20 J µg/L (GW-10). m/p xylene concentrations detected in the sample from GW-10 exceeded the NYS Class GA groundwater standard for m/p-xylene of 5 µg/L (see Table 4.2).

Isopropylbenzene was detected at one of the fifteen sample locations (GW-10) with a detection of 31 µg/L, which exceeds the NYS Class GA groundwater standard of 5 µg/L (see Table 4.2).

Chloroform was detected at one of the fifteen sample locations (GW-18) with a detection of 7.2 J µg/L, which exceeds the NYS Class GA groundwater standard of 7 µg/L (see Table 4.2).

Acetone was detected at one of the fifteen sample locations with a detection of 290 B µg/L which exceeds the NYS Class GA groundwater guidance of 50 µg/L (see Table 4.2).

Trace concentrations of cis-1,2-dichloroethene were detected at fourteen of the fifteen sample locations with detections ranging from 0.89 J µg/L (GW-16) to 3.8 J µg/L (GW-10), which were all below the NYS Class GA groundwater standard of 5 µg/L. In addition to cis-1,2-dichloroethene, trace concentrations (<10 µg/L) of cis-1,2-dichloroethene, ethylbenzene, and methyl cyclohexanone were detected in a sample from GW-10. A trace concentrations of PCE (1 J µg/L) was detected in a sample from GW-11 and a trace concentration of bromodichloromethane (1.7 J µg/L) was detected in a sample from GW-18. A trace concentration (1.7 J µg/L) of methyl ester acetic acid was also detected in a sample from location PW-1.

The semi-volatile compound acetophenone was detected at one of the two SVOC sample locations at a concentration of 210 D µg/L (GW-10). No NYS standard of guidance value has been promulgated for this compound. A trace detection of naphthalene (5.5 J µg/L compared to NYS Class GA groundwater guidance of 10 µg/L) was also detected at sample location GW-10.

Several TICs were also detected in the groundwater samples collected. TICs are reported in Appendix D.

4.1.3 Soil Gas Sample Results

A summary of target VOCs detected in soil gas samples is presented in Table 4.4.

There are no guidance values for exterior soil gas samples; guidance values for soil gas are only applicable for sub-slab soil gas samples. Trace concentrations of 1,1,1-trichloroethane (1,1,1-TCA), PCE, and TCE were detected in soil gas samples collected around the Site property (highest 7 BJ micrograms per cubic meter [µg/m^3], 9 µg/m^3, and 21 µg/m^3, respectively). These concentrations are not indicative of source area concentrations.

4.2 POTENTIOMETRIC SURFACE MAP

The microwell survey and depth to water measurements were used to create a potentiometric surface water map (Figure 4.3). Microwell survey and water elevation data are presented in Table 3.1. Depth to water across the survey area varied from 18.7 feet bgs to 20.2 feet bgs. Groundwater elevations varied from 856.82 feet above msl, to 857.36 feet above msl. The groundwater table gradient appears to be relatively flat, varying by only 0.54 feet in elevation over 220 feet of distance. Based on measured water table elevations, groundwater is interpreted to flow generally south-southeast, angling slightly towards Newtown Creek, and ultimately towards the Chemung River.

5.0 INVESTIGATION FINDINGS

A review of physical and chemical data collected during the SC resulted in the following findings:

1) The Site is located in a residential neighborhood that is serviced by public water. Low concentrations of TCE (<10.3 µg/L) have been detected in the City of Elmira's Sullivan Street public supply well, located approximately 1.6 miles south of the Site. Groundwater measurements collected at the Site indicate that groundwater flow is generally to the south south-east, towards this supply well.
2) TCE, a NYS listed hazardous waste, was detected upgradient of the Site at locations GW-1 and GW-2 at concentrations of 30 µg/L and 26 µg/L, respectively, in comparison to the NYS standard of 5 µg/L. The highest concentration of TCE (35 µg/L) was detected in a groundwater sample collected potentially cross gradient of the Site building (GW-7). Groundwater samples collected further downgradient of the Site, at location GW-13 and GW-14, continued to indicate similar concentrations of TCE (25 µg/L at each location). Based on this data, it does not appear that the Site is a contributing source to the chlorinated solvent groundwater contamination.
3) PCE, the most common dry cleaning solvent, was only detected in one groundwater sample (from boring GW-11). The trace concentration (1 J µg/L) was below the NYS Class GA standard of 5 µg/L and not at a concentration that would indicate a source area.
4) Trace concentrations of 1,1,1-TCA, PCE, and TCE were detected in soil gas samples collected around the Site property (highest concentrations of 7 BJ $\mu g/m^3$, 9 $\mu g/m^3$, and 21 $\mu g/m^3$, respectively). These concentrations are not indicative of source area concentrations.

Data Gaps. Due to Site building access not being granted by the property owner, no soil, soil gas, or groundwater samples were collected below the Site building. Based on the SC, the following data gaps still exist.

1) Although not anticipated, it can not be confirmed that PCE contamination does not exist below the Site building.

2) Sub slab soil gas samples were not collected below the Site building and, although not anticipated, it is not known if soil vapor concentrations exist below the Site building at concentrations in exceedence of NYSDOH guidance levels.

6.0 REFERENCES

ABB Environmental Services, 1995. Program Quality Assurance Program Plan. Prepared for the New York State Department of Environmental Conservation, Albany, New York. June 1995.

Environmental Data Resources, Inc.(EDR), 2006. EDR Radius Map with Goecheck, for 3045 Lake Street, Horseheads, New York. February 27, 2006.

LaDouce, 2005. Telephone conversation between MACTEC and Mark LaDouce of the Elmira Water Board. September 9, 2005.

MACTEC Engineering and Consulting, Inc. P.C., 2005. *Program Health and Safety Plan*. Prepared for New York State Department of Environmental Conservation, Albany, New York. 2005.

Muller, et al., 1986. Surficial Geologic Map of New York, Finger Lakes Sheet, New York State Museum Geologic Survey, Map and Chart Series #40. 1986.

National Climactic Data Center (NCDC), 2004. Comparative Climactic Data for the United States, 1971 to 2000. February, 2004.

New York State (NYS), 1999a. New York Codes, Rules, and Regulations, Title 6, Part 371 Identification and Listing of Hazardous Wastes. Amended November 1999.

New York State (NYS), 1999b. New York Codes, Rules, and Regulations, Title 6, Part 700-705 Water Quality Regulations Surface Water and Groundwater Classifications and Standards. Amended August 1999.

New York State (NYS), 1998. New York Codes, Rules, and Regulations, Title 6, Part 375 Inactive Hazardous Waste Disposal Sites Remedial Program. Amended January 1998.

New York State Department of Environmental Conservation (NYSDEC), 2005. Work Assignment #D003826-20 Region 8 Dry Cleaning Sites- letter dated August 17, 2005.

New York State Department of Environmental Conservation (NYSDEC), 2002. Draft DER-10, Technical Guidance for Site Investigation and Remediation. December 2002.

New York State Department of Environmental Conservation (NYSDEC), 2000. "*Analytical Services Protocols"*; 6/00 Edition; June 2000.

New York State Department of Environmental Conservation (NYSDEC), 1994. Revised Technical and Administrative Guidance Memorandum HWR 94-4046: Determination of Soil Cleanup Objectives and Cleanup Levels. January 1994.

New York State Department of Health (NYSDOH), 2005. "*Guidance for Evaluating Soil Vapor Intrusion in the State of New York"*, Public Comment Draft, February 2005.

New York State Department of Health (NYSDOH), 1994. Public Health Assessment, Facet Enterprises. Prepared by NYSDOH. March 16, 1994.

Rickard and Fisher, 1970. Geologic Map of New York, Finger Lakes Sheet, New York State Map and Chart Series 15. by L.V. Richard and D.W. Fisher. March, 1970.

United States Environmental Protection Agency (USEPA), 1987. "Data Quality Objectives for Remedial Response Activities"; Office of Emergency and Remedial Response and Office of Waste Programs Enforcement; Washington DC; EPA/540/G-87/003; March, 1987.

TABLES

Table 3.1: Monitoring Well and Microwell Details

Location	Northing	Easting	Measured Well Depth	Casing Elevation	Riser Elevation	DTW 2/16/2006	Water Elevation 2/16/06
GW-01	777756.44	757807.07	21.4	876.10	876.02	18.66	857.36
GW-05	777704.96	757969.78	21.4	876.31	875.97	18.98	856.99
GW-09	777649.40	757963.70	25.4	876.50	876.15	19.29	856.86
GW-11	777555.85	757907.35	26.9	875.77	875.56	18.74	856.82
PW-1	777690.18	757822.91	33.4	877.40	877.40	20.24	857.16

Notes:
DTW = Depth to Water as measured from top of PVC riser by MACTEC Engineering.
Wells surveyed by Lu Engineers.

Table 4.1: Soil Sample VOC Results

Location Name		GS-1 (GW-1)		GS-2 (GW-2)		GS-4 (GW-4)		GS-5 (GW-5)		GS-11 (GW-11)	
Field Sample ID		AMGS00101001XX		AMGS00201201XX		AMGS00401401XX		AMGS00501001XX		AMGS01101401XX	
Sample Depth (ft bgs)		10-12		12-14		14-16		10-12		14-16	
Field Sample Date		2/7/2006		2/8/2006		2/14/2006		2/8/2006		2/9/2006	
QC Code		FS		FS		FS		FS		FS	
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
2-Butanone	300	280	UJ	53	U	52	U	4.2	J	3.9	J
Benzene	60	9.9	J	11	U	0.74	J	11	U	0.64	J
Chloroform	300	56	UJ	11	U	1.1	J	11	U	10	U
Ethyl benzene	5500	6.6	J	0.56	J	10	U	0.64	J	10	U
Toluene	1500	8.9	J	1.2	J	2.3	J	0.87	J	1.3	J
Trichloroethene	700	56	UJ	0.9	J	10	U	11	U	10	U
Xylene, m/p	1200	9.8	J	1.2	J	10	U	0.94	J	1	J

Prepared/Date: ASZ 6/1/05
Checked/Date: CRS 6/23/06

Notes:

Results reported in micrograms per kilogram (µg/kg)

Only detected compounds shown. Samples analyzed for VOCs by EPA Method OLM04.2

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

Qualifiers:

U = Not detected at a concentration greater than the reporting limit

J = Estimated value

Criteria = Values from Technical Administrative Guidance Memorandum (TAGM) 94-4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" (NYSDEC, 1994)

Table 4.2: Groundwater VOC Results

Location Name		PW-1		GW-1		GW-1		GW-2		GW-4		GW-4	
Field Sample ID		AMPW00102101XX		AMGW00101801XA		AMGW00102601XX		AMGW00202601XX		AMGW00402401XA		AMGW00403201XB	
Sample Depth (ft bgs)		21		18		26		26		24		32	
Field Sample Date		2/7/2006		2/7/2006		2/7/2006		2/8/2006		2/14/2006		2/14/2006	
	QC Code	FS	FS	FS		FS	FS	FS	FS	FS	FS	FS	FS
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NA	1.7	J	10	UJ	10	UJ	10	UJ	10	U	10	U
Acetone	50	50	UJ	50	UJ	50	UJ	50	UJ	50	U	50	U
Bromodichloromethane	50	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	7*	10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	5*	1.3	J	10	U	2.2	J	1.7	J	2	J	2	J
Ethyl benzene	5*	10	U	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	5*	10	U	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	NA	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	5*	10	U	3.3	J	**30**		**20**		**30**		**28**	
Xylene, m/p	5*	10	U	10	U	10	U	10	U	10	U	10	U

Prepared/Date: ASZ 6/1/05
Checked/Date: KLT 06/23/06

Notes:

Results in microgram per liter (µg/L)

Only detected compounds shown.

Samples analyzed for VOCs by EPA Method OLM04.2

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

B = Analyte was detected in both the blank and field sample

U = Not detected at a concentration greater than the reporting limit

J = Estimated value

Criteria = Groundwater guidance or standard values from Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).

