SITE CHARACTERIZATION REPORT

REGION 8 DRY CLEANING SITES
CASTLE CLEANERS SITE
ELMIRA, NEW YORK

WORK ASSIGNMENT NO. D003826-20

SITE NO. 8-08-034

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

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ACRONYMS

1,1-DCE	1,1-dichlorethene
1,1,1-TCA	1,1,1-trichloroethane
ABB-ES	ABB Environmental Services
ASP	Analytical Services Protocol
bgs	below ground surface
Chemtech	Chemtech Consulting Group, Inc.
DUSR	Data Usability Summary Report
EDR	Environmental Data Resources, Inc.
^{o}F	degrees Fahrenheit
GES	Groundwater Environmental Services, Inc.
HASP	Health and Safety Plan
MACTEC	MACTEC Engineering and Consulting, P.C.
msl	mean sea level
MTBE	Methyl Tertbutyl Ether
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
PM	Project Manager
ppm	parts per million
PVC	polyvinyl chloride
Report	Site Characterization Report
ROW	right of way
SC	Site Characterization
Site	Castle Cleaners Site

semi volatile organic compounds (SVOCs)

TAGM	Technical and Administrative Guidance Memoranda
TCE	trichloroethene
TCL	Target Compound List
TIC	tentatively identified compounds
trans-1,2-DCE	trans-1,2-dichlorethene
µg/kg	micrograms per kilogram
µg/L	micrograms per Liter
µg/m³	micrograms per cubic meter
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WA	Work Assignment

EXECUTIVE SUMMARY

The Castle Cleaners site (Site) is located at 221 Hoffman Street in mixed residential/commercial neighborhood in the City of Elmira, Chemung County, New York (Figure 1.1). The Site, site No. 8-08-034, is currently listed as a Potential 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 Castle Cleaners property consists of 0.1 acres containing a dry cleaning facility and a small paved area. The location has reportedly been an active dry cleaner since its construction in the mid-1950's to the present. The current site owner stated that the property building caught fire in the late 1950's, and the dry cleaning machinery reportedly fell through the floor of the building. The Site was also flooded during the Chemung River flood events of 1972 (Castle, 2005).

Commercial properties border the site to the north and south, sharing the same walls. A Mobil Service Station is located east of the site across Hoffman Street. A funeral home is located south of the service station. A parking lot and Residential property are located to the west of the Site, and residential property (multi-unit) is located north of the Site, across West Church Street.

The site came to the attention of the NYSDEC after low concentrations (less than 2 micrograms per liter [µg/L]) chlorinated solvents were first detected in the City of Elmira's water supply well number 42 located on Foster Island (Figure 1.1) in 2003. This well is located approximately 1600 feet south of Castle Cleaners, along the banks of the Chemung River.

To determine whether the chlorinated solvent contamination detected in the City of Elmira's public supply well 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 five existing wells;
- collected 5 direct push soil samples from above the water table at five locations;
- collected 16 direct push groundwater samples at 11 locations;
- installed five microwells for the purpose of measuring groundwater table elevations,

- collected a surface water from the floor-drain sump in the basement of the liquor store located approximately 180 feet south of the Site building,

- collected three soil gas samples from around the Site property,

- 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 mixed residential/retail neighborhood that is serviced by public water. Low concentrations of tetrachloroethene (PCE) have been detected in the City of Elmira's public supply well # 42, located approximately 1600 feet south of the Site on Foster Island. Groundwater measurements collected at the Site indicate that groundwater flow is generally to the south towards the river and this well.
2) PCE, a common dry cleaning solvent and a New York State listed hazardous waste, was detected in groundwater samples collected from 10 of the 16 sample locations; concentrations detected exceeded New York State (NYS) groundwater standard of 5 µg/L for PCE at each of the 10 locations where detections occurred. PCE was detected at the highest concentrations in groundwater samples collected from locations GW-3 (1400 JD µg/L) and GW-6 (1600 JD µg/L), located adjacent to the rear entrance of the Site building and immediately downgradient of the Site building, respectively. Concentrations and locations of PCE detected in groundwater indicate that PCE was released at the Site (e.g., no PCE detections in upgradient samples) and analytical results indicate that contamination is migrating off-site in groundwater at concentrations above the NYS standard for PCE and for several PCE degradation products.
3) The detection of PCE breakdown products in groundwater samples collected down gradient of the Site, including trichloroethene (TCE), cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1- dichloroethene and vinyl chloride, as well as a decrease in PCE concentrations as one moves further from the Site, indicate that successive dechlorination, likely due to biodegradation, of the solvents is occurring. Concentrations of chlorinated solvents are also likely diminishing downgradient of the Site due to dilution and diffusion within the groundwater column. Each of these breakdown products, with the exception of 1,1- dichloroethene, exceeded NYS groundwater standards at least one down gradient location.
4) Although only limited sampling data is available for vertical profiling of groundwater, available data suggest lower concentrations of chlorinated solvents at depth.
5) Fuel related compounds, presumably related to the Mobil gas station plume, were also detected at concentrations above applicable NYS groundwater standards in samples collected from GW-6, GW-7, GW-10, MW-5, and MW-13. These included: Benzene; methyl tertbutyl ether; and phenol. Other fuel related compounds were detected at concentrations below the NYS standards in samples collected from GW-1, GW-4, GW-6, GW-10, GW-11, and MW-5.

6) Based on interpreted groundwater flow direction and concentrations of PCE detected in groundwater, the Site appears to be the most likely the source of the PCE detected in the Elmira City supply well #42.

7) Although no guidance values for exterior soil gas concentrations have been promulgated, PCE was detected in the exterior soil gas sample from GV-1 at a concentration (2321 micrograms per cubic meter [$\mu g/m^3$]) above the State of New York Department of Health (NYSDOH) sub-slab soil gas concentration recommended for mitigation (1000 $\mu g/m^3$). This indicates that human exposure to PCE vapors in exceedence of the indoor air guidance value of 100 $\mu g/m^3$ is of potential concern. Location GV-1 is approximately 60 feet west of the Site building, adjacent to a residential building (Figure 3.1). Concentrations of PCE detected in samples from the other two outside soil gas borings (one of which [GV-2] was adjacent to the Site building) were less than 35 $\mu g/m^3$. Trace concentrations of TCE (less than 21.9 $\mu g/m^3$) were detected in the soil gas samples collected from GV-1 .

8) No chlorinated solvents were detected in the five soil samples collected, but only one of the sample locations was adjacent to the Site building. The next nearest sample was collected approximately 60 feet east of the Site (location GW-1).

Based on the SC, there are still data gaps that would need to be filled to fully characterize the Site, including:

1) Due to Site access not being granted by the property owner, no soil, groundwater, or sub-slab soil gas samples were collected from within/below the Site building, and therefore potential source area concentrations are not known.

2) No sub-slab/indoor air samples were collected from neighboring homes/business, so the potential human exposure to vapors at concentrations above the NYSDOH guidance values has not been characterized.

3) The extent of the chlorinated solvent groundwater plume above the NYS standards has not been fully defined.

1.0 INTRODUCTION

MACTEC Engineering and Consulting, PC (MACTEC), is submitting this Site Characterization Report (Report) to the New York State Department of Environmental Conservation (NYSDEC). The Report addresses the Site Characterization (SC) at the Castle Cleaners site (Site) in Elmira, 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 SC four Reports address the sites listed below:

- Loohn's Corning (Site No. 8-51-028 - replaces Former Your Way Cleaners)
- Former American Dry Cleaners (Site No. 8-08-036)
- Crystal Cleaners (Site No. 8-51-022)
- Former Helwigs Dry Cleaners (Site No. 8-51-023)

The Castle Cleaners site, Site No. 8-08-034, is currently listed as a Potential 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, New York municipal 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 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

Castle Cleaners is located at 221 Hoffman Street in mixed residential/retail neighborhood in the City of Elmira, Chemung County, New York (Figure 1.1). The Castle Cleaners property consists of 0.1 acres containing a dry cleaning facility and a small paved area.

Commercial properties border the Site to the north and south, sharing the same walls. A Mobil Service Station is located east of the Site across Hoffman Street. A funeral home is located south of the service station. A parking lot and Residential property are located to the west of the Site, and residential property (multi-unit) is located north of the Site, across West Church Street.

2.2 SITE HISTORY

The Elmira City Maps for 1878 and 1896 show the Site location as vacant, although the neighboring building to the north is shown on the 1896 map. Although the Site owner stated that the business was started in the late 1940's, the current Castle Cleaners facility was apparently built in the mid to late 1950's, based on the 1955 Elmira City Directory listing the addresses of 219 to 225 Hoffman as vacant, and the 1958 Elmira City Directory indicating Castle's Fast Cleaners at 219 to 225 Hoffman. The one story building reportedly has a basement. The location has been an active dry cleaner since its construction in the mid-1950's. The current Site owner stated that the

property building caught fire in the late 1950's, and the dry cleaning machinery reportedly fell through the floor of the building. The Site was also flooded during the Chemung River flood events of 1972 (Castle, 2005).

The Elmira Department of Public service stated that the water main along Hoffman Road was installed in approximately 1896 and the sewer line was installed in 1897 (18-inch vitrified clay pipe). It is therefore assumed that Castle Cleaners has always been serviced by public water and sewer.

2.3 PREVIOUS INVESTIGATIONS

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

The Site came to the attention of the NYSDEC after low concentrations (less than 2 micrograms per liter [µg/L]) of chlorinated solvents (specifically tetrachloroethene [PCE]) were first detected in the City of Elmira's water supply well number 42 located on Foster Island (Figure 1.1) in 2003. This well is located approximately 1600 feet south of Castle Cleaners, along the banks of the Chemung River. There are three supply wells in close proximity to each other on Foster Island (Wells 40, 41, and 42). Chlorinated solvents had originally only been detected in Well number 42, but PCE was detected at a concentration of 0.5 µg/L in a sample collected from Well # 41 in February 2006 (Brown, 2006).

Well 40 is set approximately 50 feet below ground surface (bgs) and has two screens. It can produce approximately one million gallons per day. Well 41 is set at 49 feet bgs, with a screen from 34 to 49 feet bgs. The water quality parameters measured in Wells 40 and 41 closely follow those measured in the Chemung River (i.e., the wells are most likely recharging from the river). The City reportedly stopped using these two wells at the end of 2005/beginning of 2006, due to water quality issues unrelated to the detections of chlorinated solvents (Brown, 2006). Well number 42 is screened slightly deeper, from 40 to 55 feet bgs. This well can produce approximately 350,000 gallons per day, but is currently only turned on once per year for sampling purposes. Although the groundwater parameters measured have some correlation to the Chemung River, it is not a direct correlation, as seen in Wells 40 and 41 (LaDouce, 2005).

Although no analytical data was available for the Site property, investigations were conducted at the Mobil Service Station, located east of the Site, to investigate petroleum contamination in soils and groundwater at that location. The Mobil site investigation included the installation of 15 monitoring wells and an extraction system. Data reports reviewed only included volatile organic compound (VOC) analytical data for benzene, toluene, ethylbenzene, xylene, and MTBE (Groundwater Environmental Services, Inc [GES], 2004). It is not known if data was historically collected for chlorinated solvents, including PCE and/or trichloroethene (TCE).

2.4 PHYSICAL SETTING

Topography

The Site is located in the Chemung River Valley, which runs east-west. The Site property is located at 865 feet above mean sea level (msl) and is relatively flat. The surrounding area slopes slightly down to the south, before reaching the dike at the edge of the Chemung River, located 1200 feet from the Site. The Chemung River is located at an elevation of approximately 850 feet above msl, just south of the dike. The topography to the northeast of the Site is relatively flat for approximately 0.8 miles, and then rises to a ridge at 1600 feet above msl approximately 1.2 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 34 inches. Average annual snowfall is 71 inches (National Climatic Data Center, 2005).

Surface Water Hydrology

Surface drainage from the Site generally follows the topography, flowing toward the municipal storm drains. These storm drains flow to a treatment plant located approximately 2.5 miles east of the Site. The treatment plant discharges to the Chemung River downstream of the Site. During

heavy rain events, some water may flow to the small canal located approximately 150 feet east of the Site. This canal runs due south where it discharges to the Chemung River.

The Site is located within a 500 year flood zone (EDR, 2006).

Groundwater Hydrology

The Chemung River is a local groundwater discharge area. Groundwater at the Site was encountered at approximately 8 to 10 feet bgs, and based on water measurements collected is interpreted to flow south towards the River. Groundwater contours drawn for the greater Elmira area concur with this interpretation and indicate that groundwater at the Site flows in a south-easterly direction, towards the river (USGS, 1982).

Geology

Well logs from the Mobil Station investigation indicate that overburden soils at the Site consist primarily of brown silts, sands and little gravel (GES, 1999). 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 Charles Staples, the MACTEC Site Lead, and the Matthew Dunham, the NYSDEC Project Manager conducted a walkover of the Site area.

The Site walkover consisted of viewing the Castle Cleaners property (from the outside), the Mobil Service Station property, and the surrounding neighborhood to assess possible contamination sources and the logistical concerns for the field program. MACTEC personnel documented the walkover with photographs.

Observable sources of contamination (i.e., 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 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 City of Elmira water supply well No. 42 indicated the presence of chlorinated solvents (PCE) in groundwater. Spent chlorinated solvents not originating from a household source, including PCE 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 was confirmed by available analytical results from the city's water supply well, but the source area was 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 from the Site was not available for review during Task 1, and therefore it was not known if the Site was the source of the PCE contamination or if the Site posed a significant threat. As a result, the SC field investigations were 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 off-site, 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 solvent (PCE) present in the city supply wells originated from the Site, or if potential contaminants present at the Site are migrating off-site and pose a potential significant threat to human health and the environment were 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 VOC contamination is present in Site media and, if present, is it originating from the Site and migrating off-site. An additional objective was to determine, if possible, whether the VOCs detected in the City supply wells originated from the Site. Task 3 was the preparation and distribution of this Report.

TASK 2 - FIELD INVESTIGATIONS

The following subsections describe the activities accomplished during the field investigation portion of the Site SC. The work followed the scope of work as outlined in the SC Work Plan (MACTEC, 2005). The field investigation was conducted in accordance with the specifications presented in the Quality Assurance Program Plan (ABB Environmental Services [ABB-ES], 1995) and the Site specific Quality Assurance Project Plan. 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 was in compliance with the NYSDEC Analytical Services Protocols (ASP) (NYSDEC, 2000).

3.1 GENERAL FIELD ACTIVITIES

The following subsections describe the activities conducted during the field investigation, including mobilization, health and safety, and decontamination.

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. Field investigations were conducted on-site from January 16, 2006 to January 20, 2006.

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. Based on photoionization detector (PID) readings, no upgrades on 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 before and after the collection of each sample.

Non disposable sampling equipment was decontaminated by 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. Decontamination fluids were released on-site to the ground surface in the area of decontamination, allowing the liquid to infiltrate into the soil and not run off-site. Decontamination fluids did not exhibit visual or olfactory evidence of contamination, so fluids were not containerized for off-site disposal.

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 and personal protective equipment and disposable sampling equipment were double bagged and disposed of as non-hazardous refuse.

3.2 MONITORING WELL SAMPLING

Five existing monitoring wells were sampled. These included four of the wells installed for the Mobil Service Station (MW-5, MW-13, MW-14, and MW-15) and one well (PS-1) located approximately 1200 feet south of the Site, just north of the City of Elmira's pumping station. These existing monitoring wells were sampled in accordance with the USEPA "low flow" guidance. Groundwater parameters including water levels, turbidity, temperature, dissolved oxygen, specific conductance, pH and redox potential were recorded in a field log and on a field data record. All low flow sampling requirements were met while sampling these five existing wells. Groundwater Field Data Records are available in Appendix B.