* = New York State Standard

Results in **BOLD** exceed associated criteria

Table 4.2: Groundwater VOC Results

Location Name		GW-4		GW-5		GW-5		GW-7		GW-7		GW-9		GW-9	
Field Sample ID		AMGW00403801XX		AMGW00502701XD		AMGW00502701XX		AMGW00702801XD		AMGW00702801XX		AMGW00902401XA		AMGW00903401XX	
Sample Depth (ft bgs)		38		27		27		28		28		24		34	
Field Sample Date		2/14/2006		2/8/2006		2/8/2006		2/13/2006		2/13/2006		2/13/2006		2/13/2006	
QC Code		FS	FS	FD	FD	FS	FS	FD	FD	FS	FS	FS	FS	FS	FS
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NA	10	U	10	UJ	10	UJ	10	U	10	U	10	U	10	U
Acetone	50	**290**	**B**	50	UJ	50	UJ	50	U	50	U	50	U	50	U
Bromodichloromethane	50	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	7*	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	5*	2.1	J	2.3	J	2.3	J	2.4	J	2.4	J	2.1	J	2.1	J
Ethyl benzene	5*	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	5*	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	NA	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	5*	**28**		**30**		**31**		**35**		**33**		**29**		**28**	**J**
Xylene, m/p	5*	0.85	J	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 OLM04.2

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

B = Analyte was detected in both the blank and field sample

U = Not detected at a concentration greater than the reporting limit

J = Estimated value

Criteria = Groundwater guidance or standard values from Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).

* = New York State Standard

Results in **BOLD** exceed associated criteria

Table 4.2: Groundwater VOC Results

Location Name		GW-10		GW-10		GW-11		GW-12		GW-13		GW-13		GW-14	
Field Sample ID		AMGW01002401XA		AMGW01003401XX		AMGW01102601XX		AMGW01203401XX		AMGW01302401XA		AMGW01303401XX		AMGW01402401XA	
Sample Depth (ft bgs)		24		34		26		34		24		34		24	
Field Sample Date		2/14/2006		2/14/2006		2/9/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006	
QC Code		FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
Parameter	**Criteria**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Acetic acid, methyl ester	NA	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	50	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Bromodichloromethane	50	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	7*	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	5*	3.8	J	2	J	3.1	J	1.9	J	1.5	J	2	J	2.2	J
Ethyl benzene	5*	5	J	2	J	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	5*	**31**	**J**	**9.5**	**J**	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	NA	8.8	J	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	10	U	10	U	1	J	10	U	10	U	10	U	10	U
Trichloroethene	5*	**19**	**J**	**27**		**16**		**26**		**23**		**25**		**23**	
Xylene, m/p	5*	**20**	**J**	**11**		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 OLM04.2

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

B = Analyte was detected in both the blank and field sample

U = Not detected at a concentration greater than the reporting limit

J = Estimated value

Criteria = Groundwater guidance or standard values from Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).

* = New York State Standard

Results in **BOLD** exceed associated criteria

Table 4.2: Groundwater VOC Results

Location Name		GW-14		GW-16		GW-17		GW-17		GW-18		GW-18	
Field Sample ID		AMGW01403401XX		AMGW01602201XX		AMGW01702101XA		AMGW01702601XX		AMGW01802401XX		AMGW0181401XA	
Sample Depth (ft bgs)		34		22		21		26		24		14	
Field Sample Date		2/14/2006		2/10/2006		2/10/2006		2/10/2006		2/9/2006		2/9/2006	
	QC Code	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Acetic acid, methyl ester	NA	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	50	50	U	50	U	50	U	50	U	50	U	50	U
Bromodichloromethane	50	10	U	10	U	10	U	10	U	0.8	J	1.7	J
Chloroform	7*	10	U	10	U	10	U	10	U	3.6	J	**7.2**	**J**
Cis-1,2-Dichloroethene	5*	2.4	J	0.89	J	1	J	2.8	J	10	U	10	U
Ethyl benzene	5*	10	U	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	5*	10	U	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	NA	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	5*	**25**		**10**		10	U	3.1	J	0.92	J	0.86	J
Xylene, m/p	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 OLM04.2

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

B = Analyte was detected in both the blank and field sample

U = Not detected at a concentration greater than the reporting limit

J = Estimated value

Criteria = Groundwater guidance or standard values from Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).

* = New York State Standard

Results in **BOLD** exceed associated criteria

Table 4.3: Groundwater SVOC Results

Location Name		GW-10		GW-5	
Field Sample ID		AMGW01002401XA		AMGW00502701XX	
Sample Depth (ft bgs)		24		27	
Field Sample Date		2/14/2006		2/8/2006	
QC Code		FS		FS	
Parameter	**Criteria**	**Result**	**Qualifier**	**Result**	**Qualifier**
Acetophenone	NA	210	D	10	U
Naphthalene	10	5.5	J	10	U

Prepared/Date: ASZ 6/1/05

Checked/Date: CRS 6/23/06

Notes:

Results reported in micrograms per liter (µg/L)

Only detected compounds shown. Samples analyzed for SVOCs by EPA Method OLM04.2

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

Qualifiers:

U = Not detected at a concentration greater than the reporting limit

J = Estimated value

D = Result reported from a diluted analytical 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).

Table 4.4: Soil Gas Sample Results

Location ID	GV-01		GV-02		GV-03	
Field Sample ID	AMGV00100601XX		AMGV00200601XX		AMGV00300601XX	
Sample Depth (ft bgs)	6-7		6-7		6-7	
Field Sample Date	2/7/2006		2/8/2006		2/8/2006	
QC Code	FS		FS		FS	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1,1-Trichloroethane	7.07	BJ	2.94	UJ	0.98	UJ
1,1,2-Trichloro-1,2,2-Trifluoroethan	7.65	U	1.22		0.76	U
1,2,4-Trimethylbenzene	4.91	U	3.24		3.19	
1,3,5-Trimethylbenzene	4.91	U	0.49	U	2.06	
2-Butanone	5.89	U	5.04		4.03	
2-Propanol	16.7		29.3		18.3	
Acetone	210		54.6	D	49.6	D
Benzene	17.2		32.2		28.5	
Carbon disulfide	3.11	U	2.98		3.89	
Chloromethane	2.04	U	0.47		0.37	
Cis-1,2-Dichloroethene	3.97	U	0.63		0.4	U
Cyclohexane	28.5		87.9	D	50.8	
Dichlorodifluoromethane	4.95	U	2.23	J	2.38	J
Ethyl acetate	18.7		19.4		24.5	
Ethyl benzene	4.34	U	1.91		1.3	
Heptane	31.9		79.2		54.2	
Hexane	79.1		244	D	167	D
o-Xylene	4.34	U	2.08		1.56	
Propylene	126		472	D	298	D
Styrene	4.25	U	1.66		1.49	
Tetrachloroethene	8.83		1.97		2.44	
Tetrahydrofuran	7.66		0.59	U	0.59	U
Toluene	16.6		34.7		24.3	
Trichloroethene	0.21	U	20.8		2.46	
Trichlorofluoromethane	5.6	U	1.29		1.51	
Xylene, m/p	8.67	U	6.76		4.9	

Prepared/Date: ASZ 6/1/05
Checked/Date: CRS 6/23/06

Notes:

Results reported in micrograms per cubic meter ($\mu g/m^3$)

Only detected compounds shown. Samples analyzed for VOCs by EPA Method TO-15

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

Qualifiers:

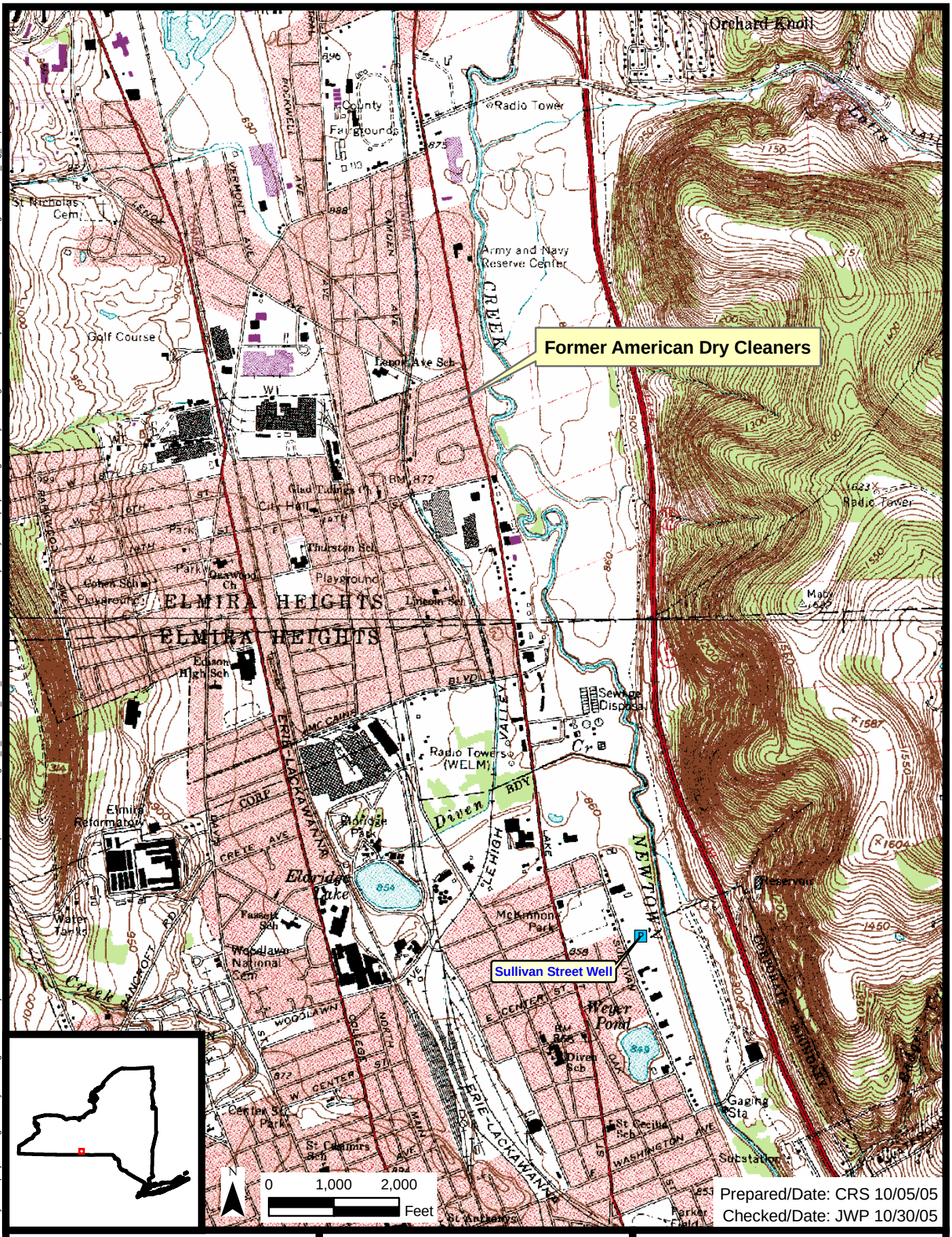
U = Not detected at a concentration greater than the reporting limit

J = Estimated value

D = Result reported from a diluted analytical run

B = Analyte was detected in both the blank and field sample

FIGURES



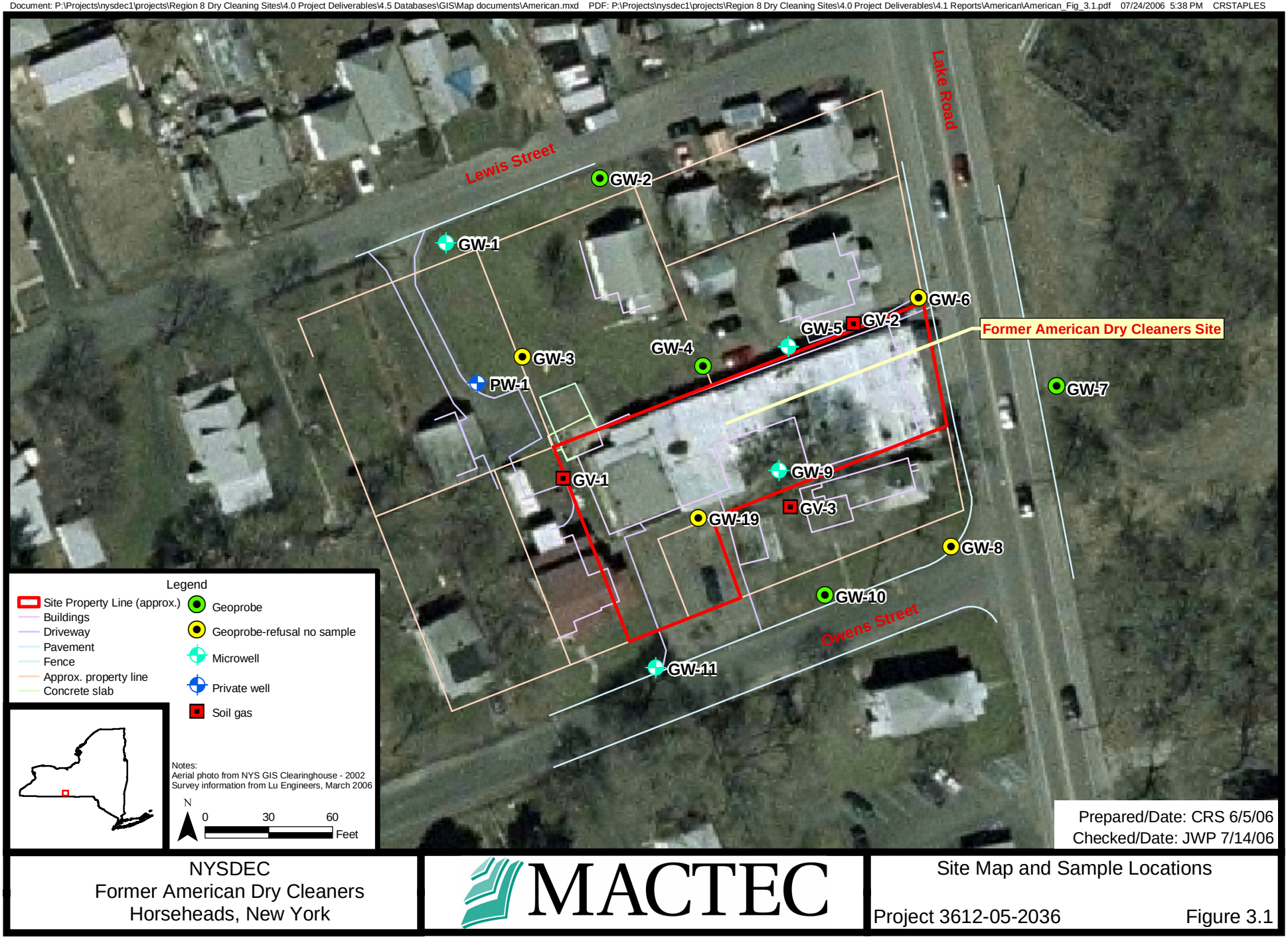
Prepared/Date: CRS 10/05/05
Checked/Date: JWP 10/30/05

NYSDEC
Former American Dry Cleaners
Horseheads, New York

MACTEC

Site Location
Project 3612052036
Figure 1.1

Document: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.5 Databases\GIS\Map documents\American.mxd PDF: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.1 Reports\American\American_Fig_3.1.pdf 07/24/2006 5:38 PM CRSTAPLES



NYSDEC
Former American Dry Cleaners
Horseheads, New York

MACTEC

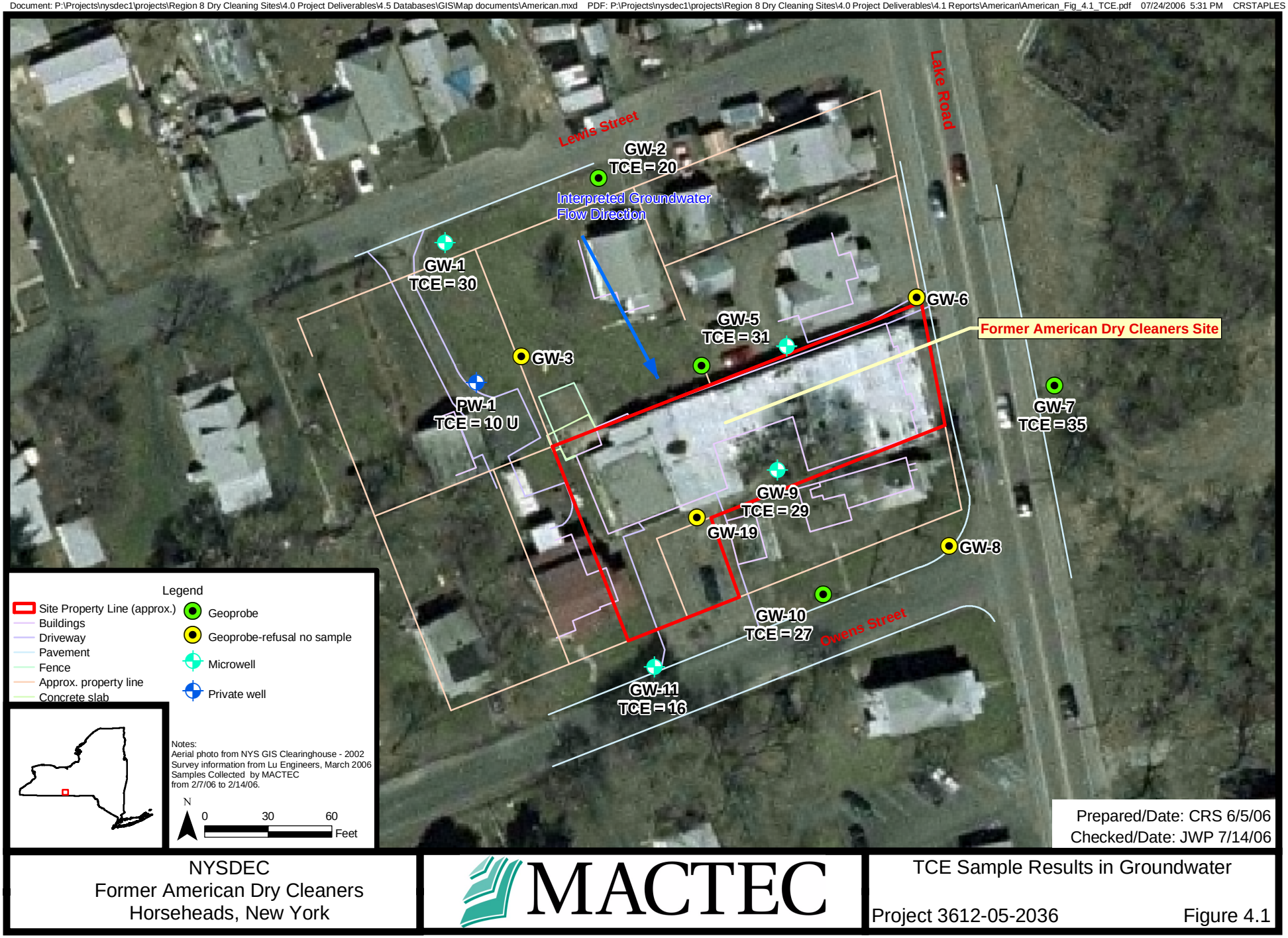
Site Map and Sample Locations

Project 3612-05-2036

Figure 3.1

Document: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.5 Databases\GIS\Map documents\American off-site.mxd PDF: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.1 Reports\American\American_Fig_3.2.pdf 07/24/2006 11:45 AM CRSTAPLES

Document: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.5 Databases\GIS\Map documents\American.mxd PDF: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.1 Reports\American\American_Fig_4.1_TCE.pdf 07/24/2006 5:31 PM CRSTAPLES



NYSDEC
Former American Dry Cleaners
Horseheads, New York

MACTEC

TCE Sample Results in Groundwater

Project 3612-05-2036 Figure 4.1

GW-12
TCE = 26

Former American Dry Cleaners Site

GW-7
TCE = 35

Lewis Street

Owens Street

Lake Road

GW-13
TCE = 25

Interpreted Groundwater
Flow Direction

East 14th Street

GW-14
TCE = 25

GW-15

McCanns Boulevard

GW-16
TCE = 10

GW-17
TCE = 3.1 J

GW-18
TCE = 0.92 J

Sullivan Street

Sullivan Street Well

Legend

- Supply_Wells
- American Site Property Boundary
- Geoprobe (TCE result in Groundwater)
- Geoprobe-no sample

Notes:
Aerialphotos from NYS GIS clearinghouse.
Groundwater Samples Collected by MACTEC week of 2/6/05

N

0 300 600 Feet

Prepared/Date: CRS 6/16/06
Checked/Date: JWP 7/14/06

NYSDEC
Former American Dry Cleaners
Horseheads, New York

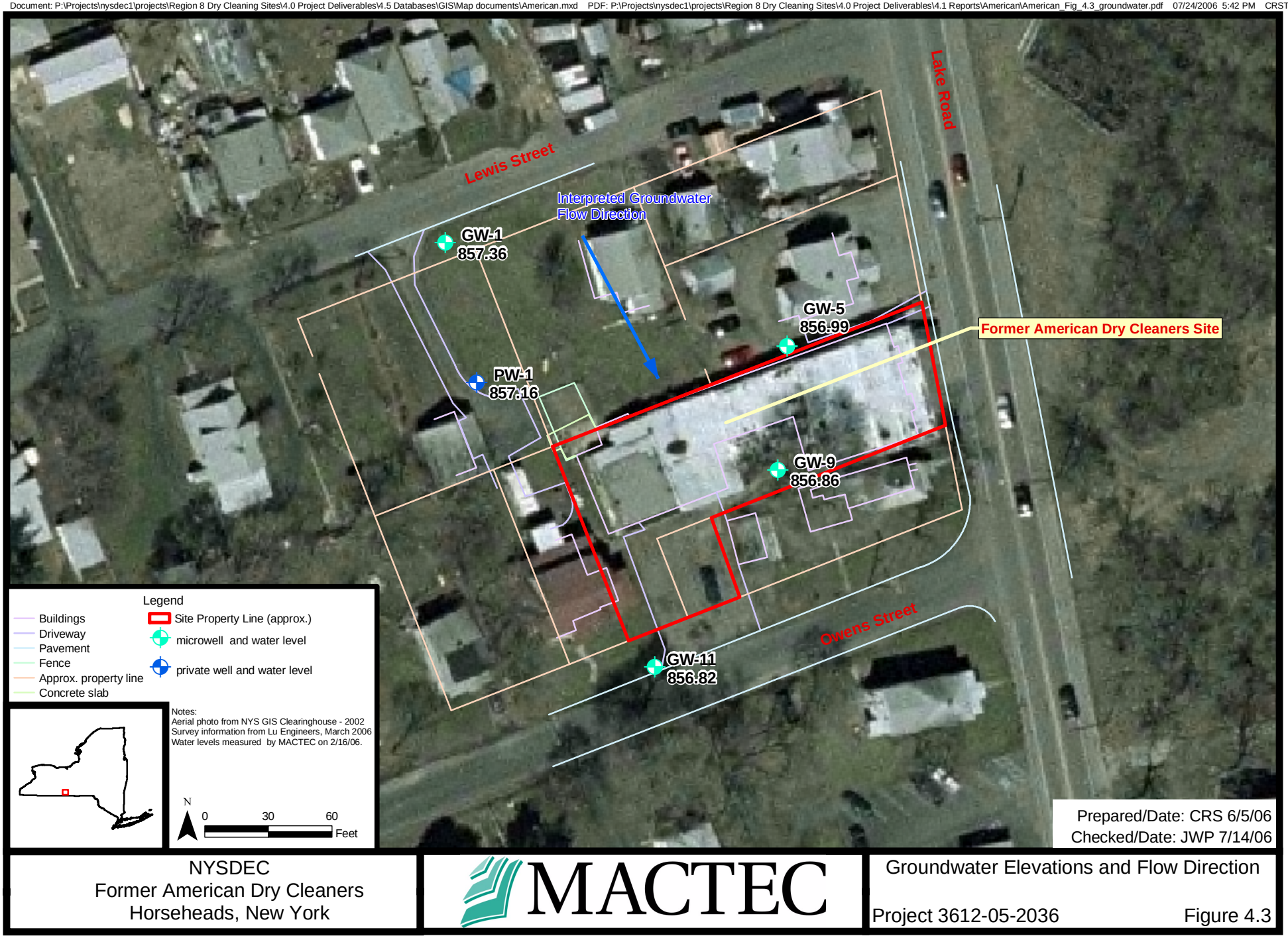
MACTEC

Lake Road TCE Sample Results

Project 3612-05-2036 Figure 4.2

Document: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.5 Databases\GIS\Map documents\American off-site.mxd PDF: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.1 Reports\American\American_Fig_4.2_PCE.pdf 07/24/2006 10:12 AM CRSTAPLES

Document: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.5 Databases\GIS\Map documents\American.mxd PDF: P:\Projects\nysdec1\projects\Region 8 Dry Cleaning Sites\4.0 Project Deliverables\4.1 Reports\American\American_Fig_4.3_groundwater.pdf 07/24/2006 5:42 PM CRSTAPLES



NYSDEC
Former American Dry Cleaners
Horseheads, New York

MACTEC

Groundwater Elevations and Flow Direction

Project 3612-05-2036

Figure 4.3

APPENDIX A

SITE PHOTOGRAPHS

FORMER AMERICAN DRY CLEANERS SITE PHOTOGRAPHS

East side of the Site building – main door to work space.