One groundwater sample was collected from the existing four-inch polyvinyl chloride (PVC) monitoring well (MW-5) located west of Mobil Gas Station (Figure 3.1). Records show that this well was constructed prior to October 1995 and is 15.2 feet deep (Parratt-Wolff, 1999). Seven feet of water was present in the well. The well was purged at a rate of 200 ml/min for 40 minutes and several parameters readings were recorded. A 'black' liquid was observed while purging. This liquid was sampled and analyzed for semi volatile organic compounds (SVOCs) using USEPA OLM04.2 Methods as described in the NYSDEC ASP of June 2000.

One groundwater sample was collected from the existing four-inch PVC monitoring well (MW-13) located southwest of the Mobil Gas Station (Figure 3.1). This well was constructed in 1998 and was 10.4 feet deep (Parratt-Wolff, 1999). The water column was 2.4 feet in height within the well and the well was purged for 34 minutes.

One groundwater sample was collected from the existing two-inch PVC monitoring well (MW-14) located southeast of the Site, in West Gray Street (Figure 3.1). This well was constructed September 14, 1999 and is 13.6 feet deep (Parratt-Wolff, 1999). The water column was 3.5 feet in height within the well and the well was purged for 43 minutes at a rate of 200 ml/min.

One groundwater sample was collected from the existing two-inch PVC monitoring well (MW-15) located southeast of the Site, in West Gray Street (Figure 3.1). This well was constructed September 14, 1999 and is 13.5 feet deep (Parratt-Wolff, 1999). The water column was 4.8 feet in height within the well and the well was purged for 35 minutes.

One groundwater sample was collected from the existing two-inch Windsor Avenue pump station stick-up well, owned by the Elmira Water Board (PS-1), located 2 blocks south of the Site. This well was constructed March 1, 1995 and is 48.1 feet deep (Parratt-Wolff, 1999). The water column was 35.5 feet in height within the well and the well was purged for 87 minutes at a rate of 300 ml/min.

One sample was collected from each existing monitoring well and analyzed for target compound list (TCL) VOCs using USEPA OLM04.2 Methods as described in the NYSDEC ASP of June 2000.

3.3 GEOPROBE® BORINGS AND SAMPLING

Field investigation activities included the drilling of Geoprobe® borings, the collection and analysis of groundwater, soil, and soil gas samples, and the installation of microwells. Geoprobe sampling was conducted over a four day period from January 17, 2006 to January 20, 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 for assisting 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 are present in Site soils, and, if possible, confirm a source of chlorinated solvents. Soil gas sampling 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® 5400 sampling device to collect groundwater, soil, and soil gas samples to identify potential chlorinated solvents. The Geoprobe® pushed and/or hammered rods and probe tips into the subsurface for sample collection. A maximum of five Geoprobe® borings were completed per day, including installation of 2 microwells. A total of 14 borings were

completed during this investigation, including 3 soil gas borings and five microwells. A total of 16 groundwater samples, 5 soil samples and 3 soil gas samples were collected.

MACTEC worked closely with the NYSDEC, the Castle Cleaners owner, neighboring property owners, and utility companies while obtaining access to these exploration locations. Boring locations are shown on Figure 3.1. These locations were chosen to determine groundwater conditions upgradient and downgradient of, as well as adjacent to, the Site building.

Soil Sampling. Soil samples were collected using a 4-foot long 2 inch diameter core sampler with an acrylic liner 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 is removed from the sample collection tube. Two soil borings were selected for continuous soil sampling to 16 feet bgs, to better characterize Site soils. Samples were described using the Unified Soil Classification System. Sample descriptions and classifications, VOC headspace readings, and boring observations were recorded on the Field Data Record (Appendix B). Based on the PID readings and physical evidence such as color or odor, five unsaturated soil samples were submitted to the laboratory for VOC analysis. Samples which exhibited the highest PID readings and physical evidence of contamination were selected for analysis. Soil samples were shipped to Chemtech 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 one-inch diameter stainless steel wire wound screen exposed to the aquifer, after being pushed to the desired depth interval. A peristaltic pump was used for the collection of discrete groundwater samples. A minimum of one tubing volume of water was purged and one set of parameters, including temperature, conductivity, pH, and turbidity, was collected prior to sampling. VOC samples were collected at a purge rate of 100 milliliters per minute, to minimize any 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). Each boring was completed to at least 10 feet into the water table, which was encountered between 8 and 10 feet bgs.

Due to the soil formation, the actual number of samples per boring and sample collection depths varied. Only one groundwater sample was collected from five borings (GW-1, GW-2, GW-4, GW-5 and GW-11). Two groundwater samples were collected at varying depths at all other boring locations. 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. Off-site laboratory analysis included Category B deliverables.

Microwell Installation. To determine groundwater flow direction at the Site, five of the borings (GW-1, GW-2, GW-4, GW-8 and GW-11) were fitted with one-inch diameter microwells (Figure 3.1). Microwell GW-1 was installed in the grass one foot west of the parking lot behind Castle Cleaners. The second microwell, GW-2, was installed up gradient of the Site in the City right of way just north of West Church Street. The third microwell, GW-4, was installed due south of the Site in the parking area behind Castle Cleaners. The fourth microwell, GW-8, was completed south of the Site, in the right of way (ROW) of Hoffman Street and West Gray Street. The last microwell installed, GW-11, is down gradient of the Site, in the ROW of Hoffman Street.

Groundwater was encountered between 8 and 10 feet bgs. Microwells were installed after soil and groundwater samples had been collected from the boring. Two groundwater samples were collected from microwells GW-1 and GW-2 due to poor flow in the associated borings. Microwells were constructed using one-inch inside diameter schedule 40 PVC, with 10 foot lengths of 0.01-inch machine slotted well screens. The microwells were installed as piezometers, primarily for water level measurements. The well screens were set with approximately 2 feet of screen above the water table to determine water table elevations and create a potentiometric map. The wells were constructed with a #2 sand pack to 2 feet above the screen, a minimum of three feet of bentonite seal placed above the sand pack and a bentonite grout backfill to the ground surface. The wells were fit with a 1.5-inch PVC cap and a four inch flush mount road box. The PVC caps placed on the wells contained a slit on the side, to allow for their easy removal. One of the microwells was placed in a blacktop parking lot. All wells were developed for a minimum of twenty minutes using a peristaltic pump to clean the screen and show that the wells were conductive with groundwater. Well construction diagrams are included in Appendix B.

Soil Gas Sampling. Based on proximity to nearby residences and/or businesses, and discussions with the NYSDEC, three soil gas samples were collected (GV-1, GV-2, GV-3) and used to

evaluate the potential vapor migration of contaminants from the groundwater (Figure 3.1). Soil gas samples were collected using a Geoprobe® 5400 sampling device.

The Geoprobe® rods were pushed to 6 feet bgs, anticipated to be below the rain infiltration line, but above the water table fringe zone. Soil gas was collected just above the water table to give an indication of the possible vapor migration from potentially contaminated groundwater.

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 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 SURFACE WATER SAMPLING

One surface water sample was collected on January 20, 2006 from an open sump pump hole in the basement of Wine and Spirits Liquor; a store located at 201 Hoffman Street. The hole was approximately 2 feet square and 2 feet deep. The depth of water in the hole was 1.0 feet deep. The sample was collected from 0.5 feet by hand dipping the preserved bottle into the water wearing a nitrile glove (Appendix B). The surface water sample was shipped to Chemtech for analyses of TCL VOCs using USEPA OLM04.2 Methods as described in the NYSDEC ASP of June 2000.

3.5 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 Project Manager (PM) and the property owner, no property access was obtained, and therefore no sub-slab soil vapor sample was collected.

3.6 WATER LEVEL SURVEY

Water levels were measurements were conducted February 9, 2006 and February 17, 2006. The first round consisted of measuring water levels at the five new microwells. The second round consisted of recording the water levels at the five new microwells, four existing monitoring wells owned by the Mobil Gas Station, and the Windsor Avenue pump station stick-up well. Well caps were opened and the wells were allowed to equilibrate to atmospheric pressure. The depths of the wells as well as the depth to water were measured using a conductivity probe from the top of well risers. Groundwater table elevations were calculated from the well riser elevations (subsection 3.7). Well information and groundwater measurements are presented in Table 3.1.

3.7 SITE SURVEY

After completion of field sampling activities LU Engineers surveyed the Site, its surrounding area and microwell locations. A base map of the Site was created indicating locations of microwells, monitoring wells and all other media sampling locations. Horizontal locations were tied to the New York State Plane Coordinate System using North American Datum (NAD) of 1983. The Site plan provided horizontal locations of all relevant Site features, which included surrounding homes and businesses at a scale of 1 inch to 50 feet. Relevant features included, but are not limited to all structures, buildings, roads, fences, new monitoring wells, marked underground utilities, fire plugs, and power poles.

Vertical elevations of the existing wells and five 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 are accurate to 0.1 feet. The base map was used to accurately locate all Geoprobe® sample points, microwells, and all other media sampling locations. Temporary sample points were

located using a Trimble global positioning system. Sample points are included on Figure 3.1, 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. There are no exterior soil gas standards or guidance values, but if detected concentrations exceeded the NYSDOH sub-slab soil gas guidance values, these concentrations were noted as potential concern. Reported concentrations of individual analytes indicating contravention of standards or guidelines are summarized in the following sections, and noted on Tables 4.1, 4.2, and 4.3.

A Data Usability Summary Report (DUSR) 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. TICS were not evaluated as part of the DUSR.

Based on laboratory or data usability review, some of the data was qualified with a J, B, D and/or an E. Compounds were qualified J if the concentration listed was an estimated value, which was less than the specified minimum reporting limit but greater than 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 found 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.

Compounds qualified E indicate that the compound result exceeded the calibration range of the instrument. Results should be considered to be an estimated value.

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 Memoranda (TAGM) 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. There are no current guidance values for exterior soil gas samples. If concentrations detected were above the NYSDOH guideline for sub-slab soil gas (NYSDOH, 2005), these concentrations were noted as potential 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. A trace concentrations of 2-butanone (6.7 J micrograms per kilogram [µg/kg]) was detected at sample location GS-1 and trace concentrations of m/p-xylene (<1.3 J µg/kg) were detected at sample locations GS-2 and GS-5.

4.1.2 Groundwater Sample Results

A summary of target VOCs detected in groundwater samples collected is presented in Table 4.2 and maximum detections of PCE and TCE per boring are presented on Figure 4.1.

Chlorinated Solvent Detections.

PCE was detected at ten of the sixteen groundwater sample locations at concentrations ranging from 9.1 J µg/L (GW-9) to 1600 JD µg/L (GW-6). Detected concentrations of PCE exceeded the NYS Class GA groundwater standard for PCE of 5 µg/L (see Table 4.2).

Cis-1,2-Dichloroethene (cis-1,2-DCE) was detected at nine of the sixteen sample locations at concentrations ranging from 3.1 J µg/L (GW-3) to 6200 JD µg/L (GW-6). Concentrations of cis-1,2-DCE exceeded the NYS Class GA groundwater standard for cis-1,2-DCE of 5 µg/L (see Table 4.2) at eight of the sixteen sample locations.

Trans-1,2-dichloroethene (trans-1,2-DCE) was detected at four of the sixteen sample locations at detections ranging from 0.48 J µg/L (GW-8) to 18 µg/L (GW-6). Concentrations of trans-1,2-DCE exceeded the NYS Class GA groundwater standard for trans-1,2-DCE of 5 µg/L at two of the sixteen sample locations (see Table 4.2).

TCE was detected at nine of the sixteen sample locations at concentrations ranging from 1.3 J µg/L (PS-1) to 900 JD µg/L (GW-6). Concentrations of TCE exceeded the NYS Class GA groundwater standard for TCE of 5 µg/L at eight of the sixteen sample locations (see Table 4.2).

Vinyl chloride was detected at three of the sixteen sample locations at concentrations ranging from 2 J µg/L (GW-10) to 460 JD µg/L (GW-6). Concentrations of vinyl chloride exceeded the NYS Class GA groundwater standard for vinyl chloride of 2 µg/L at two of the sixteen sample locations (see Table 4.2).

Trace concentrations (less than NYS Standards/guidance values) of 1,1-dichloroethene (1,1-DCE) was detected in a groundwater sample collected from location GW-6.

It should be noted that concentrations of PCE, TCE, and cis-1,2-DCE in samples collected immediately down-gradient of the Site (location GW-6) were more than 100 times greater at 10 feet bgs than at 18 feet bgs. In addition, concentrations of PCE, TCE, and cis-1,2-DCE in samples collected approximately 140 feet further downgradient (GW-10) were more than 10 times greater at 22 feet bgs than at 34 feet bgs.

Fuel Related Compounds.

Benzene was detected at four of the sixteen sample locations at concentrations ranging from 0.73 J µg/L (GW-10) to 130 µg/L (GW-6). Concentrations of benzene exceeded the NYS Class GA groundwater standard for benzene of 1 µg/L at two of the sixteen sample locations (see Table 4.2).

Methyl Tertbutyl Ether (MTBE) was detected at seven of the sixteen sample locations at concentrations ranging from 0.53 J µg/L (GW-11) to 730 JD µg/L (GW-7). Concentrations of MTBE exceeded the NYS Class GA groundwater guidance value for MTBE of 10 µg/L at four of the sixteen sample locations (see Table 4.2).

Trace concentrations (less than NYS Standards/guidance values) of 1,2-dichlorobenzene, 1,4-dichlorobenzene, cyclohexane, ethyl benzene, isopropylbenzene, toluene, and m/p-xylene were detected in a groundwater sample collected from location GW-6. At sample location MW-5 trace concentrations (less than NYS Standards/guidance values) of cyclohexane, ethyl benzene, isopropylbenzene, m/p-xylene, and acetophenone were detected.

The semi-volatile compound phenol (2.7 J µg/L) was detected in a groundwater sample from location MW-5. The result for phenol exceeds the NYS Class GA groundwater standard for total phenols of 1 µg/L (see Table 4.2).

4.1.3 Surface Water Sample Results

Target VOCs were not detected in the surface water sample collected from the basement sump, and therefore no table of detected compounds was created. For a complete list of surface water analyses method target VOCs, you can see the non-detect results presented in Appendix D.

4.1.4 Soil Gas Sample Results

A summary of target VOCs detected in soil gas samples is presented in Table 4.3.

Although no exterior soil gas criteria have been promulgated, based on the NYSDOH soil vapor intrusion guidance document, the primary contaminants of concern for vapor migration from sub-slab soil gas to indoor air are TCE, PCE and 1,1,1-Trichloroethane (1,1,1-TCA). PCE was detected at all three of the sampling locations at detections ranging from 27.4 micrograms per cubic meter [µg/m^3] (GV-2) to 2321 µg/m^3 (GV-1). Although there are no exterior soil gas guidance values, concentrations of PCE detected in one of the three sample locations (GV-1), located approximately 60 feet west of the Site building, exceeded the NYSDOH guideline for sub-slab soil gas recommending mitigation without need to consider indoor air concentrations (1000 µg/m^3)(NYSDOH, 2005).

1,1,1-TCA was not detected in the soil gas samples collected. TCE was detected in the soil gas sample from GV-1 at a concentration of 21.9 µg/M^3. Additional compounds detected in exterior soil gas samples are included in Table 4.3.

4.2 POTENTIOMETRIC SURFACE MAP

The microwell survey and depth to water measurements were used to create a potentiometric surface water map (Figure 4-2). Microwell survey and water elevation data are presented in Table 3-1. Depth to water across the survey area varied from approximately 8 feet bgs to 10 feet bgs. Groundwater elevations varied from 850.42 feet above msl, to 844.72 feet above msl. The groundwater table gradient appears to dip slightly to the south, varying by 5.7 feet in elevation over 1200 feet of distance. Based on measured water table elevations, groundwater is interpreted to flow generally to the south 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 mixed residential/commercial neighborhood that is serviced by public water. Low concentrations of PCE have been detected in the City of Elmira's public supply well #42, located approximately 1600 feet south of the Site on Foster Island. Groundwater measurements collected at the Site indicate that groundwater flow is generally to the south towards the river and this well.
2) PCE, a common dry cleaning solvent and a NYS listed hazardous waste, was detected in groundwater samples collected from 10 of the 16 sample locations; concentrations detected exceeded NYS groundwater standard of 5 µg/L for PCE at each of the 10 locations where detections occurred. PCE was not detected in groundwater samples collected from upgradient sample locations GW-1 and GW-2, or in cross gradient sample locations MW-5 and MW-13. PCE was detected at the highest concentrations in groundwater samples collected from locations GW-3 (1400 DJ µg/L) and GW-6 (1600 JD µg/L), located adjacent to the rear entrance of the Site building and immediately downgradient of the Site building, respectively. Concentrations and locations of PCE detected in groundwater indicate that PCE was released at the Site (e.g., no PCE detections in upgradient samples) and analytical results indicate that contamination is migrating off-site in groundwater at concentrations above the NYS standard for PCE and for several PCE degradation products.
3) The detection of PCE breakdown products in groundwater samples collected down gradient of the Site, including TCE (maximum concentration of 900 JD µg/L), cis-1,2-DCE (maximum concentration of 6200 JD µg/L), trans-1,2-DCE (maximum concentration of 18 µg/L), 1,1- DCE (maximum concentration of 4.2 J µg/L) and vinyl chloride (maximum concentration of 460 JD µg/L), as well as a decrease in PCE concentrations as one moves further from the Site, indicate that successive dechlorination, likely due to biodegradation, of the solvents is occurring. Concentrations of chlorinated solvents are also likely diminishing downgradient of the Site due to dilution and diffusion within the groundwater column. Each of these breakdown products, with the exception of 1,1-DCE, exceeded NYS groundwater standards at least one down gradient location.

4) Although only limited sampling data is available for vertical profiling of groundwater, available data (based on sample results from GW-6 and GW-10) suggest lower concentrations of chlorinated solvents at depth.
5) Fuel related compounds, presumably related to the Mobil gas station plume, were also detected at concentrations above applicable NYS groundwater standards in samples collected from GW-6, GW-7, GW-10, MW-5, and MW-13. These included: Benzene (maximum concentration of 130 µg/L); MTBE (maximum concentration of 730 JD µg/L; and phenol (maximum concentration of 2.7 J µg/L). Other fuel related compounds were detected at concentrations below the NYS standards in samples collected from GW-1, GW-4, GW-6, GW-10, GW-11, and MW-5.
6) Based on interpreted groundwater flow direction and concentrations of PCE detected in groundwater, the Site appears to be the most likely the source of the PCE detected in the Elmira City supply well #42.
7) Although no guidance values for exterior soil gas concentrations have been promulgated, PCE was detected in the exterior soil gas sample from GV-1 at a concentration (2321 µg/m^3) above the NYSDOH sub-slab soil gas concentration recommended for mitigation (1000 µg/m^3). This indicates that human exposure to PCE vapors in exceedence of the indoor air guidance value of 100 µg/m^3 is of potential concern. Location GV-1 is approximately 60 feet west of the Site building, adjacent to a residential building (Figure 3.1). Concentrations of PCE detected in samples from the other two soil gas borings (one of which [GV-2] was adjacent to the Site building) were less than 35 µg/m^3. Trace concentrations of TCE (less than 21.9 µg/M^3) were detected in the soil gas sample collected from GV-1.
8) No chlorinated solvents were detected in the five soil samples collected, but only one of the sample locations was adjacent to the Site building. The next nearest sample was collected approximately 60 feet east of the Site (location GW-1).

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

1) No soil samples were collected from the Site property and potential source area soil concentrations, either by the back door of the dry cleaner or below the dry cleaning facility

itself, are not known. In addition, no formal investigation of the facility was conducted and it is not known if other potential source areas exist (such as current or historic sumps/floor drains).

2) Although samples were collected adjacent to (GW-3), and immediately downgradient of (GW-4 and GW-6) the Site, groundwater samples below the Site building were not collected, and therefore suspected source area groundwater concentrations are not known.
3) Soil gas samples were not collected below the Site building, or from below neighboring buildings and, although the potential exists based on soil gas results, it is not known if soil vapor concentrations exist below the Site or area buildings at concentrations in exceedence of NYSDOH guidance levels.
4) The extent of the chlorinated solvent groundwater plume above the NYS standards has not been fully defined. There is a gap of about 720 feet between GW-11, the most southerly well installed, to PS-1, a pre-existing well, and about 1275 feet between GW-11 and Elmira Well # 42. Note that pumping on the Elmira wells may induce the solvent plume to migrate towards the wells.

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TABLES

Table 3.1: Monitoring Well and Microwell Details

Location	Northing	Easting	Casing Elevation	Casing Type	Riser Elevation	DTW 2/16/2006	Water Elevation 2/16/06
GW-01	759828.24	755070.18	859.41	FLUSH	859.26	9.99	849.27
GW-02	759917.25	755130.37	859.14	FLUSH	858.91	8.56	850.35
GW-04	759729.84	755167.58	858.64	FLUSH	858.51	9.16	849.35
GW-08	759587.53	755346.74	858.26	FLUSH	858.06	10.25	847.81
GW-11	759489.97	755383.13	858.10	FLUSH	857.90	10.64	847.26
MW-04	759877.06	755263.25	859.25	FLUSH	859.05	NM	NM
MW-05	759819.46	755266.05	859.10	FLUSH	858.76	8.34	850.42
MW-06	759810.27	755294.59	859.68	FLUSH	859.36	NM	NM
MW-07	759796.86	755347.22	860.47	FLUSH	860.16	NM	NM
MW-08	759804.61	755378.01	860.69	FLUSH	860.44	NM	NM
MW-09	759895.99	755342.54	860.25	FLUSH	859.97	NM	NM
MW-10	759879.10	755324.20	860.10	FLUSH	859.87	NM	NM
MW-11	759909.14	755310.00	859.81	FLUSH	859.33	NM	NM
MW-12	759905.41	755263.80	859.40	FLUSH	859.10	NM	NM
MW-13	759802.14	755279.01	858.94	FLUSH	858.71	8.49	850.22
MW-14	759676.69	755455.44	858.67	FLUSH	858.19	10.62	847.57
MW-15	759650.00	755386.76	857.94	FLUSH	857.74	NM	NM
PS-1	758789.55	755593.40	858.94	STAND UP	858.82	14.10	844.72

Notes:
Well's surveyed by Lu Engineers. Horizontal locations are tied to the New York State Plane Coordinate System using NAD of 1983. Vertical elevations were tied to msl, NAVD of 1988.
DTW = Depth to Water from top or riser. Water Levels measured by MACTEC personnel.
NM = Not Measured.

Created by: CRS 5/11/06
Checked by: KLT 7/20/06

Table 4.1: Soil Sample VOC Results

Location ID		GS-1 (GW-1)		GS-2 (GW-2)		GS-3 (GW-3)		GS-4 (GW-4)		GS-4 (GW-4)		GS-5 (GW-5)	
Field Sample ID		CAGS00100301XX		CAGS00200901XX		CAGS00300801XX		CAGS00400701XD		CAGS00400701XX		CAGS00500801XX	
Sample Depth (ft bgs)		3-5		9-11		8-10		7-9		7-9		8-10	
Field Sample Date		1/17/2006		1/17/2006		1/17/2006		1/17/2006		1/17/2006		1/18/2006	
Tech Task Name		Winter 2006		Winter 2006		Winter 2006		Winter 2006		Winter 2006		Winter 2006	
QC Code		FS		FS		FS		FD		FS		FS	
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
2-Butanone	300	6.7	J	61	U	56	U	56	UJ	57	UJ	57	UJ
Xylene, m/p	1200	12	UJ	1.3	J	11	U	11	UJ	11	UJ	1.1	J

Notes:

Results reported in micrograms per kilogram (µg/kg)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

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

J = Estimated value

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

Created By: ASZ 5/24/06
Checked By: CRS 7/18/06

Table 4.2: Groundwater Sample VOC Results

	Location ID	GW-1		GW-2		GW-3		GW-3		GW-4	
	Field Sample ID	CAGW00101601XA		CAGW00201701XX		CAGW00301001XA		CAGW00301401XX		CAGW00401601XX	
	Sample Depth (ft bgs)	16		17		10		14		16	
	Field Sample Date	1/17/2006		1/17/2006		1/17/2006		1/17/2006		1/17/2006	
	Tech Task Name	Winter 2006		Winter 2006		Winter 2006		Winter 2006		Winter 2006	
	QC Code	FS		FS		FS		FS		FS	
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5*	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
Benzene	1*	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	5*	10	U	10	U	3.1	J	**19**		**150**	
Cyclohexane	NA	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	5*	0.59	J	10	U	10	U	10	U	10	U
Isopropylbenzene	5*	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	NA	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	10	U	10	U	10	U	10	U	3.1	J
o-Xylene	5*	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	10	U	10	U	**190**		**1400**	**DJ**	**650**	**DJ**
Toluene	5*	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	5*	10	U	10	U	10	U	10	U	10	U
Trichloroethene	5*	10	U	10	U	4.4	J	**28**		**31**	
Vinyl chloride	2*	10	U	10	U	10	U	10	U	10	U
Xylene, m/p	5*	0.71	J	10	U	10	U	10	U	10	U

Notes:

Results in microgram per liter (µg/L)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

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

J = Estimated value

D = Result was 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).

* = New York State Standard

NA = Not Available

Results in **BOLD** exceed associated criteria

Created By: ASZ 5/24/06
Checked By:CRS 7/19/06

Table 4.2: Groundwater Sample VOC Results

	Location ID	GW-5		GW-6		GW-6		GW-6		GW-7	
	Field Sample ID	CAGW00501401XX		CAGW00601001XA		CAGW00601801XD		CAGW00601801XX		CAGW00701801XA	
	Sample Depth (ft bgs)	14		10		18		18		18	
	Field Sample Date	1/18/2006		1/19/2006		1/19/2006		1/19/2006		1/19/2006	
	Tech Task Name	Winter 2006		Winter 2006		Winter 2006		Winter 2006		Winter 2006	
	QC Code	FS		FS		FD		FS		FS	
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5*	10	U	4.2	J	10	U	10	U	10	U
1,2-Dichlorobenzene	3*	10	U	0.62	J	10	U	10	U	10	U
1,4-Dichlorobenzene	3*	10	U	0.58	J	10	U	10	U	10	U
Benzene	1*	10	U	13		**130**		**130**		10	U
Cis-1,2-Dichloroethene	5*	**110**		**6200**	**JD**	**8.1**	**J**	**6.9**	**J**	**6.4**	**J**
Cyclohexane	NA	10	U	4.6	J	10	U	10	U	10	U
Ethyl benzene	5*	10	U	0.79	J	10	U	10	U	10	U
Isopropylbenzene	5*	10	U	0.98	J	10	U	10	U	10	U
Methyl cyclohexane	NA	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	10	U	**53**		**88**		**96**		**100**	
o-Xylene	5*	10	U	0.44	J	10	U	10	U	10	U
Tetrachloroethene	5*	**42**	**J**	**1600**	**JD**	**13**	**J**	**12**	**J**	**21**	**J**
Toluene	5*	10	U	0.9	J	10	U	10	U	10	U
trans-1,2-Dichloroethene	5*	1.3	J	**18**		10	U	10	U	10	U
Trichloroethene	5*	**14**		**900**	**JD**	3	J	2.5	J	3.4	J
Vinyl chloride	2*	10	U	**460**	**JD**	10	U	10	U	10	U
Xylene, m/p	5*	10	U	0.58	J	10	U	10	U	10	U

Notes:

Results in microgram per liter (µg/L)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

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

J = Estimated value

D = Result was 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).

* = New York State Standard

NA = Not Available

Results in **BOLD** exceed associated criteria

Created By: ASZ 5/24/06
Checked By:CRS 7/19/06

Table 4.2: Groundwater Sample VOC Results

	Location ID	GW-7		GW-7		GW-8		GW-8		GW-9	
	Field Sample ID	CAGW00703001XD		CAGW00703001XX		CAGW00801001XA		CAGW00802001XX		CAGW00901401XX	
	Sample Depth (ft bgs)	30		30		10		20		14	
	Field Sample Date	1/19/2006		1/19/2006		1/18/2006		1/18/2006		1/18/2006	
	Tech Task Name	Winter 2006		Winter 2006		Winter 2006		Winter 2006		Winter 2006	
	QC Code	FD		FS		FS		FS		FS	
Parameter	**Criteria**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1-Dichloroethene	5*	10	U	10	U	10	U	10	UJ	10	U
1,2-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
Benzene	1*	10	U	10	U	10	U	10	UJ	10	U
Cis-1,2-Dichloroethene	5*	**6**	**J**	**8**	**J**	**120**	**JD**	**180**	**DJ**	10	U
Cyclohexane	NA	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	5*	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	5*	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	NA	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	**690**	**DJ**	**730**	**JD**	10	U	10	U	10	U
o-Xylene	5*	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	**11**	**J**	**11**	**J**	**190**	**JD**	**360**	**DJ**	10	UJ
Toluene	5*	10	U	10	U	10	U	10	UJ	10	U
trans-1,2-Dichloroethene	5*	10	U	10	U	0.48	J	0.73	J	10	U
Trichloroethene	5*	10	U	3.6	J	**88**	**J**	**91**	**J**	10	U
Vinyl chloride	2*	10	U	10	U	3	J	**2.9**	**J**	10	U
Xylene, m/p	5*	10	U	10	U	10	U	10	U	10	U

Notes:

Results in microgram per liter (µg/L)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

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

J = Estimated value

D = Result was 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).

* = New York State Standard

NA = Not Available

Results in **BOLD** exceed associated criteria

Created By: ASZ 5/24/06
Checked By:CRS 7/19/06

Table 4.2: Groundwater Sample VOC Results

	Location ID	GW-9		GW-10		GW-10		GW-11		MW-5	
	Field Sample ID	CAGW00901801XA		CAGW01002201XA		CAGW01003401XX		CAGW01101801XX		CAMW00501501XD	
	Sample Depth (ft bgs)	18		22		34		18		15	
	Field Sample Date	1/18/2006		1/19/2006		1/19/2006		1/18/2006		1/16/2006	
	Tech Task Name	Winter 2006		Winter 2006		Winter 2006		Winter 2006		Winter 2006	
	QC Code	FS		FS		FS		FS		FD	
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5*	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
Benzene	1*	10	U	0.73	J	10	U	10	U	**68**	**J**
Cis-1,2-Dichloroethene	5*	10	U	**180**	**JD**	**13**		**84**		10	U
Cyclohexane	NA	10	U	10	U	10	U	10	U	11	
Ethyl benzene	5*	10	U	10	U	10	U	10	U	1.7	J
Isopropylbenzene	5*	10	U	10	U	10	U	10	U	1.6	J
Methyl cyclohexane	NA	10	U	10	U	10	U	10	U	5.3	J
Methyl Tertbutyl Ether	10	10	U	**79**		1.6	J	0.53	J	**47**	
o-Xylene	5*	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	**9.1**	**J**	**1000**	**JD**	**33**	**J**	**93**	**J**	10	UJ
Toluene	5*	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	5*	10	U	**7**	**J**	10	U	10	U	10	U
Trichloroethene	5*	10	U	**110**		3.6	J	**23**		10	U
Vinyl chloride	2*	10	U	2	J	10	U	10	U	10	U
Xylene, m/p	5*	10	U	10	U	10	U	10	U	3.1	J

Notes:

Results in microgram per liter (µg/L)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

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

J = Estimated value

D = Result was 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).