Northeast side of Site building – Travel Agency is adjacent

View of the Northwest corner of building; seen from adjacent property.

Attached garage to the west of the Former American Dry Cleaners building.

FORMER AMERICAN DRY CLEANERS SITE PHOTOGRAPHS

Southern side of Former American Cleaners (looking northeast at property).

Private Well located on the west northwestern side of the building (view looking to the north east).

APPENDIX B

FIELD DATA RECORDS

TEST BORING LOG

Project: NYSDEC - Region 8 Dry Cleaners	Boring/Well No.: GW-2	Project No.: 3612052036	
Client: NYSDEC	Site: Helwigs	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation	Start Date: 02/07/06	Finish Date: 02/07/06
Drilling Contractor: ADT	Driller's Name: Roger Burley	Rig Type: GeoProbe 5400	
Drilling Method: Direct Push	Protection Level: D	P.I.D. (eV)	Casing Size: 1 1/2" Auger Size: 1 1/2"
Soil Drilled: 8'	Rock Drilled	Total Depth: 24'	Depth to Groundwater/Date: Piez ☐ Well ☐ Boring ☑

Depth (Feet)	Sample No. & Penetration/ Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm): PI Meter Field Scan	Monitoring (ppm): PI Meter Head Space	Lab Tests
1		Soil				0-0.7 DK Brown organic fine silty Sand, FG, MP, wet, roots	FILL		<1.0		VOAs SVOAs
2	2.0/2.0					0.7-2 DK olive clay w/ gravel and trace Sand, Stratified lenses of Black and orange streaks, v Stiff, WG	GC				
3						2-3.5 white/grey (Lth) Sandy gravel and rock flour, WG, dry, NP	GP/ML				
4						3.5-4 Lt Brown/orange silty fine Sand and gravel, trace lenses of clay, MP, wet, WG,	GP/GC				
5	1.8/2.0					4-5 Lt Brownish grey Sandy gravel WG, Dry, loose, Some fines, NP/SP,	GW		<1.0		
6						5-8 (composite sample for volume). Lt Brown/Lt orange, silty fine Sand and gravel, WG, wet, MP roots, organic Smell, MS/MSD here	GM/GC				
7											
8											
9											
10											
11											
12											

S1

S2

BOB @ 24'

Harding Lawson Associates

TEST BORING LOG

Project: NYSDEC - Region 8 Dry Cleaners	Boring/Well No.: GW-3	Project No.: 361205.2036	
Client: NYSDEC	Site: Helwigs	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation	Start Date: 02/06.106	Finish Date: 02/06.106
Drilling Contractor: ADT	Driller's Name: Roger Buley	Rig Type: Geoprobe 5400	
Drilling Method: Direct Push	Protection Level: D	P.I.D. (eV)	Casing Size: 1 1/2"	Auger Size: 1 1/2"
Soil Drilled: 8'	Rock Drilled	Total Depth: 24'	Depth to Groundwater/Date	Piez ☐ Well ☐ Boring ☑

Depth (Feet)	Sample No. & Penetration/ Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests
1	S1 2.1/2.0	Soil				0-0.2' Lt Brown Sandy gravel, WG, NP/SP, Sub angular to W. Rounded, damp	Fill		11.0		VOA
2						0.2-1' Black fine gravel, trace sand- PG, V. Angular - Angular, NP, damp, loose	Fill				
3						1-1.1 Cobble / metal Piece?	GM				
4						1.1-3 DK olive / Brown, silty fine sand and gravel, moist, WG, NP/SP @ 3' tree root					
5	S2 0.9/2.0					3'-4' Lt orange/Brown, Silty sand + gravel, wet, WG, NP/SP, loose.					
6						4-8' Lt Brown/olive Silty Sand + gravel WG, Black lense from ~4 to 5' SP, + trace roots	GM		11.0		
7						* collected sample; composited entire sleeve because of volume of coarse gravel.					
8											
9											
10											
11											
12											

BOMP: 24'

TEST BORING LOG

Project: NYSDEC - Region 8 Dry Cleaners	Boring/Well No.: GW-4	Project No.: 361205.2036	
Client: NYSDEC	Site: Helwigs	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation	Start Date: 02/06/06	Finish Date: 02/06/06
Drilling Contractor: ADT	Driller's Name: Roger Bukey.	Rig Type: Geoprobe 5400	
Drilling Method: Direct Push	Protection Level: D	P.I.D. (eV): 190 ppb	Casing Size: 1 1/2"	Auger Size: 1 1/2"
Soil Drilled: 8'	Rock Drilled	Total Depth: 24'	Depth to Groundwater/Date	Piez ☐ Well ☐ Boring ☑

Depth (Feet)	Sample No. & Penetration/ Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests
1	S1 2.4/24.0	S1				0-0.5 Blacktop + Bedding; black Sandy gravel.	Fill		11.0		VOA
2						0.5-1.5 Black gravely/Sand grey loose @ ~1.2'; damp, loose, WG, NP					
3						~~collected Sample + Dup~~	GC				
4						1.5-2.5 Dk olive Silty clay w/ Some gravel, + fine sand, damp mStiff, PG, HP	GM/GC				
5	S2 1.9/24.0					2.5-4 Lt brown orange gravely clay w/ Sand, wet, NP, WG	GW		190 ppb @4'-5'		
6						4'-5' orange/Brown and Black Sandy gravel, NP/SP, trace fines, damp, WG,	GP		41.0		
7						* collected Soil + Dup here	GC				
8						5-5.5 Lt Brown clayey gravel WG, wet, Stiff					
9						5.5-6 Brown clean fine gravel, PG, Dry, v. Angular,					
10						6-7 Lt Brn Sandy clay + gravel WG, wet, loose/m Dense,					
11						7-8 Lt Brown Sandy clay and gravel, Sat. WG, trace lenses of clay around 8',					
12											

DTB - 24'.

TEST BORING LOG

Project: NYSDEC - Region 8 Dry Cleaners	Boring/Well No.: GW-5	Project No.: 361205.2036	
Client: NYSDEC	Site: Helwigs	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation	Start Date: 02/07/06	Finish Date: 02/07/06
Drilling Contractor: ADT	Driller's Name: Roger Bailey	Rig Type: Geoprobe 5400	
Drilling Method: Direct Push	Protection Level: D	P.I.D. (eV)	Casing Size: 1 1/2" Auger Size: 1 1/2"
Soil Drilled: 8'	Rock Drilled	Total Depth: 32'	Depth to Groundwater/Date: Piez ☐ Well ☐ Boring ☑

Depth (Feet)	Sample No. & Penetration/ Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests
1		S1				0-1.5 Blacktop and bedding, sandy gravel, NP, WG, Dry.	Fill		41.0		VOA/SVOAs
2	1.6/2.0					1.5-2 Grey concrete/concrete powder, dry, NP, PG	Fill				
3						2-2.5 Brown/Black/olive Fill material Sand, gravel, glass, mortar pieces WG, moist, NP, maybe pieces of fiberglass	Fill				
4						2.5-3.5 olive clay w/ little fine gravel, subrounded, PG, HP, trace sand, wet, in stiff	CL				
5						3.5-4 orange/Brown silty sand and gravel, WG, wet, loose, NP/SP	SM/SP GW	GW	41.0		
6	0.9/2.0					4-~6' Black/DK Brown sand/gravel (fine sand to fine gravel) WG, Dry, NP, loose.	GW				
7						6-8 Lt Brown orange silty Sand and gravel mix, wet/loose, SP. *Sampling soil 6-8'	GM				
8											
9											
10											
11											
12											

S1

S2

BOB @ 32'; very silty/fine sand @ BOB when purging boring. Lt Brown

Harding Lawson Associates

TEST BORING LOG

Project: NYSDEC - Region 8 Dry Cleaners	Boring/Well No.: GW-6	Project No.: 361205.2036	
Client: NYSDEC	Site: Helwigs	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation	Start Date: 02/06/06	Finish Date: 02/06/06
Drilling Contractor: ADT	Driller's Name: Roger Bulky	Rig Type: GeoProbe 5400	
Drilling Method: Direct Push	Protection Level: D	P.I.D. (eV)	Casing Size: 1 1/2"	Auger Size: 1 1/2"
Soil Drilled: 8'	Rock Drilled	Total Depth: 24'	Depth to Groundwater/Date	Piez ☐ Well ☐ Boring ☑

Depth (Feet)	Sample No. & Penetration/ Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm) PI Meter Field Scan	Monitoring (ppm) PI Meter Head Space	Lab Tests
1						0-1.8' DK Brown fine silty Sand w/ roots, PG, MP, moist, MD dense	Fill		11.0		
2	1.9/2.0					1.8' to 3' DK olive silty fine sand w/ little fine gravel, wet, Stiff, PG, earthworm @ ~2.5', MP, Roots	SM				
3						3-4 Lt Brown orange, clay w/ gravel, wet, HP/MP, WG, roots, organic odor					
4						4 - ~4.5 orange Brown ~~and DK grey~~ Sandy gravel w/ DK grey loose of silty fine sand., WG, NP/MP, Moist	GC.				
5						4.5-5 Pink cobble, rock flour	GM		11.0		
6	1.7/2.0					5-7 Lt Brown silty fine Sand & gravel, WG, wet, SP/NP, granite? cobble @ 7'	Rock GM/GC				
7						7-8 same as 5-7 but saturated					
8											
9											
10											
11											
12											

S1

S2

* No Soil Sample here.

BOG @ 24'

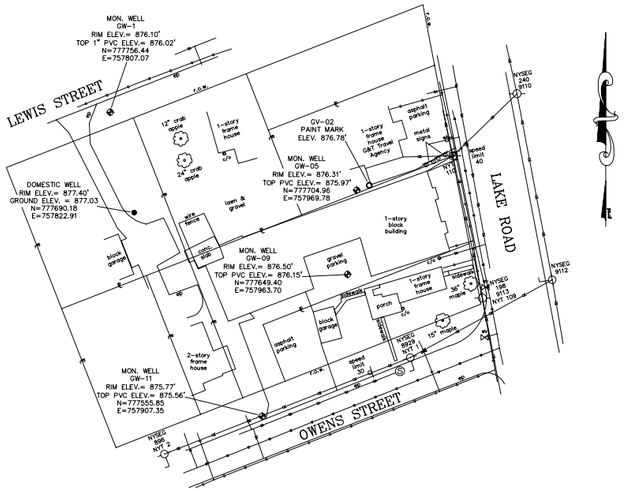
APPENDIX C

SITE SURVEY

SURVEY NOTES:

1.) HORIZONTAL AND VERTICAL COORDINATES ARE RELATED TO NEW YORK STATE PLANE COORDINATES NAD 83 AND NAVD 88

2.) PROPERTY LINES (▯) AND STREET RIGHT-OF-WAYS (R.O.W.) ARE FROM TAX MAPS AND NOT FIELD VERIFIED.



LEGEND

- UPL NYSEG — UTILITY LIGHT POLE
- UTP NYSEG — UTILITY POLE
- WV — WATER VALVE
- WSV — WATER SEVICE VALVE
- GV — GAS VALVE
- SURVEY CONTROL POINT
- MON. WELL GW-10 RIM ELEV.= 854.58' TOP PVC ELEV.= 854.17'N=764634.75 E=760549.21
- GW-09 PAINT MARK ELEV.=935.06'
- GV-02 PAINT MARK ELEV.=935.46'
- cab — DRAINAGE CATCH BASIN
- GAS SERVICE LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- OVERHEAD TELEPHONE LINE
- UNDERGROUND TELEPHONE LINE
- WATER LINE
- SANITARY SEWER LINE

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

J:\Projects\36400 MACTEC\36411\Cadd\36411 Former American Cleaners.dwg

DATE	REVISIONS	BY

DRAWING ALTERATION

WARNING: It is a violation of the New York State Education Law, Article 145, Section 7209, Special Provision 2, for any person unless he is acting under the direction of a Licensed Professional Engineer or Land Surveyor to alter an item in any way. If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his seal and notation "altered by" followed by his signature and date of such alteration, and a specific description of the alteration.