* = New York State Standard

NA = Not Available

Results in **BOLD** exceed associated criteria

Created By: ASZ 5/24/06
Checked By:CRS 7/19/06

Table 4.2: Groundwater Sample VOC Results

	Location ID	MW-5		MW-13		MW-14		MW-15		PS-1	
	Field Sample ID	CAMW00501501XX		CAMW01301501XX		CAMW01401501XX		CAMW01501501XX		CAMW0PS01501XX	
	Sample Depth (ft bgs)	15		15		15		15		15	
	Field Sample Date	1/19/2006		1/16/2006		1/16/2006		1/18/2006		1/16/2006	
	Tech Task Name	Winter 2006		Winter 2006		Winter 2006		Winter 2006		Winter 2006	
	QC Code	FS		FS		FS		FS		FS	
Parameter	Criteria	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1,1-Dichloroethene	5*	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	3*	10	U	10	U	10	U	10	U	10	U
Benzene	1*	**61**	**J**	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	5*	10	U	10	U	10	U	10	U	**7.3**	**J**
Cyclohexane	NA	9.9	J	10	U	10	U	10	U	10	U
Ethyl benzene	5*	1.6	J	10	U	10	U	10	U	10	U
Isopropylbenzene	5*	1.3	J	10	U	10	U	10	U	10	U
Methyl cyclohexane	NA	4.8	J	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	**46**		**31**		10	U	10	U	10	U
o-Xylene	5*	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5*	10	UJ	10	UJ	10	UJ	10	UJ	**9.4**	**J**
Toluene	5*	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	5*	10	U	10	U	10	U	10	U	10	U
Trichloroethene	5*	10	U	10	U	10	U	10	U	1.3	J
Vinyl chloride	2*	10	U	10	U	10	U	10	U	10	U
Xylene, m/p	5*	2.7	J	10	U	10	U	10	U	10	U

Notes:

Results in microgram per liter (µg/L)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

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

J = Estimated value

D = Result was 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).

* = New York State Standard

NA = Not Available

Results in **BOLD** exceed associated criteria

Created By: ASZ 5/24/06
Checked By:CRS 7/19/06

Table 4.3: Groundwater Sample SVOC Results

	Location ID	MW-5	
	Field Sample ID	CAMW00501501XX	
	Sample Depth (ft bgs)	15	
	Field Sample Date	1/19/2006	
	Tech Task Name	Winter 2006	
	QC Code	FS	
Parameter	**Criteria**	**Result**	**Qualifier**
2-Methylphenol	NA	18	
Acetophenone	NA	1.2	J
Phenol	1*	**2.7**	**J**

Notes:

Results reported in micrograms per liter (µg/L)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

Qualifiers:

J = Estimated value

Criteria = Values from Technical and Operational Guidance Series (TOGS) 1.1.1,

"Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations" (NYSDEC, 1998).

* = New York State Standard

NA = Not Available

Results in **BOLD** exceed associated criteria

Created By: ASZ 5/24/06
Checked By: CRS 7/18/06

Table 4.4: Exterior Soil Vapor Results

Location ID	GV-01		GV-01		GV-02		GV-03	
Field Sample ID	CAGV00100601XD		CAGV00100601XX		CAGV00200601XX		CAGV00300601XX	
Sample Depth (ft bgs)	6-8		6-8		6-8		6-8	
Field Sample Date	1/19/2006		1/19/2006		1/20/2006		1/20/2006	
Tech Task Name	Winter 2006		Winter 2006		Winter 2006		Winter 2006	
QC Code	FD		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,2,4-Trimethylbenzene	6.28		7.85		5.5		8.05	
1,3,5-Trimethylbenzene	2.16		2.36		1.96	U	2.36	
2-Butanone	7.07		5.77		28.7		24	
2-Propanol	483	DJ	337	DJ	5224	EDJ	3276	EDJ
4-Ethyltoluene	5.89		7.07		4.32		5.5	
Acetone	118		94.1		378	D	323	D
Benzene	4.21		3.57		9.19		9.19	
Carbon disulfide	2.49	J	1.49	J	1.37		1.37	
Chloromethane	0.82	U	0.82	U	1.55		1.55	
Cis-1,2-Dichloroethene	3.02		3.17		1.59	U	1.59	U
Cyclohexane	2.55		2.01		2.15		3.22	
Dichlorodifluoromethane	1.98	U	2.18		2.77		3.37	
Ethyl acetate	15.4	J	7.34	J	1.44	U	15.1	
Ethyl benzene	41.4		56		33.5		36.9	
Heptane	5.07		4.91		5.24		6.38	
Hexane	10.4	J	7.32	J	10.7		14.4	
Isooctane	134	J	117	J	65.6	J	1.87	UJ
o-Xylene	11.4		15.4		10.6		12	
Propylene	44.6	J	21.8	J	32		30.8	
Tetrachloroethene	**2321**	**D**	**1720**	**D**	27.4		31.2	
Toluene	28.1		32.4		36.9		43.6	
Trichloroethene	21		21.9		1.07	U	1.07	U
Xylene, m/p	27.9	J	39.2	J	27.1		32.6	

Notes:

Results reported in micrograms per cubic meter (µg/m^3)

ft bgs = feet below ground surface

QC Code:

FS = Field Sample

FD = Field Duplicate

Qualifiers:

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

J = Estimated value

D = Result reported from a diluted analytical run

E = Result exceeds the upper calibration range of the analytical instrument

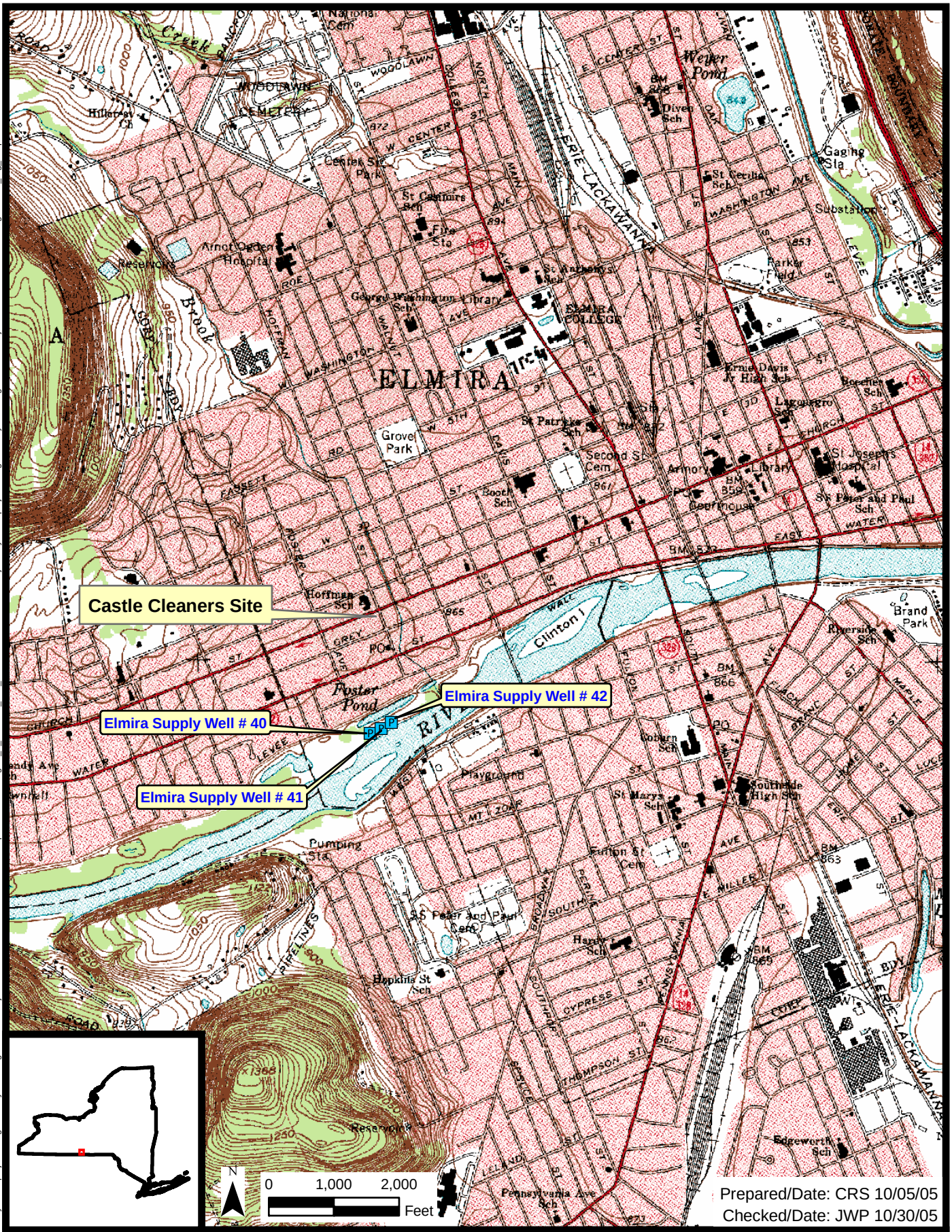
Trichloroethene results in **BOLD** exceed the sub-slab guidance criteria of 1000 µg/m3 established in "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (New York State Department of Health, 2005).

(no exterior soil gas guidance criteria have been promulgated).

Created By: ASZ 5/25/06

Checked By: CRS 7/19/06

FIGURES



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

NYSDEC
Castle Cleaners Site
Elmira, New York

MACTEC

Site Location
Project 3612052036
Figure 1.1

NYSDEC
Castle Cleaners Site
Elmira, New York

MACTEC

Site Map and Sampling Locations

Project 3612052036 Figure 3.1

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NYSDEC
Castle Cleaners Site
Elmira, New York

MACTEC

PCE and TCE Results in Groundwater

Project 3612-05-2036 Figure 4.1

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West Church Street

GW-2
850.35

MW-11

MW-9

MW-4

MW-10

Castle Cleaners Site

Mobile Gas Station

MW-5

MW-8

GW-1
849.27

850.42

MW-7

MW-13
850.22

Hoffman Street

GW-4
847.812

MW-14
847.57

MW-15

West Gray Street

GW-8
847.81

Interpreted Groundwater
Flow Direction

GW-11
847.26

PS-1
844.72

Legend

Well (groundwater elevation-if measured)

Castle Site Property Boundary

P Supply Wells

Notes: 2002 Aerial Photo from NYS GIS Clearinghouse
Water levels collected by MACTEC on 2/16/06.

N

0 75 150

Feet

Elmira Well #42

P

Foster Island

Elmira Well #41

P

Elmira Well #40

P

Prepared/Date: CRS 06/09/06
Checked/Date: JWP 07/14/06

NYSDEC
Castle Cleaners Site
Elmira, New York

MACTEC

Groundwater Elevations and Flow Direction

Project 3612-05-2036 Figure 4.2

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APPENDIX A

SITE PHOTOGRAPHS

CASTLE CLEANERS SITE PHOTOGRAPHS

East side of the Site building – main door to cleaners.

Intersection of Hoffman Street and West Gray Street, looking north. Site building on the west side of the street.

Geoprobe 5400 rig in the process of collecting a soil vapor sample (GV-3).

Back parking lot of Castle Cleaner looking southeast at site.

CASTLE CLEANERS SITE PHOTOGRAPHS

Back Alley of Castle Cleaners, looking north from West Gray Street.

Back parking lot of Castle Cleaners, looking north.

APPENDIX B

FIELD DATA FORMS

TEST BORING LOG

Project: 3612052036 - Region 8 - Castle	Boring/Well No.: GW(MW-) 1	Project No.: 3612052036	
Client: NYSDEC	Site: Castle Cleaners	Sheet No.: 1 of 1	
Logged By: BS-	Ground Elevation:	Start Date: 01/17/06	Finish Date: 01/17/06
Drilling Contractor: ADT	Driller's Name: Marty Bachner	Rig Type: Geo in Back of van - 5400	
Drilling Method: Geo Probe - Push	Protection Level: D	P.I.D. (eV): <1.0	Casing Size: 1 1/2"
Auger Size: N/A	Soil Drilled: 16'	Rock Drilled:	Total Depth: ~16.0'
Depth to Groundwater/Date: ~10'	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
0	S1 2.1/4.0	Soil				0-0.5 Brown frozen loam/soil					
1						0.5-1.0 Brown WG Damp	GW			<1.0	
2						1.0-2.0 Yellow Brown WG gravel w/ fines, damp dense	GC				
3						2.0 to 4.0 Brown clay w/ gravel, damp, dense/stiff well graded, Stratified * Sample @ 3 to 4' (MS/MSD)	GC				VOAs OLM Ht.2
4	S2 3.0/4.0					4-5 Brown silty fine sand w/ gravel damp med stiff, MP	SM			4.0	
5						5-5.5 Crush gravel/coarse sand.					
6						5.5-8.0 olive brown gravely Sand w/ some fines, wet @ ~8', dense	GP				
7						SP, fine gravel, angular					
8	S3 1.6/4.0					~8-10 Brown/orange Sand w/ gravel, mod. loose, SP, wet, trace fines,	SW			<1.0	
9						~10 to 12 Lt Brown gravely clay, Sat. MP, Stiff	GC				
10											
11											
12	SM					12'-16' Lt grey/Lt Brown gravely Clay, very soft Saturated wet. SP recovery ~3.0/4.0	GC			<1.0	

Boring ended @ 16.0' w/ Soil Sampler

Soil Sample: C4GS0010030IXX.

▽ TDS @ 16' bgs.

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TEST BORING LOG

Project: Region 8 Dry Cleaners	Boring/Well No.: MW/GW-2	Project No.: 36120520.06	
Client: NYSDEC	Site: Castle Cleaners	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation	Start Date: 01/17/06	Finish Date: 01/17/06
Drilling Contractor: AGT	Driller's Name: Marty Bachner	Rig Type: GeoProbe 5400	
Drilling Method: GeoProbe - Push	Protection Level: D	P.I.D. (eV)	Casing Size: 1 1/2"	Auger Size: ~4
Soil Drilled: 16'	Rock Drilled	Total Depth: 17'	Depth to Groundwater/Date: ~10'	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
0		Soil				0-0.5 Brown Frozen WG loam, grass	GM		<1.0		VOA
1	1.5 / 4.0					gravel to fines, SP, dense					
2						0.5-1.0 Same as above but not frozen.					
3						1.0-2.0 WG Brown silty sand w/ gravel, med-dense, dry, SP	SM				
4						2.0 to 4.0 yellow Brown dry gravel w/ clay, gravelly layer @ ~3.5'; SP, Dense/Stiff	GC				
5	2.0 / 4.0					4.0 to ~5.5' clay w/ trace gravel (gravel lense @ ~4.5') Stratified grey to orange, damp, MP, Stiff.	GC		<1.0		
6						~5.5 to 8' Olive/orange gravelly clay, trace coarse gravel damp, MP, M. Stiff,					
7											
8						8 to ~10' Olive/Lt Brown gravelly soil w/ some fines, WG Dense, damp, friable, SP	GW				
9											
10						10 to 12' Olive gravelly Sand w/ fines, dense, Sat., WG SP, Softer @ ~11.5',					
11	4.0						SC				
12						Some clay lenses @ ~12'					
						* Sample @ 9.5 to 10'					

12 to ~13.5 Brown sandy gravel, fine Sand to fine gravel, Soft, Sat., NP → SP

13.5 to 16' Lt grey/olive gravelly clay, soft, SP, Sat, Some lenses of clay. → GC.