BY: _____

DATE: _____

LU ENGINEERS
Civil and Environmental

JOSEPH C. LU ENGINEERING AN
LAND SURVEYING, P.C.
2230 Penfield Road
Penfield, New York 14526
(585) 377-1450
FAX: (585) 377-1266

PROJECT:

FORMER
AMERICAN CLEANERS
3045 LAKE ROAD
HORSEHEADS, NY

CLIENT:

MACTEC ENGINERING, INC
551 CONGRESS STREET
PORTLAND, ME 04101

DRAWING TITLE:

ENVIRONMENTAL MAP

DESIGNED BY:	SCALE: 1"=50'
DRAWN BY: JH,AM	DATE: 3-13-06
CHECKED BY: CJR	PROJECT No. 36411

SHEET	DRAWING No.
1 OF 1	1

APPENDIX D

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT
2006 SAMPLING EVENT
REGION 8 DRY CLEANERS-FORMER AMERICAN CLEANERS
HORSEHEADS, NEW YORK

Introduction:

Soil, water, and air samples were collected at the Former American Cleaners site in February 2006 and submitted for off-site laboratory analyses. Samples were analyzed by Chemtech located in Mountainside, NJ. A listing of samples included in this investigation is presented in Table 1. A summary of analytical results is presented in Appendix D, Tables 1.1-1.7. Samples were analyzed for the following parameters:

.

- Soil: Contract Laboratory Program (CLP) procedures for volatile organic compounds (VOCs).
- Water: CLP procedures for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOC)
- Air: EPA Method TO-15 for VOCs

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, 1995; NYSDEC, 2000).

A project chemist review was completed based on NYSDEC Division of Environmental Remediation guidance for Data Usability Summary Reports (NYSDEC, 1997). 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. With the exception of the items discussed below, results are interpreted to be usable as reported by the laboratory. The following 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
R = target analyte was rejected

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

Air - Volatile Organic Compounds

Blank Contamination

Detections of 1,1,1-trichloroethane (0.76 µg/m^3, 1.2 µg/m^3) were reported in the method blanks associated with samples AMGV00200601XX and AMGV00300601XX . An action level was calculated at five times the detections reported in the blanks. Results for 1,1,1-trichloroethane were less than an action level in samples AMGV00200601XX and AMGV00300601XX and were qualified as non-detect (U).

Initial Calibration

The initial calibration had a percent relative standard deviation for 1,1,1-trichloroethane (35.27) that was greater than the validation limit of 30. In addition, the correlation coefficient associated with 4-methyl-2-pentanone (0.993) was less than the validation limit of 0.995. Results for these two compounds in samples AMGV00200601XX and AMGV00300601XX were non-detect and were qualified as estimated (UJ). The result for 1,1,1-trichloroethane in sample AMGV00100601XX was positive and was qualified as estimated (J). The result for 4-methyl-2-pentanone in sample AMGV00100601XX was non-detect and was qualified as estimated (UJ). The RRF for 1,3-butadiene (0.021) is less than the response limit of 0.05. The results for 1,3-butadiene were non-detect in samples AMGV00200601XX, AMGV00300601XX, and AMGV00100601XX and were rejected (R).

Laboratory Control Samples

The LCS had percent recoveries that were outside of laboratory control limits for dichlorodifluoromethane (144) and 1,4-dioxane (64). Samples AMGV00200601XX and AMGV00300601XX had positive results for dichlorodifluoromethane and were qualified as estimated (J). Results for 1,4-dioxane were both non-detect in these two samples and were qualified as estimated (UJ).

The LCS had a percent recovery for 1,4-dioxane (64) that was below laboratory control limits. The result for 1,4-dioxane in sample AMGV00100601XX was non-detect and was qualified as estimated (UJ).

Soil and Water Samples - Volatile Organic Compounds

Holding Times and Sample Collection

The percent solids for AMGS00101001XX (18) were determined to be less than 50%. Since percent solids were less than 50%, non-detect and positive results were qualified as estimated (J) in sample AMGS00101001XX.

Surrogates

The percent recovery for the surrogate 1,2-dichloroethane-d4 (117) was greater than laboratory control limits in sample AMGW00903401XX (RE) indicating a high bias. Positive results for AMGW00903401XX (RE) were qualified as estimated (J).

The percent recovery for the surrogate 4-bromofluorobenzene (228) was greater than the laboratory control limit in sample AMGW01002401XA indicating a high bias. Positive results in sample AMGW01002401XA were qualified as estimated (J).

Blank Contamination

Detections of acetone (5.7 to 27 µg/L and 17 to 21µg/kg), methylene chloride (0.88 to 2.1 µg/L and 2.0 to 5.3 µg/kg), and the TIC unknown22.99 were reported in the method and trip blanks, An action level was calculated at ten times the detections reported in the blanks for acetone and methylene chloride. The detections for acetone in samples AMGW00202601XX, AMGW00502701XD, AMGS00501001XX, AMGS00201201XX, AMGW01702101XA, AMGW01702601XX, AMGW01602201XX, AMGW01802401XX, AMGW0181401XA, AMGS01101401XX, AMPW00102101XX, AMGW00102601XX, AMGW00101801XA, AMGS00101001XX, AMGW00702801XX, AMGW00903401XX (RE), AMGS00401401XX (RE), AMGW00402401XA, AMGW01003401XX, AMGW01002401XA, AMGW01203401XX, AMGW01303401XX, AMGW01302401XA, and AMGW00403201XB were less than the action level and were qualified as non-detect (U). The detections for methylene chloride in samples AMGS00501001XX, AMGS00201201XX, AMGS01101401XX, AMGS00101001XX, and AMGS00401401XXRE were less than the action level and were qualified as non-detect (U). The TIC unknown22.99 was detected in sample AMGW00502701XD and was qualified as rejected (R).

Initial Calibration

The initial calibration had a percent relative standard deviation that was greater than the control limit of 30 for acetone (32.0). The results for acetone in samples AMGS00501001XX, AMGS00201201XX, AMGS01101401XX, AMGS00101001XX, and AMGS00401401XX (RE) were non-detect and were qualified as estimated (UJ).

Continuing Calibration

The continuing calibration had percent differences greater than the control limit of 25 for vinyl chloride (28.0), acetone (26.2), and methyl acetate (26.1). Results for these compounds in samples AMGW00202601XX, AMGW00502701XD, and AMGW00502701XX were non-detect and were qualified as estimated (UJ). Results for acetone and vinyl chloride were non-detect in samples AMPW00102101XX, AMGW00102601XX, and AMGW00101801XA and were qualified as estimated (UJ). The result for methyl acetate was positive in sample AMPW00102101XX and was

qualified as estimated (J). Results for methyl acetate in samples AMGW00102601XX and AMGW00101801XA were non-detect and were qualified as estimated (UJ).

The continuing calibration had a percent difference greater than 25 for trichlorofluoromethane (29.7). The result for trichlorofluoromethane in sample AMGS00501001XX was non-detect and was qualified as estimated (UJ).

The continuing calibration associated with sample AMGS00401401XXRE had a percent difference greater than the control limit of 25 for trichlorofluoromethane (34.9). The result for trichlorofluoromethane in sample AMGS00401401XXRE was non-detect and was qualified as estimated (UJ).

The continuing calibration associated with sample AMGS00201201XX had percent differences greater than 25 for dichlorodifluormethane (36.1), chloromethane (27.0), trichlorofluoromethane (50.2), 1,1,2-trichlorotrifluoroethane (35.8), acetone (30.3), 1,1,1-trichloroethane (25.7), 1,2-dichlorobenzene (26.3), and 1,2,4-trichlorobenzene (25.7). The results for all of these compounds in samples AMGS00201201XX and AMGS01101401XX were non-detect and were qualified as estimated (UJ).

The continuing calibration had a percent difference greater than the control limit of 25 for 2-hexanone (167.9). Results for 2-hexanone in samples AMGW00702801XX and AMGW00903401XXRE were non-detect and were qualified as estimated (UJ).

The continuing calibrations had percent differences greater than the control limit of 25 for 2-hexanone (184.0, 167.9) associated with samples AMGW01702101XA, AMGW01102601XX, AMGW00902401XA, AMGW00702801XD, AMGW00403801XX, AMGW00402401XA, AMGW01003401XX, AMGW01002401XA, AMGW01203401XX, AMGW01303401XX, AMGW01302401XA, AMGW01403401XX, AMGW01402401XA, and AMGW00403201XB. The results for 2-hexanone were all non-detect and were qualified as estimated (UJ).

Matrix Spike/Matrix Spike Duplicates

The MS/MSD associated with sample AMPW00102101XX had a percent recovery for 1,1-dichloroethene (64) that was less than laboratory control limits. The relative percent difference between the MS and MSD was also greater than laboratory control limits for 1,1-dichloroethene (27). The result for 1,1-dichloroethene in sample AMPW00102101XX was non-detect and was qualified as estimated (UJ).

Water Samples - Semivolatile Organic Compounds

Blank Contamination

Detections of bis (2-ethylhexyl)phthalate (2.0 and 94 µg/L) and the TIC squalene were reported in the method blank associated with samples AMGW00502701XX and AMGW01002401XA (DL). An action level was calculated at ten times the detection reported in the blank for bis (2-ethylhexyl)phthalate. The detections for bis(2-ethylhexyl)phthalate in samples AMGW00502701XX and AMGW01002401XADL were less than the action level and were qualified as non-detect (U). The TIC of squalene was also detected in the sample and was qualified as rejected (R).

Initial Calibration

The initial calibration associated with sample AMGW00502701XX had a relative percent standard deviation that was greater than the control limit of 30 for 2,4-dinitrophenol (34.2). The result for 2,4-dinitrophenol in sample AMGW00502701XX was non-detect and was qualified as estimated (UJ).

Continuing Calibration

The continuing calibration associated with AMGW01002401XA had percent difference greater than the control limit of 25 for hexachlorocyclopentadiene (26.7). The result for hexachlorocyclopentadiene was non-detect in sample AMGW01002401XA and was qualified as estimated (UJ).

TABLE 1

SDG	Sample Name	Date Collected	Method	Parameter	Type
X1573	AMGW01702101XA	2/10/06	OLM 04.2	VOC	FS
X1573	AMGW01702601XX	2/10/06	OLM 04.2	VOC	FS
X1573	AMGW01602201XX	2/10/06	OLM 04.2	VOC	FS
X1523	AMPW00102101XX	2/7/06	OLM 04.2	VOC	FS
X1523	AMPW00102101MS	2/7/06	OLM 04.2	VOC	MS
X1523	AMPW00102101MD	2/7/06	OLM 04.2	VOC	MD
X1523	AMGS00101001XX	2/7/06	OLM 04.2	VOC	FS
X1523	AMGS00101001XX	2/7/06	D2216	Percent Moisture	FS
X1523	AMGS00101001MS	2/7/06	OLM 04.2	VOC	MS
X1523	AMGS00101001MS	2/7/06	D2216	Percent Moisture	MS
X1523	AMGS00101001MD	2/7/06	OLM 04.2	VOC	MD
X1523	AMGS00101001MD	2/7/06	D2216	Percent Moisture	MD
X1523	AMGW00102601XX	2/7/06	OLM 04.2	VOC	FS
X1523	AMGW00102601MS	2/7/06	OLM 04.2	VOC	MS
X1523	AMGW00102601MD	2/7/06	OLM 04.2	VOC	MD
X1523	AMGW00101801XA	2/7/06	OLM 04.2	VOC	FS
X1523	AMGV00100601XX	2/7/06	TO-15	VOC	FS
X1523	AMQT001XXX01XX	2/7/06	OLM 04.2	VOC	TB
X1588	AMGW00702801XX	2/13/06	OLM 04.2	VOC	FS
X1588	AMGW00903401XX	2/13/06	OLM 04.2	VOC	FS

SDG	Sample Name	Date Collected	Method	Parameter	Type
X1588	AMGW00902401XA	2/13/06	OLM 04.2	VOC	FS
X1588	AMQT004XXX01XX	2/13/06	OLM 04.2	VOC	TB
X1588	EBGW0003XXXXXX	2/13/06	OLM 04.2	VOC	EB
X1588	AMGW00702801XD	2/13/06	OLM 04.2	VOC	FD
X1593	AMGS00401401XX	2/14/06	OLM 04.2	VOC	FS
X1593	AMGS00401401XX	2/14/06	D2216	Percent Moisture	FS
X1593	AMGW00403801XX	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW00402401XA	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW01003401XX	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW01002401XA	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW01002401XA	2/14/06	OLM 04.2	SVOC	FS
X1593	AMGW01203401XX	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW01303401XX	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW01302401XA	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW01403401XX	2/14/06	OLM 04.2	VOC	FS
X1593	AMGW01402401XA	2/14/06	OLM 04.2	VOC	FS
X1593	AMQT005XXX01XX	2/14/06	OLM 04.2	VOC	TB
X1593	AMGW00403201XB	2/14/06	OLM 04.2	VOC	FS
X1542	AMGS00201201XX	2/8/06	OLM 04.2	VOC	FS
X1542	AMGS00201201XX	2/8/06	D2216	Percent Moisture	FS
X1542	AMGS00501001XX	2/8/06	OLM 04.2	VOC	FS
X1542	AMGS00501001XX	2/8/06	D2216	Percent Moisture	FS
X1542	AMGW00202601XX	2/8/06	OLM 04.2	VOC	FS
X1542	AMGW00502701XX	2/8/06	OLM 04.2	VOC	FS
X1542	AMGW00502701XX	2/8/06	OLM 04.2	SVOC	FS
X1542	AMGW00502701XD	2/8/06	OLM 04.2	VOC	FD
X1542	AMGV00200601XX	2/8/06	TO-15	VOC	FS
X1542	AMGV00300601XX	2/8/06	TO-15	VOC	FS
X1542	AMQT002XXX01XX	2/8/06	OLM 04.2	VOC	TB
X1564	AMGW01102601XX	2/9/06	OLM 04.2	VOC	FS
X1564	AMGW01802401XX	2/9/06	OLM 04.2	VOC	FS
X1564	AMGW0181401XA	2/9/06	OLM 04.2	VOC	FS
X1564	AMQT003XXX01XX	2/9/06	OLM 04.2	VOC	TB
X1564	AMGS01101401XX	2/9/06	OLM 04.2	VOC	FS
X1564	AMGS01101401XX	2/9/06	D2216	Percent Moisture	FS

Reference:

New York State Department of Environmental Conservation (NYSDEC), 1995. "Analytical Services Protocols"; 10/95 Edition; October 1995.