Soil Sample : CAG5002-00901XX

17' BOB.

TEST BORING LOG

Project: Region 8 Dry Cleaners		Boring/Well No.: GW-3	Project No.: 361205 2036
Client: ANSDEC	Site: Castle Cleaners		Sheet No.: 1 of 1
Logged By: Brendan Shaw	Ground Elevation:	Start Date: 01/17/06	Finish Date: 01/17/06
Drilling Contractor: ADT	Driller's Name: Marty B.		Rig Type: Geo Probe 5400
Drilling Method: Geo probe-Push	Protection Level: D	P.I.D. (eV):	Casing Size: 1 1/2"	Auger Size: 1 1/2"
Soil Drilled: 12'	Rock Drilled:	Total Depth: 16'	Depth to Groundwater/Date: 01/17/06	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 3.0/4.0					0 to 0.5 Blacktop Asphalt.	N/A		41.0		
2						0.5 to 1.0 wG Lt Brown Silty Sand and gravel, SP, damp friable, dense	SM				
3						1.0 to 4.0 Lt Brown/olive Sandy/clay w/ some gravel, stiff, HP, moist,	GC				
4											
5	S2 2.1/4.0					4.0 to 4.5 Same as (1.0 to 4.0)					
6						4.5 to ~6 Lt Brown/Lt olive Sand clay gravel mixture, wG SP (in the clay lenses) dry,	GM				
7						~6 to 8 yellowish orange silty fine Sand w/ some gravely lenses damp/wet, SP, m Dense. * collected sample @ 1221 hrs	SM				
8											
9	S3 1.8/4.0					8 to 8.5' Same as 6 to 8					
10						8.5 to 12' gravely clay w/ Sand, Lt Brown, Silt, NP, Soft	GC				
11											
12											

Drilled down to 16' and pulled back to open screen; Sampling for water from 12' to 16' → collected sample @ 0141' (CAGW003601001XA)
Pulled screen to 8' to 12' and took Sample @ 10' (CAGW003601001XX).

Soil Boring Sample: CAGS003008001XX.

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TEST BORING LOG

Project: Region 8 Dry Cleaners	Boring/Well No.: GW-4/MW-4	Project No.: 3612052036	
Client: NYSDEC	Site: Castle Cleaners	Sheet No.: 1 of 1	
Logged By: Brandon A. Shaw	Ground Elevation	Start Date: 01/17/06	Finish Date: 01/17/06
Drilling Contractor: ADT	Driller's Name: Marty B	Rig Type: Geoprobe 5400	
Drilling Method: Geo Probe - Push	Protection Level: D	P.I.D. (eV): 21.0	Casing Size: 1 1/2" / Auger Size: 1 1/2"
Soil Drilled: 16'	Rock Drilled	Total Depth: 16'	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 1.7/4.0	Soil				0-0.5 Blacktop	N/A		1.0		VOA
2						0.5-~2.5 Brown silty/sandy little gravel, WG, dry friable, SP, V. dense. coarse sand	SM				
3						2.5-~3.0 ~~Gravel~~ loose, small clay lense, large gravel lense.	Fill				
4	S2 2.2/4.0					3.0 to 3.8 gravely clay, WG, v. stiff damp, NP, olive/Brown	GW				
5						3.8 to 4.0 Brown silty clay, HP, v. stiff damp, PG,	CL		1.0		
6						4.0 to 4.5 same as 3.8-4.0					
7						4.5 to ~6 coarse sand, black lense over an olive/brown sandy clay w/ gravel mixture, dense, damp SP	SC		1.0		
8	S3 0.9/4.0					~6 to 8 olive clay/gravel/ sand mix, wet, SP, m dense, WG Sampling 7' to 8', collecting Dup. here also.	GC/GM				
9						8 to ~9 coarse gravel	GP		1.0		
10						~9 to ~11 Brown gravely sand m dense, wet, NP, WG	SW				
11						~11 to 12 Lt Brown/olive gravel clay Sand mix, loose, Sat., SP, WG	SW				
12							GC/GM				
	S4					12 to 16 (composite sample because so soft/soupy); Yellowish Brown Sandy gravel mixture w/ some clay, soft, WG, Sat.					
16						BOBO 16' w/ soil sampler					

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9910003(e) L 33

TEST BORING LOG

Project: Region 8 Dry Cleaners	Boring/Well No.: GW-5	Project No.: 361205.2036	
Client: NYSDEC	Site: Castle Cleaners	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation:	Start Date: 01/18/06	Finish Date: 01/18/06
Drilling Contractor: AGT	Driller's Name: Marty B	Rig Type: GeoProbe 5400	
Drilling Method: GeoProbe-Push	Protection Level: D	P.I.D. (eV): <1.0	Casing Size: 1 1/2" / Auger Size: N/A
Soil Drilled: 12'	Rock Drilled:	Total Depth: 16'	Depth to Groundwater/Date: ~10' / 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
S1	2.1/4.0	Soil				0 to 0.5 Dark Brown / Loamy Soil wet, SP, M Dense.	FILL		<1.0		VOAs
						0.5-2.0 Brown Sandy gravel w/ some fines, MP, wet, WG	GP				
						2-3 Lt grey clay gravel w/ some Sand, MP, wet, M Dense/Stiff	GC				
						3-4 Grey Brown clay gravel mix wet, MP, M Stiff	GC				
S2	2.3/4.0					4-~5 Same as (3-4)					
						5-7 Stratified yellowish orange to olive to Lt Brown Clayey gravel mixture, w/ some sand, Dry, friable, SP, WG	GC		<1.0		
						7-8 Lt Brown/olive clayey gravel Sand mixt. wet, MP, WG					
						X Collected Sample @ 7-8 CAGS005SB01XX					
S3	1.8/4.0					8-~10 Lt Brown/olive gravely Clay, WG, M Stiff, SP/MP, Wet			<1.0		
						10 to ~11 Lt Brown Sandy gravel, WG, fine sand & fine gravel, NP, wet.					
						~11 to 12 Lt Brown Clay, Sand gravel mix, loose, Sat. SP, WG					

Bott @ 16'; pushed 12'-16' w/ water Sampler.

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TEST BORING LOG

Project: Region 8 Dry Cleaners	Boring/Well No.: GW-6	Project No.: 3602052036	
Client: NYSDEC	Site: Castle Cleaners	Sheet No.: 1 of	
Logged By: Brandon Snow	Ground Elevation:	Start Date: 01/19/06	Finish Date: 01/19/06
Drilling Contractor: ADT	Driller's Name: Marty Bachman	Rig Type: Geo Probe 5400	
Drilling Method: Geo Probe-Push	Protection Level: D	P.I.D. (eV): <1.0	Casing Size: 1 1/2" / Auger Size: 1 1/2"
Soil Drilled: 12'	Rock Drilled:	Total Depth: 20'	Depth to Groundwater/Date: ~10'

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 1.9/4.0	Soil				0-0.5 Black Top 0.5-1.5 Black Sandy gravel slight odor ~ tar/petrol, NP friable, loose, maybe a subbase. 1.5-3 Olive gravely sand and clay mix, moist, HP, m stiff, 3-4 Same as (0.5-3) but soft/ loose and more gravely/coarse sand	Fill GC		<1.0		VOA
2											
3											
4									4.0		
5	S2 2.0/4.0					4-5.5 Brown ~~sandy gravel~~ gravelly sand w/ some fines, damp, SP, loose,	SC				
6						5.5 - Crushed Stone, rock frag layer (0.2')	rock				
7						6-7 Olive Sand clay mix, coarse sand, NP, wet, Dense,	SC				
8	rock struck in shoe					7-7.5 Crushed pink rock, angular w/ sand / loose 7.5-8 Olive/Brown Sandy gravel w/ appr. fines, wet, loose, friable, NP/SP,	rock GC				
9	S3					8-~9.5 Same as above (7.5-8) 9.5-11 Same as 8-9.5 but Saturated, WG			<1.0		
10						11-12 Lt Brown fine Sand and gravel, Sat, Loose, PG, NP	GC				
11											
12							GP				

Pushed to 20'.

V. Soft from 14' to 16' and again 18' to 20'; we never used to drop screen; just weight of machine

0, b, 1, 2, 9, 3, 4, 5, 7, 8

TEST BORING LOG

Project: Region 8 Dry Cleaners	Boring/Well No.: GW-7	Project No.: 361205.2026	
Client: NYSDEC	Site: Castle Cleaners	Sheet No.: 1 of 1	
Logged By: Brandon Shaw	Ground Elevation	Start Date: 01/19/06	Finish Date: 01/19/06
Drilling Contractor: ADT	Driller's Name: Marty Bachner.	Rig Type: Geo Probe 5400	
Drilling Method: Geoprobe-Push	Protection Level: D	P.I.D. (eV): <1.0	Casing Size: 2"	Auger Size: 1 1/2"
Soil Drilled: 8'	Rock Drilled	Total Depth: 32'	Depth to Groundwater/Date: -10'	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	0.8 / 4.0	Soil				0.-0.5 Brown frozen loamy Sandy Soil; Fill,	Fill		10.1		VOA
2						0.5-0.8 Lt Brown silty fine Sand, PG, moist, SP, Dense, friable,	Cobbles				
3	- pushing Cobbles										
4											
5	0.1 / 4.0					Lt Brown Sandy gravel w/ Clay, wet, MP, w STiff WG	GC		<1.0		
6							Cobbles				
7											
8											

S.
S1

Pushing probe to 32' and taking GW Sample @ 30' - 28' and 12' to 16'.

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TEST BORING LOG

Project: Region 8 Dry Cleaners	Boring/Well No.: GW-9	Project No.: 3612052036	
Client: NYSDEC	Site: Castle Cleaners.	Sheet No.: 1 of 1	
Logged By: Brandon Stroud	Ground Elevation:	Start Date: 01/18/06	Finish Date: 01/18/06
Drilling Contractor: ADT	Driller's Name: Marty Bachner	Rig Type: Geo Probe 5400	
Drilling Method: Geo Probe - Push	Protection Level: D	P.I.D. (eV): 41.0	Casing Size: 1 1/2"	Auger Size: 1 1/2"
Soil Drilled: 12	Rock Drilled:	Total Depth: 16'	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	2.3/4.0	Soil				0-0.6 Lt Brown Loamy Sand w/ grass roots, wet, SP	Fill		<1.0		NoA
2						0.6-1.0 Black Sandy gravelly Sand, no odor, Dry, loose, NP, PC	GP				
3						1.0-3.0 olive gravelly clay clump in Stiff, MP, WG, friyable.	GC				
4						3.0-4.0 Lt Brown/Lt olive Sand gravel clay mix, damp, MP, WG, m Stiff	GC				
5	1.9/4.0					4 to ~5 Olive Brown Sand gravel clay mix, ~~moist~~, WG, MP,			4.0		
6						~5 to ~6 Same as above but wet					
7						~6 to 8 Lt Brown olive Sand/ gravel w/ some fines, Sat, SP, WG	GW				
8											
9	2.1/4.0					8 to 12 Lt Brown Sandy gravel w fines, loose, sat. WG,	GM		<0.1		
10											
11											
12											

S1

S2

S3

No Soil Sample taken here

BOB @ 16'; pushed 12' to 16' w/ water sampler.

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TEST BORING LOG

Project: Region 8 Dry Cleaners	Boring/Well No.: GW-010	Project No.: 36120S2036	
Client: NYSDEC	Site: Castle Cleaners	Sheet No.: 1 of 1	
Logged By: Brandon Snow	Ground Elevation	Start Date: 01/19/06	Finish Date: 01/19/06
Drilling Contractor: AIDT	Driller's Name: Marty Bachner	Rig Type: GeoProbe 5400	
Drilling Method: GeoProbe Push	Protection Level: D	P.I.D. (eV): <1.0	Casing Size: 4"/2"	Auger Size: 1 1/2"
Soil Drilled: 8'	Rock Drilled	Total Depth: 36'	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	2.1/4.0	Soil				0-1 Blacktop and Sublayer. 1.0-1.5 Olive Brown sandy/silty gravel, WG, damp. SP	Fill		<0.1		VOA
2						-1.5 to 2.5 White crushed stone and rock floor layer	SW				
3						2.5-3.5 olive(5) stratified well drained to orange clay w/ gravel, moist, stiff Some Sand, WG	Rock				
4						3.5-4 (Same as 2.5-3.5) but no orange olive Stratified w/ Brown layers, wet * Took Photo.	GC				
5	1.7/4.0					4-~5.5 olive well drained Sandy clay w/ gravel, WG, NP, wet,			<0.1		
6						~5.5 to 6' crushed rock, orange.	Rock				
7						6-8 Brown WG gravelly Sand w/ some fines, NP, loose	SW				
8											
9						didnot Sleeve 8-12' because of messy soil on sidewalk; Saturated soil.					
10	N/A.										
11											
12											

S1 S2 S3

BOB 36.0'; pushed water sampler 8' to 36'