New York State Department of Environmental Conservation (NYSDEC), 1997. "Guidance for the Development of Data Usability Reports"; Division of Environmental Remediation; September 1997.

Appendix D
Table 1.1: Soil VOC Results

Lab Sample ID	X1523-04		X1542-01		X1542-02		X1564-05		X1593-01	
Lab Sample Delivery Group	X1523		X1542		X1542		X1564		X1593	
Loc Name	GS-1		GS-2		GS-5		GS-11		GS-4	
Field Sample ID	AMGS00101001XX		AMGS00201201XX		AMGS00501001XX		AMGS01101401XX		AMGS00401401XX	
Field Sample Date	2/7/2006		2/8/2006		2/8/2006		2/9/2006		2/14/2006	
QC Code	FS		FS		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	56	UJ	11	UJ	11	U	10	UJ	10	U
1,1,2,2-Tetrachloroethane	56	UJ	11	U	11	U	10	U	10	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	56	UJ	11	UJ	11	U	10	UJ	10	U
1,1,2-Trichloroethane	56	UJ	11	U	11	U	10	U	10	U
1,1-Dichloroethane	56	UJ	11	U	11	U	10	U	10	U
1,1-Dichloroethene	56	UJ	11	U	11	U	10	U	10	U
1,2,4-Trichlorobenzene	56	UJ	11	UJ	11	U	10	UJ	10	U
1,2-Dibromo-3-chloropropane	56	UJ	11	U	11	U	10	U	10	U
1,2-Dibromoethane	56	UJ	11	U	11	U	10	U	10	U
1,2-Dichlorobenzene	56	UJ	11	UJ	11	U	10	UJ	10	U
1,2-Dichloroethane	56	UJ	11	U	11	U	10	U	10	U
1,2-Dichloropropane	56	UJ	11	U	11	U	10	U	10	U
1,3-Dichlorobenzene	56	UJ	11	U	11	U	10	U	10	U
1,4-Dichlorobenzene	56	UJ	11	U	11	U	10	U	10	U
2-Butanone	280	UJ	53	U	4.2	J	3.9	J	52	U
2-Hexanone	280	UJ	53	U	53	U	52	U	52	U
4-Methyl-2-pentanone	280	UJ	53	U	53	U	52	U	52	U
Acetic acid, methyl ester	56	UJ	11	U	11	U	10	U	10	U
Acetone	280	UJ	53	UJ	53	UJ	52	UJ	52	UJ
Benzene	9.9	J	11	U	11	U	0.64	J	0.74	J
Bromodichloromethane	56	UJ	11	U	11	U	10	U	10	U
Bromoform	56	UJ	11	U	11	U	10	U	10	U
Bromomethane	56	UJ	11	U	11	U	10	U	10	U
Carbon disulfide	56	UJ	11	U	11	U	10	U	10	U
Carbon tetrachloride	56	UJ	11	U	11	U	10	U	10	U
Chlorobenzene	56	UJ	11	U	11	U	10	U	10	U
Chlorodibromomethane	56	UJ	11	U	11	U	10	U	10	U
Chloroethane	56	UJ	11	U	11	U	10	U	10	U
Chloroform	56	UJ	11	U	11	U	10	U	1.1	J
Chloromethane	56	UJ	11	UJ	11	U	10	UJ	10	U
Cis-1,2-Dichloroethene	56	UJ	11	U	11	U	10	U	10	U
cis-1,3-Dichloropropene	56	UJ	11	U	11	U	10	U	10	U
Cyclohexane	56	UJ	11	U	11	U	10	U	10	U
Dichlorodifluoromethane	56	UJ	11	UJ	11	U	10	UJ	10	U
Ethyl benzene	6.6	J	0.56	J	0.64	J	10	U	10	U
Isopropylbenzene	56	UJ	11	U	11	U	10	U	10	U
Methyl cyclohexane	56	UJ	11	U	11	U	10	U	10	U
Methyl Tertbutyl Ether	56	UJ	11	U	11	U	10	U	10	U
Methylene chloride	56	UJ	11	U	11	U	10	U	10	U
o-Xylene	56	UJ	11	U	11	U	10	U	10	U

Appendix D
Table 1.1: Soil VOC Results

Lab Sample ID	X1523-04		X1542-01		X1542-02		X1564-05		X1593-01	
Lab Sample Delivery Group	X1523		X1542		X1542		X1564		X1593	
Loc Name	GS-1		GS-2		GS-5		GS-11		GS-4	
Field Sample ID	AMGS00101001XX		AMGS00201201XX		AMGS00501001XX		AMGS01101401XX		AMGS00401401XX	
Field Sample Date	2/7/2006		2/8/2006		2/8/2006		2/9/2006		2/14/2006	
QC Code	FS		FS		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Styrene	56	UJ	11	U	11	U	10	U	10	U
Tetrachloroethene	56	UJ	11	U	11	U	10	U	10	U
Toluene	8.9	J	1.2	J	0.87	J	1.3	J	2.3	J
trans-1,2-Dichloroethene	56	UJ	11	U	11	U	10	U	10	U
trans-1,3-Dichloropropene	56	UJ	11	U	11	U	10	U	10	U
Trichloroethene	56	UJ	0.9	J	11	U	10	U	10	U
Trichlorofluoromethane	56	UJ	11	UJ	11	UJ	10	UJ	10	UJ
Vinyl chloride	56	UJ	11	U	11	U	10	U	10	U
Xylene, m/p	9.8	J	1.2	J	0.94	J	1	J	10	U

Notes:
Results in micrograms per kilogram (µg/kg)
Samples analyzed for VOCs by Method EPA OLM04.2
QC Code:
FS = Field Sample
Qualifers:
U = Not detected at a concentration above the reporting limit
J = Result is estimated

Table Created by: ASZ 6/1/06
Table Checked by: KLT 07/24/06

Lab Sample ID	X1523-01		X1523-07		X1523-10		X1523-12		X1542-03		X1542-04		X1542-05		X1542-08		X1564-01		X1564-02		X1564-03	
Lab Sample Delivery Group	X1523		X1523		X1523		X1523		X1542		X1542		X1542		X1542		X1564		X1564		X1564	
Loc Name	PW-1		GW-1		GW-1		QC		GW-2		GW-5		GW-5		QC		GW-11		GW-18		GW-18	
Field Sample ID	AMPW00102101XX		AMGW00102601XX		AMGW00101801XA		AMQT001XXX01XX		AMGW00202601XX		AMGW00502701XX		AMGW00502701XD		AMQT002XXX01XX		AMGW01102601XX		AMGW01802401XX		AMGW0181401XA	
Field Sample Date	2/7/2006		2/7/2006		2/7/2006		2/7/2006		2/8/2006		2/8/2006		2/8/2006		2/8/2006		2/9/2006		2/9/2006		2/9/2006	
QC Code	FS		FS		FS		TB		FS		FS		FD		TB		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	UJ	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromo-3-chloropropane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Hexanone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	UJ	50	U	50	U
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	1.7	J	10	UJ	10	UJ	10	U	10	UJ	10	UJ	10	UJ	10	U	10	U	10	U	10	U
Acetone	50	UJ	50	UJ	50	UJ	27	JB	50	UJ	50	UJ	50	UJ	9.4	JB	50	U	50	U	50	U
Benzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	0.8	J	1.7	J
Bromoform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	3.6	J	7.2	J
Chloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	1.3	J	2.2	J	10	U	10	U	1.7	J	2.3	J	2.3	J	10	U	3.1	J	10	U	10	U
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene chloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
o-Xylene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	J	10	U	10	U
Toluene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	U	30		3.3	J	10	U	20		31		30		10	U	16		0.92	J	0.86	J
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	10	UJ	10	UJ	10	UJ	10	U	10	UJ	10	UJ	10	UJ	10	U	10	U	10	U	10	U
Xylene, m/p	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U

Notes:
Results in micrograms per liter (µg/L)
Samples analyzed for VOCs by Method EPA OLM04.2
QC Code:
FS = Field Sample
FD = Field Duplicate
TB = Trip Blank
EB = Equipment Blank
Qualifers:
U = Not detected at a concentration above the reporting limit
J = Result is estimated
B = analyte found in blank in addition to sample

Table Created by: ASZ 6/1/06
Table Created by: KLT7/24/06

Lab Sample ID	X1564-04		X1573-01		X1573-02		X1573-03		X1588-01		X1588-02RE		X1588-03		X1588-04		X1588-05		X1588-06		X1593-02	
Lab Sample Delivery Group	X1564		X1573		X1573		X1573		X1588		X1588		X1588		X1588		X1588		X1588		X1593	
Loc Name	QC		GW-17		GW-17		GW-16		GW-7		GW-9		GW-9		QC		QC		GW-7		GW-4	
Field Sample ID	AMQT003XXX01XX		AMGW01702101XA		AMGW01702601XX		AMGW01602201XX		AMGW00702801XX		AMGW00903401XX		AMGW00902401XA		AMQT004XXX01XX		EBGW0003XXXXXX		AMGW00702801XD		AMGW00403801XX	
Field Sample Date	2/9/2006		2/10/2006		2/10/2006		2/10/2006		2/13/2006		2/13/2006		2/13/2006		2/13/2006		2/13/2006		2/13/2006		2/14/2006	
QC Code	TB		FS		FS		FS		FS		FS		FS		TB		EB		FD		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromo-3-chloropropane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	1.7	J	50	U	50	U	50	U
2-Hexanone	50	U	50	UJ	50	U	50	U	50	UJ	50	UJ	50	UJ	50	U	50	U	50	UJ	50	UJ
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	15	JB	50	U	50	U	50	U	50	U	50	U	50	U	25	JB	5.1	JB	50	U	290	B
Benzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	10	U	1	J	2.8	J	0.89	J	2.4	J	2.1	J	2.1	J	10	U	10	U	2.4	J	2.1	J
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene chloride	1.2	JB	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
o-Xylene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Toluene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	U	10	U	3.1	J	10		33		28	J	29		10	U	10	U	35		28	
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Xylene, m/p	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	0.85	J

Notes:
Results in micrograms per liter (µg/L)
Samples analyzed for VOCs by Method EPA OLM04.2
QC Code:
FS = Field Sample
FD = Field Duplicate
TB = Trip Blank
EB = Equipment Blank
Qualifers:
U = Not detected at a concentration above the reporting limit
J = Result is estimated
B = analyte found in blank in addition to sample

Table Created by: ASZ 6/1/06
Table Created by: KLT7/24/06

Lab Sample ID	X1593-03		X1593-04		X1593-05		X1593-06		X1593-07		X1593-08		X1593-09		X1593-10		X1593-11		X1593-12	
Lab Sample Delivery Group	X1593		X1593		X1593		X1593		X1593		X1593		X1593		X1593		X1593		X1593	
Loc Name	GW-4		GW-10		GW-10		GW-12		GW-13		GW-13		GW-14		GW-14		QC		GW-4	
Field Sample ID	AMGW00402401XA		AMGW01003401XX		AMGW01002401XA		AMGW01203401XX		AMGW01303401XX		AMGW01302401XA		AMGW01403401XX		AMGW01402401XA		AMQT005XXX01XX		AMGW00403201XB	
Field Sample Date	2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006	
QC Code	FS		FS		FS		FS		FS		FS		FS		FS		TB		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromo-3-chloropropane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Hexanone	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ	50	U	50	UJ
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	20	JB	50	U
Benzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	2	J	2	J	3.8	J	1.9	J	2	J	1.5	J	2.4	J	2.2	J	10	U	2	J
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	10	U	2	J	5	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	10	U	9.5	J	31	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	8.8	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene chloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
o-Xylene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Toluene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	30		27		19	J	26		25		23		25		23		10	U	28	
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Xylene, m/p	10	U	11		20	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U

Notes:
Results in micrograms per liter (µg/L)
Samples analyzed for VOCs by Method EPA OLM04.2
QC Code:
FS = Field Sample
FD = Field Duplicate
TB = Trip Blank
EB = Equipment Blank
Qualifers:
U = Not detected at a concentration above the reporting limit
J = Result is estimated
B = analyte found in blank in addition to sample

Table Created by: ASZ 6/1/06
Table Created by: KLT7/24/06

Appendix D
Table 1.3 Groundwater SVOC Results

Lab Sample ID	X1542-04		X1593-05	
Lab Sample Delivery Group	X1542		X1593	
Loc Name	GW-5		GW-10	
Field Sample ID	AMGW00502701XX		AMGW01002401XA	
Field Sample Date	2/8/2006		2/14/2006	
QC Code	FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**
2,4,5-Trichlorophenol	10	U	10	U
2,4,6-Trichlorophenol	10	U	10	U
2,4-Dichlorophenol	10	U	10	U
2,4-Dimethylphenol	10	U	10	U
2,4-Dinitrophenol	20	UJ	20	U
2,4-Dinitrotoluene	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U
2-Chloronaphthalene	10	U	10	U
2-Chlorophenol	10	U	10	U
2-Methylnaphthalene	10	U	10	U
2-Methylphenol	10	U	10	U
2-Nitroaniline	10	U	10	U
2-Nitrophenol	10	U	10	U
3,3`-Dichlorobenzidine	20	U	20	U
3-Nitroaniline	10	U	10	U
4,6-Dinitro-2-methylphenol	20	U	20	U
4-Bromophenyl phenyl ether	10	U	10	U
4-Chloro-3-methylphenol	10	U	10	U
4-Chloroaniline	10	U	10	U
4-Chlorophenyl phenyl ether	10	U	10	U
4-Methylphenol	10	U	10	U
4-Nitroaniline	10	U	10	U
4-Nitrophenol	20	U	20	U
Acenaphthene	10	U	10	U
Acenaphthylene	10	U	10	U
Acetophenone	10	U	210	D
Anthracene	10	U	10	U
Atrazine	10	U	10	U
Benzaldehyde	10	U	10	U
Benzo(a)anthracene	10	U	10	U
Benzo(a)pyrene	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U
Benzo(ghi)perylene	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U
Biphenyl	10	U	10	U
Bis(2-Chloroethoxy)methane	10	U	10	U
Bis(2-Chloroethyl)ether	10	U	10	U
Bis(2-Chloroisopropyl)ether	10	U	10	U
Bis(2-Ethylhexyl)phthalate	10	U	77	U
Butylbenzylphthalate	10	U	10	U

Appendix D
Table 1.3 Groundwater SVOC Results

Lab Sample ID	X1542-04		X1593-05	
Lab Sample Delivery Group	X1542		X1593	
Loc Name	GW-5		GW-10	
Field Sample ID	AMGW00502701XX		AMGW01002401XA	
Field Sample Date	2/8/2006		2/14/2006	
QC Code	FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**
Caprolactum	10	U	10	U
Carbazole	10	U	10	U
Chrysene	10	U	10	U
Di-n-butylphthalate	10	U	10	U
Di-n-octylphthalate	10	U	10	U
Dibenz(a,h)anthracene	10	U	10	U
Dibenzofuran	10	U	10	U
Diethylphthalate	10	U	10	U
Dimethylphthalate	10	U	10	U
Fluoranthene	10	U	10	U
Fluorene	10	U	10	U
Hexachlorobenzene	10	U	10	U
Hexachlorobutadiene	10	U	10	U
Hexachlorocyclopentadiene	10	U	10	UJ
Hexachloroethane	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U
Isophorone	10	U	10	U
N-Nitrosodi-n-propylamine	10	U	10	U
N-Nitrosodiphenylamine	10	U	10	U
Naphthalene	10	U	5.5	J
Nitrobenzene	10	U	10	U
Pentachlorophenol	20	U	20	U
Phenanthrene	10	U	10	U
Phenol	10	U	10	U
Pyrene	10	U	10	U

Notes:
Results in micrograms per liter (µg/L)
Samples analyzed for SVOCs by Method EPA OLM04.2
QC Code:
FS = Field Sample
Qualifers:
U = Not detected at a concentration above the reporting limit
J = Result is estimated

Table Created by: ASZ 6/1/06
Table Checked by: KLT 07/24/06

Appendix D
Table 1.4: Soil Vapor Results

Lab Sample ID	X1523-11		X1542-06		X1542-07	
Lab Sample Delivery Group	X1523		X1542		X1542	
Loc Name	GV-01		GV-02		GV-03	
Field Sample ID	AMGV00100601XX		AMGV00200601XX		AMGV00300601XX	
Field Sample Date	2/7/2006		2/8/2006		2/8/2006	
QC Code	FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	7.07	BJ	2.94	UJ	0.98	UJ
1,1,2,2-Tetrachloroethane	6.87	U	0.69	U	0.69	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	7.65	U	1.22		0.76	U
1,1,2-Trichloroethane	5.44	U	0.54	U	0.54	U
1,1-Dichloroethane	4.05	U	0.4	U	0.4	U
1,1-Dichloroethene	3.97	U	0.4	U	0.4	U
1,2,4-Trichlorobenzene	7.4	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	4.91	U	3.24		3.19	
1,2-Dibromoethane	7.69	U	0.77	U	0.77	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	6.99	U	0.7	U	0.7	U
1,2-Dichlorobenzene	6.01	U	0.6	U	0.6	U
1,2-Dichloroethane	4.05	U	0.4	U	0.4	U
1,2-Dichloropropane	4.62	U	0.46	U	0.46	U
1,3,5-Trimethylbenzene	4.91	U	0.49	U	2.06	
1,3-Dichlorobenzene	6.01	U	0.6	U	0.6	U
1,4-Dichlorobenzene	6.01	U	0.6	U	0.6	U
1,4-Dioxane	7.2	UJ	0.72	UJ	0.72	UJ
2-Butanone	5.89	U	5.04		4.03	
2-Hexanone	8.18	U	0.82	U	0.82	U
2-Propanol	16.7		29.3		18.3	
4-Ethyltoluene	4.91	U	0.49	U	0.49	U
4-Methyl-2-pentanone	8.18	UJ	0.82	UJ	0.82	UJ
Acetone	210		54.6	D	49.6	D
Allyl chloride	3.15	U	0.31	U	0.31	U
Benzene	17.2		32.2		28.5	
Benzyl chloride	5.77	U	0.58	U	0.58	U
Bromodichloromethane	6.71	U	0.67	U	0.67	U
Bromoform	10.35	U	1.03	U	1.03	U
Bromomethane	3.89	U	0.39	U	0.39	U
Butadiene, 1,3-		R		R		R
Carbon disulfide	3.11	U	2.98		3.89	
Carbon tetrachloride	6.3	U	0.63	U	0.63	U
Chlorobenzene	4.62	U	0.46	U	0.46	U
Chlorodibromomethane	8.51	U	0.85	U	0.85	U
Chloroethane	2.66	U	0.27	U	0.27	U
Chloroform	4.87	U	0.49	U	0.49	U
Chloromethane	2.04	U	0.47		0.37	
Cis-1,2-Dichloroethene	3.97	U	0.63		0.4	U
cis-1,3-Dichloropropene	4.54	U	0.45	U	0.45	U
Cyclohexane	28.5		87.9	D	50.8	

Appendix D
Table 1.4: Soil Vapor Results

Lab Sample ID	X1523-11		X1542-06		X1542-07	
Lab Sample Delivery Group	X1523		X1542		X1542	
Loc Name	GV-01		GV-02		GV-03	
Field Sample ID	AMGV00100601XX		AMGV00200601XX		AMGV00300601XX	
Field Sample Date	2/7/2006		2/8/2006		2/8/2006	
QC Code	FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Dichlorodifluoromethane	4.95	U	2.23	J	2.38	J
Ethyl acetate	18.7		19.4		24.5	
Ethyl benzene	4.34	U	1.91		1.3	
Heptane	31.9		79.2		54.2	
Hexachlorobutadiene	10.67	U	1.07	U	1.07	U
Hexane	79.1		244	D	167	D
Isooctane	4.66	U	0.47	U	0.47	U
Methyl Tertbutyl Ether	3.6	U	0.36	U	0.36	U
Methylene chloride	6.95	U	0.7	U	0.7	U
o-Xylene	4.34	U	2.08		1.56	
Propylene	126		472	D	298	D
Styrene	4.25	U	1.66		1.49	
Tetrachloroethene	8.83		1.97		2.44	
Tetrahydrofuran	7.66		0.59	U	0.59	U
Toluene	16.6		34.7		24.3	
trans-1,2-Dichloroethene	3.97	U	0.4	U	0.4	U
trans-1,3-Dichloropropene	4.54	U	0.45	U	0.45	U
Trichloroethene	0.21	U	20.8		2.46	
Trichlorofluoromethane	5.6	U	1.29		1.51	
Vinyl acetate	3.52	U	0.35	U	0.35	U
Vinyl bromide	4.38	U	0.44	U	0.44	U
Vinyl chloride	2.56	U	0.26	U	0.26	U
Xylene, m/p	8.67	U	6.76		4.9	

Notes:
Results in micrograms per cubic meter ($\mu g/m^3$)
Samples analyzed for VOCs by Method TO-15
QC Code:
FS = Field Sample
Qualifers:
U = Not detected at a concentration above the reporting limit
J = Result is estimated
D = Result is reported from diluted run
R = Result is rejected

Table Created by: ASZ 6/1/06
Table Checked by: KLT 07/24/06

Appendix D
Table 1.5: Soil VOC TICs

Matrix	**SOIL**	
Lab ID	**X1564-05**	
Sample No	**AMGS01101401XX**	
Samp Date	**2/9/2006**	
Parameter	**Lab Result**	**Lab Qual**
2-Ethylhexyl mercaptoacetate	6.7	J
Dodecane	18	J
Dodecane, 6-methyl-	10	J
Eicosane	5.6	J
Octane, 4-ethyl-	8	J
Tetradecane	7.9	J
Tridecane	15	J
Undecane	9.9	J

Notes:
Results reported in micrograms per kilogram (µg/kg)
Samples analyzed for VOCs by Method EPA OLM04.2
Qualifiers:
J = Estimated Value