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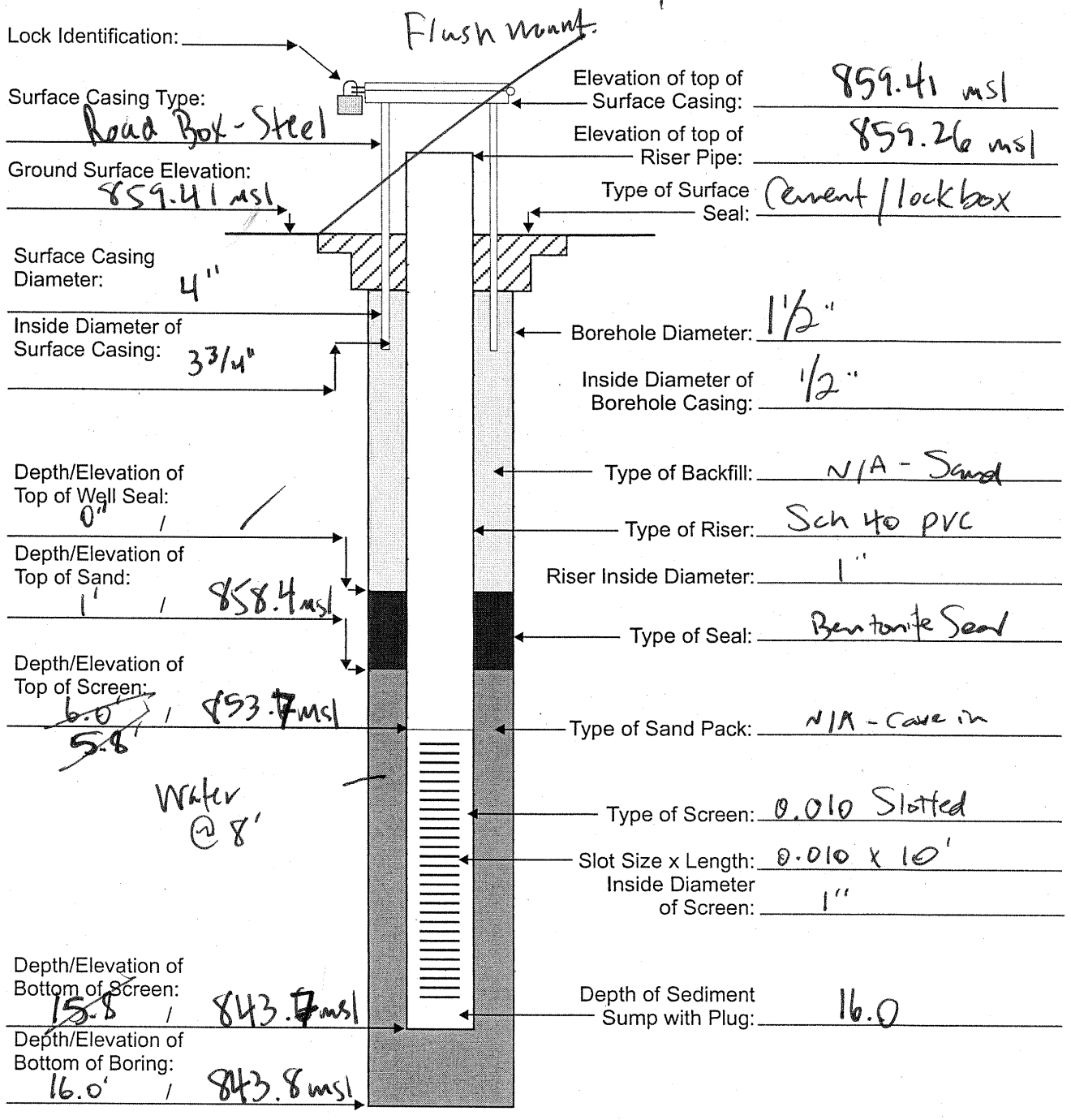
Monitoring Well Log (Stick Up Type)

Well No.: ~~MW-1~~ GW-1

Project No.: 36120520360102	Project Name: Region 8 - Castle Cleaners		
	Project Area: Castle Cleaners		
Contractor: ADT	Driller: Marty B.	Method: GeoProbe - Direct Push	
Logged By: Brendan Shaw		Date Started: 01/17/06	Completed: 01/17/06
Checked By:	Date:	GW Sample: CAGW00101601XT	



Not To Scale

FIGURE

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

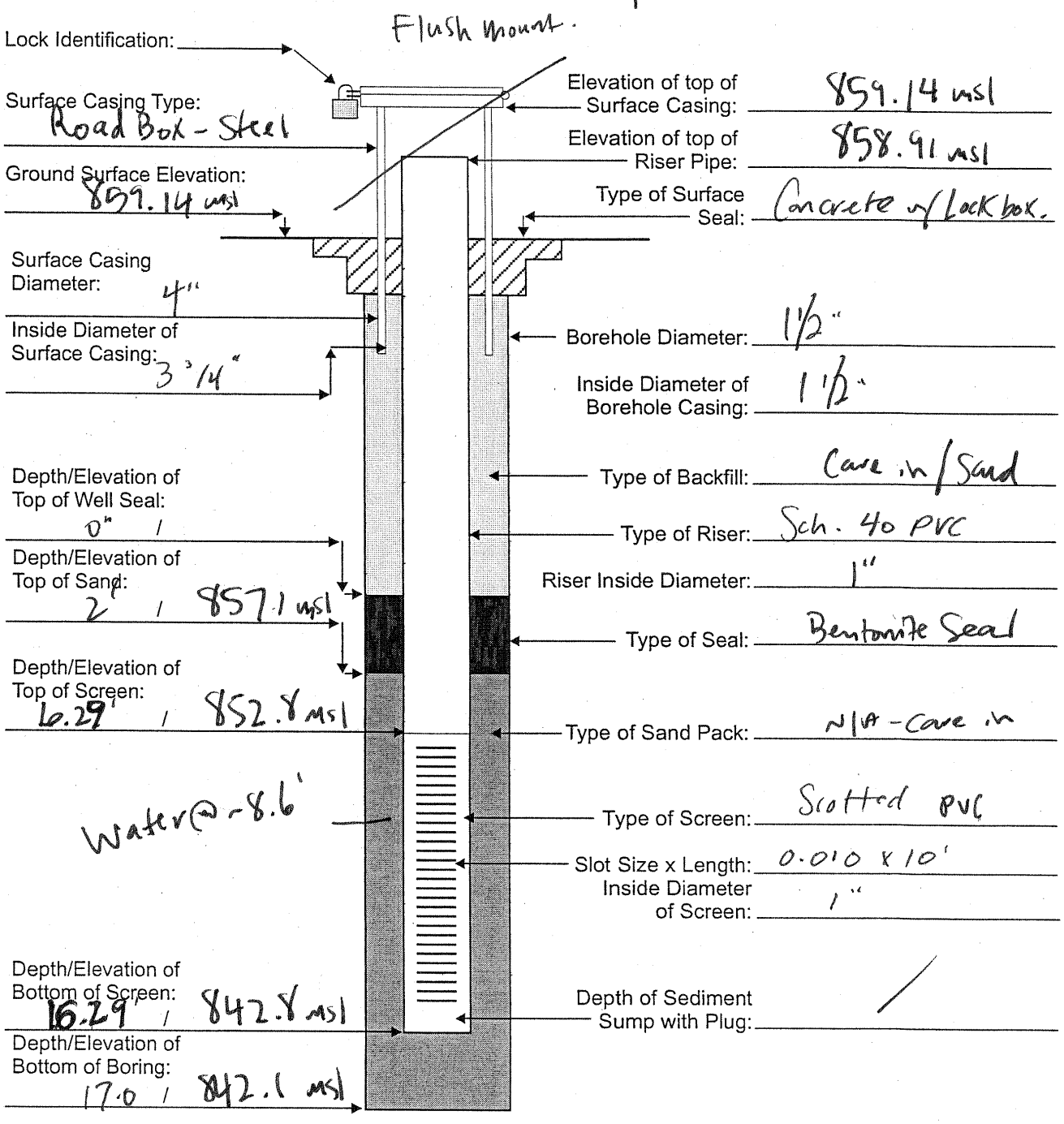
- Water Level 02/09/06 @ 15.28 (TOR): ~~8.87~~ 9.79'

Boib (TOR): ~~15.79~~ 15.79'

Monitoring Well Log (Stick Up Type)

Well No.: GW-2 / MW-2

Project No.: 36120520360/01.2	Project Name: Regim 8 Dry Cleaners		
	Project Area: Castle Cleaners		
Contractor: AFVSDEC	Driller: Marty B.	Method: Geo Probe - Direct Push	
Logged By: Brandon Swart		Date Started: 01/17/06	Completed: 01/17/06
Checked By:	Date:	GW Sample: CAGW002017061XX	



Not To Scale

FIGURE

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

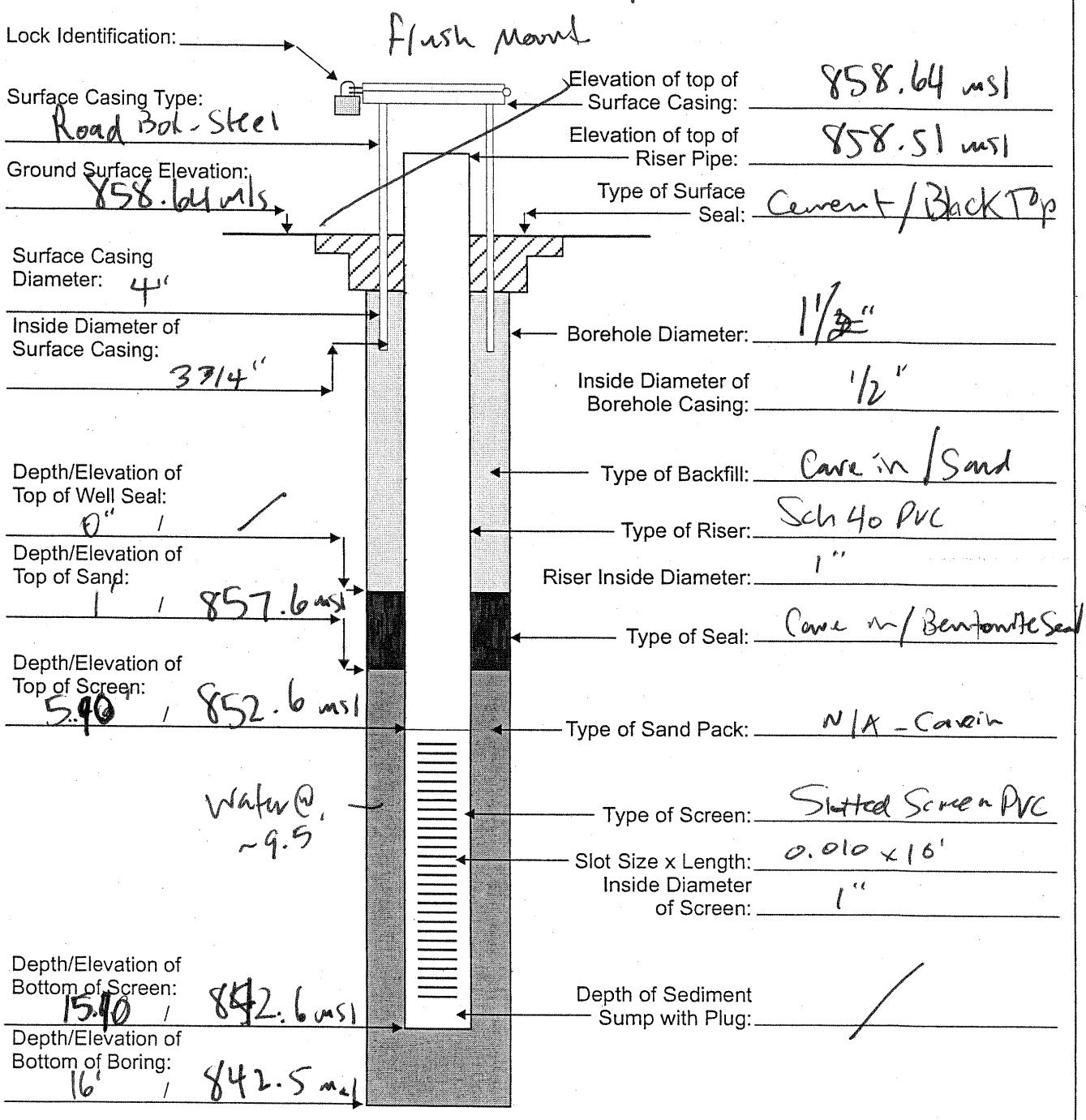
Water level 02/09/06 @ 1528 (TOR) ~~8.87'~~ 8.28'

BOB @ 15.1' ~~(TOR)~~ 16.29'

Monitoring Well Log (Stick Up Type)

Well No.: GW-4 / MW-4

Project No.: 361205 2036/01.2	Project Name: Region 8 Dry Cleaners		
	Project Area: Castle Cleaners		
Contractor: ADT	Driller: Monty B.	Method: Geoprobe - Direct Push	
Logged By: Brandon Snow		Date Started: 01/17/06	Completed: 01/17/06
Checked By:	Date:	GW Sample: CAGW004016 01XX @ 1615	



Not To Scale

FIGURE

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

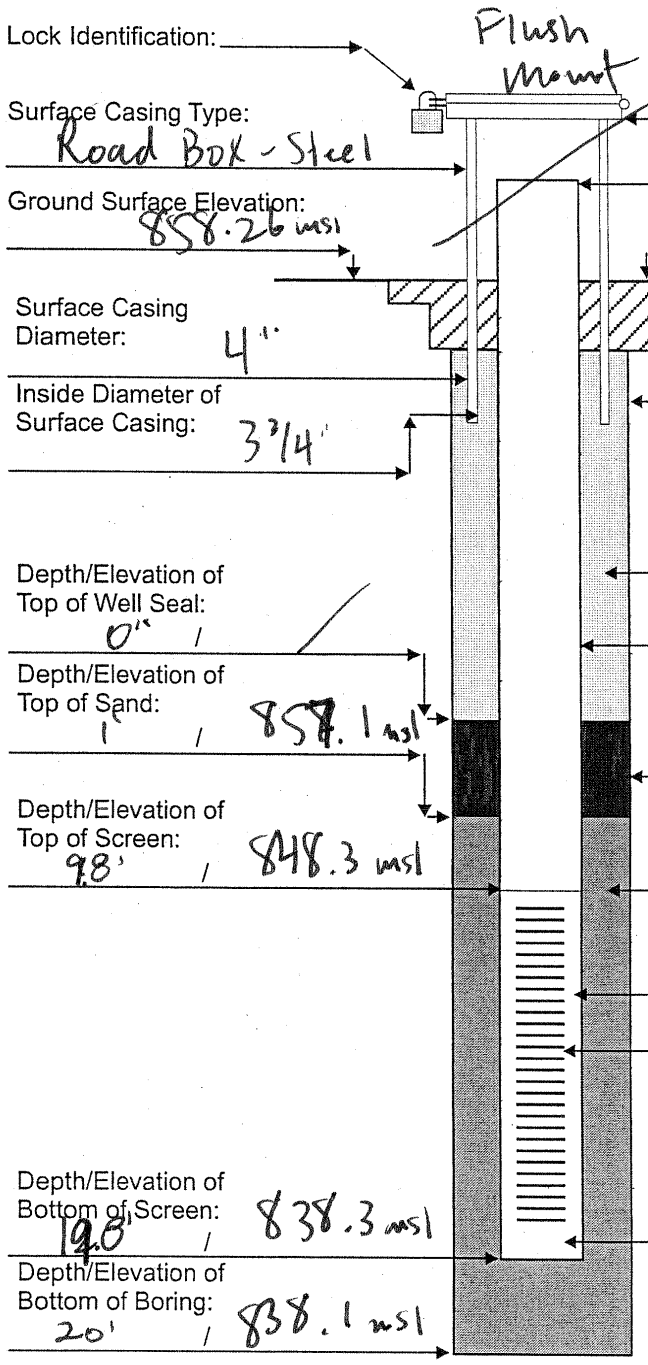
Water level 02/09/09 @ 1525 (TOR) : 8.87'

BOB 15.90 (TOR)

Monitoring Well Log (Stick Up Type)

Well No.: GW-8 / MW-8

Project No.: 361205>036/02	Project Name: Region 8 Dry Cleaners		
	Project Area: Castle Cleaners		
Contractor: ADT	Driller: Marty B.	Method: GeoProbe - Direct Push	
Logged By: Brandon Snarr		Date Started: 01/18/06	Completed: 01/18/06
Checked By:	Date:	2 water Samples @ 20' and 10'	



Lock Identification:

Surface Casing Type: Road Box - Steel

Ground Surface Elevation: 858.26 msl

Surface Casing Diameter: 4"

Inside Diameter of Surface Casing: 3 3/4"

Depth/Elevation of Top of Well Seal: 0' /

Depth/Elevation of Top of Sand: 1' / 857.1 msl

Depth/Elevation of Top of Screen: 9.8' / 848.3 msl

Depth/Elevation of Bottom of Screen: 19.8' / 838.3 msl

Depth/Elevation of Bottom of Boring: 20' / 838.1 msl

Elevation of top of Surface Casing: 858.26 msl

Elevation of top of Riser Pipe: 858.06 msl

Type of Surface Seal: Cement / Road Box.