Table Created by: ASZ 6/1/06
Table Checked by: KLT 07/24/06

Appendix D
Table 1.6: Groundwater VOC TICs

	Matrix	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	Lab ID	X1523-01		X1523-07		X1523-10		X1542-03		X1542-04		X1542-05		X1542-08		X1564-01	
	Sample No	AMPW00102101XX		AMGW00102601XX		AMGW00101801XA		AMGW00202601XX		AMGW00502701XX		AMGW00502701XD		AMQT002XXX01XX		AMGW01102601XX	
	Samp Date	2/7/2006		2/7/2006		2/7/2006		2/8/2006		2/8/2006		2/8/2006		2/8/2006		2/9/2006	
Parameter		**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**
Ethyl Acetate																10	J
1-Ethyl-4-methylcyclohexane																	
3-Oxa-6-thia-2,7-disilaoctane, 2,2																	
4-Octene, 2,6-dimethyl-, [S-(E)]-																	
Benzene, 1,2,3,5-tetramethyl-																	
Benzene, 1,2,3-trimethyl-																	
Benzene, 1,3,5-trimethyl-																	
Benzene, 1-ethyl-2,3-dimethyl-																	
Benzene, 1-ethyl-2,4-dimethyl-																	
Benzene, 1-ethyl-2-methyl-																	
Benzene, 1-ethyl-3-methyl-																	
Benzene, 1-methyl-3-propyl-																	
Benzene, 1-methyl-4-propyl-																	
Benzene, 2-ethyl-1,3-dimethyl-																	
Cycloheptanemethanol																	
Cyclohexane, 1,1-dimethyl-																	
Cyclohexane, 1,3-dimethyl-, trans-																	
Cyclohexane, 1-ethyl-2-methyl-, tr																	
Cyclohexane, 1-methyl-4-(1-methyle																	
Cyclohexane, butyl-																	
Cyclohexane, propyl-																	
Cyclotetrasiloxane, octamethyl-		11	J														
Ethanedioic acid, bis(trimethylsil						5	J										
Ethyl Acetate																	
Heptane, 3,3,5-trimethyl-																	
Naphthalene, decahydro-																	
Naphthalene, decahydro-, trans-																	
Nonane, 4-methyl-																	
Octane, 3,6-dimethyl-																	
Undecane, 5,6-dimethyl-																	
unknown16.45																	
unknown16.93																	
Unknown20.79																	
unknown22.98		6.2	J					5.9	J	6	J						
unknown22.99				5.4	J												
unknown23.00						8	J										
unknown27.23																	
unknown27.32								15	J								
unknown27.33		15	J	15	J	18	J			15	J	14	J				
unknown27.34														5.4	J		
unknown7.13																	

Notes:
Results reported in micrograms per liter (µg/L)
Samples analyzed for VOCs by Method EPA OLM04.2
Qualifiers:
J = Estimated Value

Table Created by: ASZ 6/1/06
Table Checked by: KLT 07/24/06

Table 1.6: Groundwater VOC TICs

Matrix	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Lab ID	X1588-06		X1593-02		X1593-04		X1593-05		X1593-05DL		X1593-06		X1593-10		X1593-11	
Sample No	AMGW00702801XD		AMGW00403801XX		AMGW01003401XX		AMGW01002401XA		AMGW01002401XADL		AMGW01203401XX		AMGW01402401XA		AMQT005XXX01XX	
Samp Date	2/13/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006		2/14/2006	
Parameter	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**
Ethyl Acetate																
1-Ethyl-4-methylcyclohexane			6.6	J			780	J			12	J				
3-Oxa-6-thia-2,7-disilaoctane, 2,2															5.4	J
4-Octene, 2,6-dimethyl-, [S-(E)]-							720	J								
Benzene, 1,2,3,5-tetramethyl-					78	J										
Benzene, 1,2,3-trimethyl-			15	J	290	J					19	J				
Benzene, 1,3,5-trimethyl-					100	J										
Benzene, 1-ethyl-2,3-dimethyl-					77	J										
Benzene, 1-ethyl-2,4-dimethyl-			5.5	J	110	J	270	J			10	J				
Benzene, 1-ethyl-2-methyl-			5.6	J												
Benzene, 1-ethyl-3-methyl-					86	J										
Benzene, 1-methyl-3-propyl-					130	J										
Benzene, 1-methyl-4-propyl-					76	J										
Benzene, 2-ethyl-1,3-dimethyl-					72	J										
Cycloheptanemethanol							360	J								
Cyclohexane, 1,1-dimethyl-							400	J								
Cyclohexane, 1,3-dimethyl-, trans-											19	J				
Cyclohexane, 1-ethyl-2-methyl-, tr							920	J								
Cyclohexane, 1-methyl-4-(1-methyle							290	J								
Cyclohexane, butyl-			7.6	J												
Cyclohexane, propyl-			9	J							13	J				
Cyclotetrasiloxane, octamethyl-																
Ethanedioic acid, bis(trimethylsil																
Ethyl Acetate													5.3	J		
Heptane, 3,3,5-trimethyl-											39	J				
Naphthalene, decahydro-							420	J								
Naphthalene, decahydro-, trans-			10	J												
Nonane, 4-methyl-							630	J			11	J				
Octane, 3,6-dimethyl-											18	J				
Undecane, 5,6-dimethyl-							350	J								
unknown16.45											19	J				
unknown16.93			5	J												
Unknown20.79			6.3	J												
unknown22.98																
unknown22.99																
unknown23.00																
unknown27.23													5.1	J		
unknown27.32																
unknown27.33																
unknown27.34																
unknown7.13	16	J														

Notes:
Results reported in micrograms per liter (µg/L)
Samples analyzed for VOCs by Method EPA OLM04.2
Qualifiers:
J = Estimated Value

Appendix D
Table 1.7: Groundwater SVOC TICs

Matrix	WATER		WATER		WATER	
Lab ID	X1542-04		X1593-05		X1593-05DL	
Sample No	AMGW00502701XX		AMGW01002401XA		AMGW01002401XADL	
Samp Date	2/8/2006		2/14/2006		2/14/2006	
Parameter	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**
1-Methyldecahydronaphthalene			32	J	69	JD
2,6-Dimethyldecane			12	J		
4-Methylpropiophenone			14	J		
Benzene, 1,2,3-trimethyl-					130	JD
Benzene, 1,2,4,5-tetramethyl-			23	J		
Benzene, 1,3,5-trimethyl-			15	J		
Benzene, 1-ethyl-3,5-dimethyl-					120	JD
Benzene, 1-methyl-2-(1-methylethyl			53	J	110	JD
Benzene, 1-methyl-3-propyl-					69	JD
Cyclohexane, 1,4-dimethyl-, cis-			10	J		
Cyclohexane, 1-ethyl-2-methyl-, tr					66	JD
Cyclohexane, butyl-			41	J	63	JD
Cyclohexene			12	J		
Decane, 2,5,6-trimethyl-			16	J		
Decane, 4-methyl-					230	JD
Heptane, 3-ethyl-2-methyl-			19	J	110	JD
Nonane, 3-methyl-			36	J	240	JD
Nonane, 3-methyl-5-propyl-			20	J		
Octane, 3,3-dimethyl-			26	J		
Oxirane, 2-methyl-2-phenyl-					100	JD
Squalene						
Undecane, 5-methyl-					140	JD
unknown10.13					57	JD
unknown10.31					130	JD
unknown10.35			51	J		
unknown10.54			18	J		
unknown6.02	2.2	J				
unknown6.77					120	JD
unknown6.92					230	JD
unknown6.97			33	J		
unknown7.18					80	JD
unknown7.89			20	J		
unknown8.14					70	JD
unknown8.66					62	JD
unknown9.44					100	JD
unknown9.68			13	J		
unknown9.79			31	J		

Notes:
Results reported in micrograms per liter (µg/L)
Samples analyzed for SVOCs by Method EPA OLM04.2
Qualifiers:
J = Estimated Value
D = Results reported from a diluted analytical run

Table Created by: ASZ 6/1/06
Table Checked by: KLT 07/24/06

Example Form I - Representative sample result showing CHEMTECH OLM04.2 VOC Method Detection Limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-8922

Report of Analysis

Client:	MACTEC Inc.	**Date Collected:**	02/07/06
Project ID:	D003826 Region 8 Dry Cleaners-American MEC02060003	**Date Received:**	02/08/06
Customer Sample No.:	AMPW00102101XX	**Lab Sample ID:**	X1523-01
Test:	VOC-TCLVOA 4.3-10NP	**SDG ID:**	X1523
Analytical Method:	EPA OLM04.2 - VOA	**% Moisture:**	100.00
Result Type:		**Datafile:**	VF000987

CAS Number	Parameter	Results	Qualifier	Units	DL	Retention Time	DF	DIL/RE
75-71-8	Dichlorodifluoromethane	ND	U	ug/L	0.50		10	1
74-87-3	Chloromethane	ND	U	ug/L	0.50		10	1
75-01-4	Vinyl Chloride	ND	U	ug/L	0.50		10	1
74-83-9	Bromomethane	ND	U	ug/L	0.50		10	1
75-00-3	Chloroethane	ND	U	ug/L	0.50		10	1
75-69-4	Trichlorofluoromethane	ND	U	ug/L	0.50		10	1
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	ug/L	0.50		10	1
75-35-4	1,1-Dichloroethene	ND	U	ug/L	0.50		10	1
67-64-1	Acetone	6.8	JB	ug/L	0.50		50	1
75-15-0	Carbon Disulfide	ND	U	ug/L	0.50		10	1
1634-04-4	Methyl tert-butyl Ether	ND	U	ug/L	0.50		10	1
79-20-9	Methyl Acetate	1.7	J	ug/L	0.50		10	1
75-09-2	Methylene Chloride	ND	U	ug/L	0.50		10	1
156-60-5	trans-1,2-Dichloroethene	ND	U	ug/L	0.50		10	1
75-34-3	1,1-Dichloroethane	ND	U	ug/L	0.50		10	1
110-82-7	Cyclohexane	ND	U	ug/L	0.50		10	1
78-93-3	2-Butanone	ND	U	ug/L	0.50		50	1
56-23-5	Carbon Tetrachloride	ND	U	ug/L	0.50		10	1
156-59-2	cis-1,2-Dichloroethene	1.3	J	ug/L	0.50		10	1
67-66-3	Chloroform	ND	U	ug/L	0.50		10	1
71-55-6	1,1,1-Trichloroethane	ND	U	ug/L	0.50		10	1
108-87-2	Methylcyclohexane	ND	U	ug/L	0.50		10	1
71-43-2	Benzene	ND	U	ug/L	0.50		10	1
107-06-2	1,2-Dichloroethane	ND	U	ug/L	0.50		10	1
79-01-6	Trichloroethene	ND	U	ug/L	0.50		10	1
78-87-5	1,2-Dichloropropane	ND	U	ug/L	0.50		10	1
75-27-4	Bromodichloromethane	ND	U	ug/L	0.50		10	1
108-10-1	4-Methyl-2-Pentanone	ND	U	ug/L	0.50		50	1

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908-789-8900 Fax: 908-789-8922

Report of Analysis

Client:	MACTEC Inc.	**Date Collected:**	02/07/06
Project ID:	D003826 Region 8 Dry Cleaners-American MEC02060003	**Date Received:**	02/08/06
Customer Sample No.:	AMPW00102101XX	**Lab Sample ID:**	X1523-01
Test:	VOC-TCLVOA 4.3-10NP	**SDG ID:**	X1523
Analytical Method:	EPA OLM04.2 - VOA	**% Moisture:**	100.00
Result Type:		**DataFile:**	VF000987

CAS Number	Parameter	Results	Qualifier	Units	DL	Retention Time	DF	DIL/RE
108-88-3	Toluene	ND	U	ug/L	0.50	10	1	
10061-02-6	t-1,3-Dichloropropene	ND	U	ug/L	0.50	10	1	
10061-01-5	cis-1,3-Dichloropropene	ND	U	ug/L	0.50	10	1	
79-00-5	1,1,2-Trichloroethane	ND	U	ug/L	0.50	10	1	
591-78-6	2-Hexanone	ND	U	ug/L	0.50	50	1	
124-48-1	Dibromochloromethane	ND	U	ug/L	0.50	10	1	
106-93-4	1,2-Dibromoethane	ND	U	ug/L	0.50	10	1	
127-18-4	Tetrachloroethene	ND	U	ug/L	0.50	10	1	
108-90-7	Chlorobenzene	ND	U	ug/L	0.50	10	1	
100-41-4	Ethyl Benzene	ND	U	ug/L	0.50	10	1	
126777-61-2	m/p-Xylenes	ND	U	ug/L	0.50	10	1	
95-47-6	o-Xylene	ND	U	ug/L	0.50	10	1	
100-42-5	Styrene	ND	U	ug/L	0.50	10	1	
75-25-2	Bromoform	ND	U	ug/L	0.50	10	1	
98-82-8	Isopropylbenzene	ND	U	ug/L	0.50	10	1	
79-34-5	1,1,2,2-Tetrachloroethane	ND	U	ug/L	0.50	10	1	
541-73-1	1,3-Dichlorobenzene	ND	U	ug/L	0.50	10	1	
106-46-7	1,4-Dichlorobenzene	ND	U	ug/L	0.50	10	1	
95-50-1	1,2-Dichlorobenzene	ND	U	ug/L	0.50	10	1	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	U	ug/L	0.50	10	1	
120-82-1	1,2,4-Trichlorobenzene	ND	U	ug/L	0.50	10	1	
000556-67-2	Cyclotetrasiloxane, octamethyl-	11	J	ug/L	0	0	1	TIC
	unknown22.98	6.2	J	ug/L	0	0	1	TIC
	unknown27.33	15	J	ug/L	0	0	1	TIC