Borehole Diameter: 1 1/2"

Inside Diameter of Borehole Casing: 1/2"

Type of Backfill: Cave in / Sand

Type of Riser: Sch 40 PVC

Riser Inside Diameter: 1"

Type of Seal: Bentonite Seal

Type of Sand Pack: N/A - Cave in

Type of Screen: Slotted PVC Screen

Slot Size x Length: 0.010" x 10'

Inside Diameter of Screen: 1"

Depth of Sediment Sump with Plug: /

Not To Scale

FIGURE

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

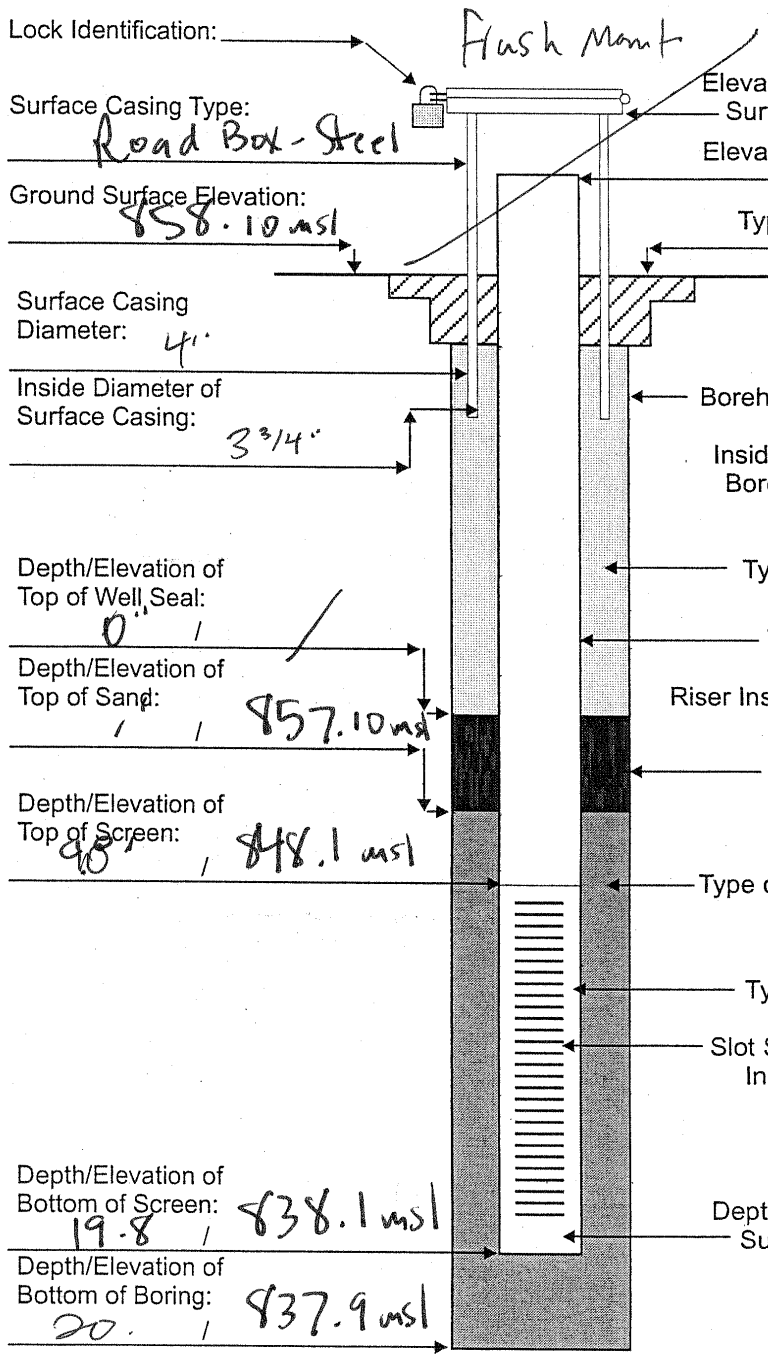
Water Level 02/07/06 @ 1548 (TOR): 9.78

BOB @ 19.74'

Monitoring Well Log (Stick Up Type)

Well No. GW-11 / MW-11

Project No.: 361205203606.2	Project Name: Region 8 Dry Cleaners		
	Project Area: Castle Cleaners		
Contractor: ADT	Driller: Marty B.	Method: Geo Probe. - Direct Push	
Logged By: Brandon Shaw		Date Started: 01/18/06	Completed: 01/18/06
Checked By:	Date:		



Elevation of top of Surface Casing: 858.10 msl

Elevation of top of Riser Pipe: 857.90 msl

Type of Surface Seal: Cement, Road Box

Borehole Diameter: 1 1/2"

Inside Diameter of Borehole Casing: 1/2"

Type of Backfill: Cave in / Sand

Type of Riser: Sch. 40 PVC

Riser Inside Diameter: 1"

Type of Seal: Bentonite Seal

Type of Sand Pack: N/A - cave in

Type of Screen: Slotted PVC

Slot Size x Length: 0.010 x 10'

Inside Diameter of Screen: 1"

Depth of Sediment Sump with Plug: /

Not To Scale

FIGURE

MACTEC Engineering and Consulting, Inc.

Graphics\Misc.\Forms

Water level 02/09/06 @ 1559 (TOC): 10.18'

BTB: 19.82' (TOR)

APPENDIX C

SITE SURVEY

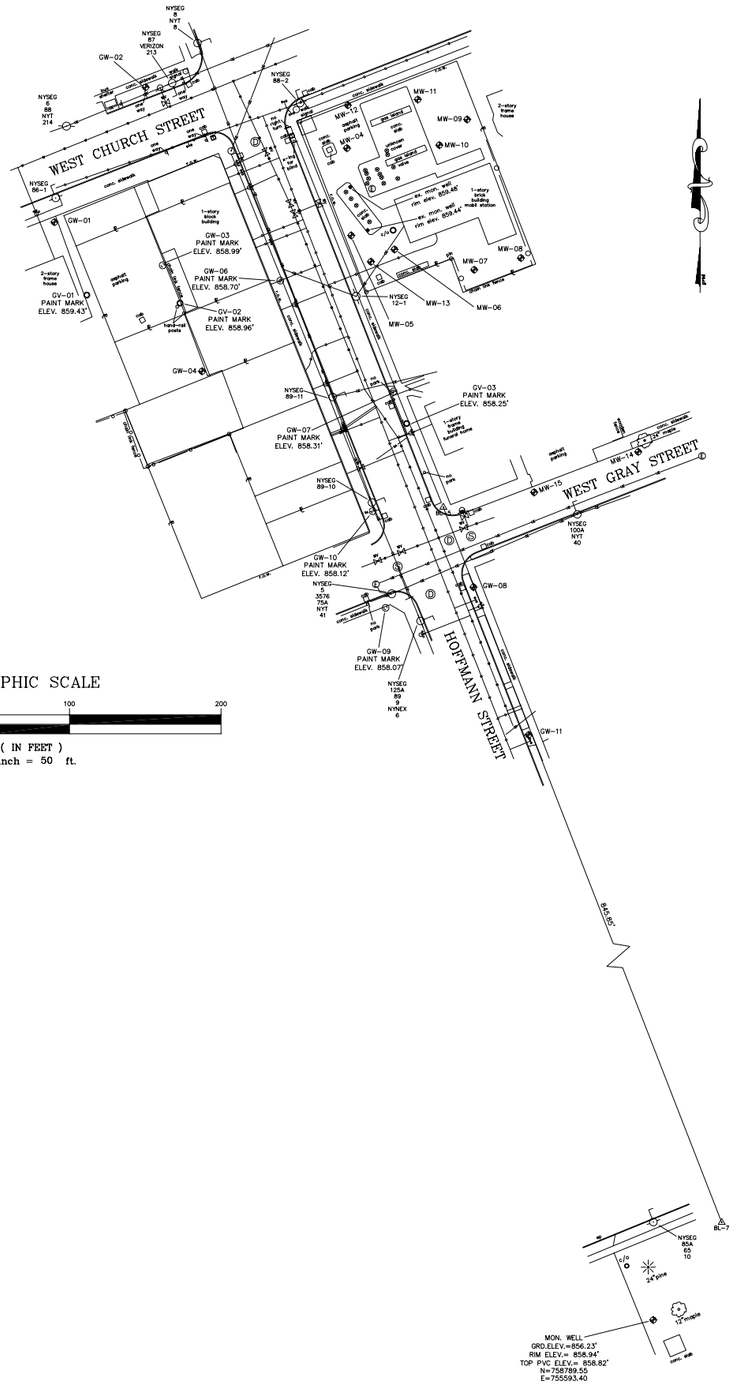
SURVEY NOTES:

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 POLE W/LIGHT
- UTP NYSEG — UTILITY POLE
- WV — WATER VALVE
- WSV — WATER SEVICE VALVE
- GV — GAS VALVE
- TANK AND FILL PORT COVERS
- ELECTRIC MANHOLE
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- 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.

WELL TABLE

MON. WELL GW-01
RIM ELEV.= 859.41'
TOP PVC ELEV.= 859.26'
N=759828.24
E=755070.18

MON. WELL GW-02
RIM ELEV.= 859.14'
TOP PVC ELEV.= 858.91'
N=759917.25
E=755130.37

MON. WELL MW-04
RIM ELEV.= 859.25'
TOP 4" PVC ELEV.= 859.05'
N=759877.06
E=755263.25

MON. WELL GW-04
RIM ELEV.= 858.64'
TOP PVC ELEV.= 858.51'
N=759729.84
E=755167.58

MON. WELL MW-05
RIM ELEV.= 859.10'
TOP 4" PVC ELEV.= 585.76'
N=759819.46
E=755266.05

MON. WELL MW-06
RIM ELEV.= 859.68'
TOP 1" PVC ELEV.= 859.36'
N=759810.27
E=755294.59

MON. WELL MW-07
RIM ELEV.= 860.47'
TOP 4" PVC ELEV.= 860.16'
N=759796.86
E=755347.22

MON. WELL GW-08
RIM ELEV.= 858.26'
TOP PVC ELEV.= 858.06'
N=759587.53
E=755346.74

MON. WELL MW-08
RIM ELEV.= 860.69'
TOP 4" PVC ELEV.= 860.44'
N=759804.61
E=755378.01

MON. WELL MW-09
RIM ELEV.= 860.25'
TOP 4" PVC ELEV.= 859.97'
N=759895.99
E=755342.54

MON. WELL MW-10
RIM ELEV.= 860.10'
TOP 4" PVC ELEV.= 859.87'
N=759879.10
E=755324.20

MON. WELL MW-11
RIM ELEV.= 859.81'
TOP 4" PVC ELEV.= 859.33'
N=759909.14
E=755310.00

MON. WELL GW-11
RIM ELEV.= 858.10'
TOP PVC ELEV.= 857.90'
N=759489.97
E=755383.13

MON. WELL MW-12
RIM ELEV.= 859.40'
TOP 4" PVC ELEV.= 859.10'
N=759905.41
E=755263.80

MON. WELL MW-13
RIM ELEV.= 858.94'
TOP 4" PVC ELEV.= 858.71'
N=759802.14
E=755279.01

MON. WELL MW-14
RIM ELEV.= 858.67'
TOP 4" PVC ELEV.= 858.19'
N=759676.68
E=755455.44

MON. WELL MW-15
RIM ELEV.= 857.94'
WELL FILLED W/WATER
N=759650.00
E=755386.76

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: _____

DATE	REVISIONS	BY

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:

CASTLE CLEANERS
221 HOFFMAN STREET
ELMIRA, NY

CLIENT:

MACTEC ENGINEERING, INC.
511 CONGRESS STREET
PORTLAND, ME 04101

DRAWING TITLE:

ENVIRONMENTAL MAP

DESIGNED BY:	SCALE: 1"=50'
DRAWN BY: JH, AM	DATE: 3-20-06
CHECKED BY: CJR	PROJECT No. 36407
SHEET 1 OF 1	DRAWING No. 1

J:\Projects\36400 MACTEC\36407 Castle-Elmira\Cadd\36407 Castle Cleaners.dwg

APPENDIX D

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT
2006 SAMPLING EVENT
Region 8 DRY CLEANERS-CASTLE CLEANERS
ELMIRA, NEW YORK

Introduction:

Soil and water samples were collected at the Castle Cleaners site in January 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 1.1-1.8. Samples were analyzed for the following parameters:

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- Soil: Contract Laboratory Program (CLP) procedures for volatile organic compounds (VOCs).
- Water: CLP procedures for volatile organic compounds (VOCs) and CLP procedures for semi-volatile organic compounds (SVOCs).
- 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.

A subset of samples were reanalyzed due to QC issues or sample dilution needs. There samples are identified as RE for reanalyses, and DL for dilutions reanalyses. During validation the best available result for each target analyte from samples with multiple runs was selected for reporting in the final data set. Final results from a given sample may include a combination of data from the multiple runs.

Air - Volatile Organic Compounds

Initial Calibration

The initial calibration associated with samples CAGV00300601XX, CAGV00200601XX, CAGV00100601XX, and CAGV00100601XD had correlation coefficients less than the control limit of 0.995 for 2,2,4-trimethylpentane (0.990), 4-methyl-2-pentanone (0.993), and 2-hexanone (0.992). In addition, the RRF for 1,3-butadiene (0.035) was less than the control limit of 0.05. Results for 4-methyl-2-pentanone and 2-hexanone were non-detect in all samples and were qualified as estimated (UJ). Results for 2,2,4-trimethylpentane were positive in samples CAGV00100601XX, CAGV00100601XD, and CAGV00200601XX and were qualified as estimated (J). The result for 2,2,4-trimethylpentane in sample CAGV00300601XX was non-detect and was qualified as estimated (UJ). The results for 1,3-butadiene were all non-detect and were qualified as rejected (R) due to the low RRF.

Laboratory Control Samples

The laboratory control sample had percent recoveries for 1,4-dioxane (10) and 2,2,4-trimethylpentane (150) that were outside of laboratory control limits. Results for 1,4-dioxane were non-detect in samples CAGV00100601XX, CAGV00100601XD, CAGV00200601XX, and CAGV00300601XX and were qualified as estimated (UJ). Results for 2,2,4-trimethylpentane in samples CAGV00100601XX, CAGV00100601XD, and CAGV00200601XX were positive and were qualified as estimated (J).

Duplicates

The relative percent differences for propene (68.7), ethyl acetate (70.9), carbon disulfide (50.3), m/p-xylene (33.9), hexane (34.8), and isopropyl alcohol (35.6) between sample CAGV00100601XX and its field duplicate were greater than the control limit of 30. Results for these compounds were positive in samples CAGV00100601XX and CAGV00100601XD were qualified as estimated (J).

Miscellaneous

The results for isopropyl alcohol exceeded the calibration curve in samples CAGV00200601XX (DL2) and CAGV00300601XX (DL2). The samples were both diluted twice, to the maximum dilution allowed by the laboratory/method, with results still exceeding the calibration curve. Results for isopropyl alcohol in samples CAGV00200601XX (DL2) and CAGV00300601XX (DL2) were qualified as estimated (J).

Soil and Water Samples - Volatile Organic Compounds

Holding Times and Sample Collection

A subset of samples had re-analyses or dilution runs that exceeded holding times. Original runs were completed within holding times and results from original runs were used unless indicated in the following items.

Samples CAGS00500801XX (RE), CAGW00801001XA (DL), and CAGW00802001XX (DL) were sampled on 1/18/06 and analyzed on 2/16/06, which is outside of the 14 day analytical holding time. Results for these samples were qualified as estimated (J/UJ). Sample CAGS00500801XX (RE) was reported rather than the original sample analysis because sample CAGS00500801XX had low area counts for all three internal standards that would have resulted in the rejection of all results.

Samples CAGW00601001XA (DL), CAGW00703001XX (DL), CAGW00703001XD (DL), and CAGW01002201XA (DL) were sampled on 1/19/06 and were analyzed on 2/17/06, which is outside of the 14 day analytical holding time. Results for these samples were qualified as estimated (J/UJ).

Surrogates

Sample CAGW00801001XA (DL) had percent recoveries for two surrogates 1,2-dichloroethane-d4 (116) and 4-bromofluorobenzene (119) that were greater than laboratory control limits. Positive results in sample CAGW00801001XA (DL) were qualified as estimated (J).

Sample CAGW00801001XA had percent recoveries for all three surrogates that were greater than laboratory control limits. Positive results in sample CAGW00801001XA were qualified as estimated (J).

Internal Standards

The internal standard chlorobenzene-d5 had area counts that were outside of control limits in samples CAGS00100301XX and CAGS00200901XX. In addition, samples CAGS00400701XX and CAGS00400701XD had area counts that were outside of control limits for all three internal standards. Samples were reanalyzed with similar results. Compounds associated with these internal standards, in samples CAGS00100301XX, CAGS00200901XX, CAGS00400701XX and CAGS00400701XD were qualified as estimated (J/UJ).

Blank Contamination

Detections of tetrachlorethene (0.75 - 1.2 µg/L), acetone (3.4 - 4.9 µg/L), and chloroform (2.5µg/L) were reported in the trip blanks. Detections of acetone (4.6 - 17 µg/kg), and methylene chloride (3.2 µg/kg) were reported in method blanks. An action level was calculated at ten times the detections reported in the blanks for acetone and methylene chloride and five times the blank detections for chloroform and tetrachloroethene. The

action levels for tetrachloroethene and chloroform were converted to µg/kg for comparison with soil samples. The following samples were qualified:

Results for acetone and methylene chloride in samples CAGS00100301XX, CAGS00200901XX, CAGS00300801XX, and CAGS00400701XX were less than the action level and were qualified as non-detect (U). The result for tetrachloroethene in sample CAGS00300801XX was also less than the action level and was qualified as non-detect (U).

Sample CASW201XXX01XX (RE) had a detection of acetone that was less than the action level and was qualified as non-detect (U).

Sample CAGS00500801XX (RE) had detections for acetone and methylene chloride that were less than the action limit and were qualified as non-detect (U).

In addition, samples CAGW00901401XX and CAGW00901901XA had detections for chloroform and sample CAGW00901401XX had a detection for tetrachloroethene that were less than the action level and were qualified as non-detect (U).

Continuing Calibration

The continuing calibration percent difference for tetrachloroethene (-40.4) exceeded the QC control limit of 25. The results for tetrachloroethene in associated samples CAMW00501501XX, CAMW00501501XD, CAMW01301501XX, and CAMW01401501XX were all non-detect and were qualified estimated (UJ). Samples CAMW0PS01501XX, CAGW00301401XX (DL), and CAGW00401601XX (DL) had positive detections for tetrachloroethene and was qualified as estimated (J).

A continuing calibration had percent differences greater than 25 for 1,1,2-trichlorotrifluoroethane (25.9), methyl acetate (45.8), toluene (-27.3), and tetrachloroethene (-29.4). Results for these compounds in samples CAGS00100301XX, CAGS00200901XX, CAGS00300801XX, CAGS00400701XX, CAGS00400701XD were all non-detect and were qualified as estimated (UJ).

A continuing calibration had a percent difference greater than 25 for 2-hexanone (37.1), tetrachloroethene (-35.3), and 1,2,4-trichlorobenzene (-29.0). Results for tetrachloroethene in samples CAGW00601801XD, CAGW00601801XX, CAGW00703001XX, CAGW00703001XD, CAGW00701801XA, and CAGW01003401XX were positive and were qualified as estimated (J). Results for 2-hexanone and 1,2,4-trichlorobenzene were non-detect in samples CAGW00601001XA, CAGW00601801XD, CAGW00601801XX, CAGW00703001XX, CAGW00703001XD, CAGW00701801XA, CAGW01003401XX, and CAGW01002201XA and were qualified as estimated (UJ).

The continuing calibration analyzed on 1/23/06 had a percent difference that was greater than the control limit of 25 for tetrachloroethene (-40.4). Samples CAGW00501401XX,

CAGW00901801XA, and CAGW01101801XX had positive detections for tetrachloroethene and were qualified as estimated (J). Samples CAMW01501501XX, CASW201XXX01XX, CAGW00802001XX, CAGW00801001XA, and CAGW00901401XX were non-detect for tetrachloroethene and were qualified as estimated (UJ).

The continuing calibration associated with sample CASW201XXX01XX (RE) had a percent difference that was greater than 25 for tetrachloroethene (-35.3), 1,2,4-trichlorobenzene (-29.0), and 2-hexanone (37.1). Results for all three compounds were non-detect and were qualified as estimated (UJ).

The continuing calibration associated with sample CAGS00500801XX (RE) had percent differences greater than 25 for dichlorodifluoromethane (31.8), chloromethane (26.1), trichlorofluoromethane (41.9), acetone (26.2), 2-hexanone (123.6), and 1,1,2-trichlorotrifluoroethane (33.8). Results for all of these compounds were non-detect in sample CAGS00500801XX (RE) and were qualified as estimated (UJ).

Matrix Spike/Matrix Spike Duplicate

The relative percent difference between the MS/MSD was greater than the laboratory control limit of 11 for benzene (21) associated with sample CAMW00501501XX and its field dup CAMW00501501XD. The results for benzene in both samples were positive and qualified as estimated (J).

The MS/MSD associated with sample CAGW00802001 had relative percent differences greater than the laboratory control limits for 1,1-dichloroethene (17), benzene (19), trichloroethene (37), toluene (18), and chlorobenzene (22). Results for these compounds in sample CAGW00802001 were qualified as estimated (J/UJ).

Soil and Water Samples - Semivolatile Organic Compounds

Blank Contamination

A detection of bis(2-ethylhexyl)phthalate (1.8µg/L) was reported in the method blank associated with sample CAMW00501501XX. An action level was calculated at ten times the detection reported in the blank. The result for bis(2-ethylhexyl)phthalate was less than the action level in sample CAMW00501501XX and was qualified as non-detect (U).

Laboratory Control Samples

In a subset of samples, the LCS percent recovery for phenol (112) was greater than laboratory control limits. The result for phenol was positive and qualified as estimated (J) in sample CAMW00501501XX.

TABLE 1

SDG	Sample Name	Date Collected	Method	Parameter	Type
X1129	CAGV00100601XX	1/19/06	TO-15	VOC	FS
X1129	CAGV00100601XD	1/19/06	TO-15	VOC	FD
X1129	CAGV00200601XX	1/19/06	TO-15	VOC	FS
X1129	CAGV00300601XX	1/19/06	TO-15	VOC	FS
X1219	CAMW00501501XX	1/16/06	OLM 04.2	VOC	FS
X1219	CAMW00501501XD	1/16/06	OLM 04.2	VOC	FD
X1219	CAMW00501501MS	1/16/06	OLM 04.2	VOC	MS
X1219	CAMW00501501MD	1/16/06	OLM 04.2	VOC	MSD
X1219	CAMW01301501XX	1/16/06	OLM 04.2	VOC	FS
X1219	CAMW01401501XX	1/16/06	OLM 04.2	VOC	FS
X1219	CAMW0PS01501XX	1/16/06	OLM 04.2	VOC	FS
X1225	CAGS00100301XX	1/17/06	OLM 04.2	VOC	FS
X1225	CAGS00100301MS	1/17/06	OLM 04.2	VOC	MS
X1225	CAGS00100301MD	1/17/06	OLM 04.2	VOC	MSD
X1225	CAGS00200901XX	1/17/06	OLM 04.2	VOC	FS
X1225	CAGS00300801XX	1/17/06	OLM 04.2	VOC	FS
X1225	CAGS00400701XX	1/17/06	OLM 04.2	VOC	FS
X1225	CAGS00400701XD	1/17/06	OLM 04.2	VOC	FD
X1225	CAGS00101601MS	1/17/06	OLM 04.2	VOC	MS
X1225	CAGS00101601MD	1/17/06	OLM 04.2	VOC	MSD
X1225	CAGS00100301XX	1/17/06	D2216	Percent Moisture	FS
X1225	CAGS00100301MS	1/17/06	D2216	Percent Moisture	MS
X1225	CAGS00100301MD	1/17/06	D2216	Percent Moisture	MSD
X1225	CAGS00200901XX	1/17/06	D2216	Percent Moisture	FS
X1225	CAGS00300801XX	1/17/06	D2216	Percent Moisture	FS
X1225	CAGS00400701XX	1/17/06	D2216	Percent Moisture	FS
X1225	CAGS00400701XD	1/17/06	D2216	Percent Moisture	FD
X1225	CAGS00101601MS	1/17/06	D2216	Percent Moisture	MS
X1225	CAGS00101601MD	1/17/06	D2216	Percent Moisture	MSD
X1225	CAGW00101601XA	1/17/06	OLM 04.2	VOC	FS
X1225	CAGW00201701XX	1/17/06	OLM 04.2	VOC	FS
X1225	CAGW00301401XX	1/17/06	OLM 04.2	VOC	FS
X1225	CAGW00301001XA	1/17/06	OLM 04.2	VOC	FS
X1225	CAGW00401601XX	1/17/06	OLM 04.2	VOC	FS
X1254	CAMW01501501XX	1/18/06	OLM 04.2	VOC	FS
X1254	CAGS00500801XX	1/18/06	OLM 04.2	VOC	FS
X1254	CAGS00500801XX	1/18/06	D2216	Percent Moisture	FS
X1254	CAGW00501401XX	1/18/06	OLM 04.2	VOC	FS
X1254	CAGW00801001XA	1/18/06	OLM 04.2	VOC	FS
X1254	CAGW00802001MS	1/18/06	OLM 04.2	VOC	MS
X1254	CAGW00802001MD	1/18/06	OLM 04.2	VOC	MSD
X1254	CAGW00802001XX	1/18/06	OLM 04.2	VOC	FS
X1254	CAGW00901401XX	1/18/06	OLM 04.2	VOC	FS
X1254	CAGW00901801XA	1/18/06	OLM 04.2	VOC	FS
X1254	CAGW01101801XX	1/18/06	OLM 04.2	VOC	FS
X1254	CASW201XXX01XX	1/18/06	OLM 04.2	VOC	FS
X1284	CAMW00501501XX	1/19/06	OLM 04.2	SVOC	FS
X1284	CAGW00601001XA	1/19/06	OLM 04.2	VOC	FS
X1284	CAGW00601801XD	1/19/06	OLM 04.2	VOC	FD
X1284	CAGW00601801XX	1/19/06	OLM 04.2	VOC	FS
X1284	CAGW00703001XX	1/19/06	OLM 04.2	VOC	FS

SDG	Sample Name	Date Collected	Method	Parameter	Type
X1284	CAGW00703001XD	1/19/06	OLM 04.2	VOC	FD
X1284	CAGW00701801XA	1/19/06	OLM 04.2	VOC	FS
X1284	CAGW01002201XA	1/19/06	OLM 04.2	VOC	FS
X1284	CAGW01003401XX	1/19/06	OLM 04.2	VOC	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	X1225-01		X1225-04		X1225-05		X1225-06		X1225-07	
Lab Sample Delivery Group	X1225		X1225		X1225		X1225		X1225	
Loc Name	GS-1		GS-2		GS-3		GS-4		GS-4	
Field Sample ID	CAGS00100301XX		CAGS00200901XX		CAGS00300801XX		CAGS00400701XX		CAGS00400701XD	
Field Sample Date	1/17/2006		1/17/2006		1/17/2006		1/17/2006		1/17/2006	
QC Code	FS		FS		FS		FS		FD	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	12	U	12	U	11	U	11	UJ	11	UJ
1,1,2,2-Tetrachloroethane	12	UJ	12	UJ	11	U	11	UJ	11	UJ
1,1,2-Trichloro-1,2,2-Trifluoroethane	12	UJ	12	UJ	11	UJ	11	UJ	11	UJ
1,1,2-Trichloroethane	12	U	12	U	11	U	11	UJ	11	UJ
1,1-Dichloroethane	12	U	12	U	11	U	11	UJ	11	UJ
1,1-Dichloroethene	12	U	12	U	11	U	11	UJ	11	UJ
1,2,4-Trichlorobenzene	12	U	12	U	11	U	11	UJ	11	UJ
1,2-Dibromo-3-chloropropane	12	U	12	U	11	U	11	UJ	11	UJ
1,2-Dibromoethane	12	U	12	U	11	U	11	UJ	11	UJ
1,2-Dichlorobenzene	12	U	12	U	11	U	11	UJ	11	UJ
1,2-Dichloroethane	12	U	12	U	11	U	11	UJ	11	UJ
1,2-Dichloropropane	12	U	12	U	11	U	11	UJ	11	UJ
1,3-Dichlorobenzene	12	U	12	U	11	U	11	UJ	11	UJ
1,4-Dichlorobenzene	12	U	12	U	11	U	11	UJ	11	UJ
2-Butanone	6.7	J	61	U	56	U	57	UJ	56	UJ
2-Hexanone	58	UJ	61	UJ	56	U	57	UJ	56	UJ
4-Methyl-2-pentanone	58	UJ	61	UJ	56	U	57	UJ	56	UJ
Acetic acid, methyl ester	12	UJ	12	UJ	11	UJ	11	UJ	11	UJ
Acetone	58	U	61	U	56	U	57	UJ	56	UJ
Benzene	12	U	12	U	11	U	11	UJ	11	UJ
Bromodichloromethane	12	U	12	U	11	U	11	UJ	11	UJ
Bromoform	12	U	12	U	11	U	11	UJ	11	UJ
Bromomethane	12	U	12	U	11	U	11	UJ	11	UJ
Carbon disulfide	12	U	12	U	11	U	11	UJ	11	UJ
Carbon tetrachloride	12	U	12	U	11	U	11	UJ	11	UJ
Chlorobenzene	12	UJ	12	UJ	11	U	11	UJ	11	UJ
Chlorodibromomethane	12	U	12	U	11	U	11	UJ	11	UJ
Chloroethane	12	U	12	U	11	U	11	UJ	11	UJ
Chloroform	12	U	12	U	11	U	11	UJ	11	UJ
Chloromethane	12	U	12	U	11	U	11	UJ	11	UJ
Cis-1,2-Dichloroethene	12	U	12	U	11	U	11	UJ	11	UJ
cis-1,3-Dichloropropene	12	U	12	U	11	U	11	UJ	11	UJ
Cyclohexane	12	U	12	U	11	U	11	UJ	11	UJ
Dichlorodifluoromethane	12	U	12	U	11	U	11	UJ	11	UJ
Ethyl benzene	12	UJ	12	UJ	11	U	11	UJ	11	UJ
Isopropylbenzene	12	U	12	U	11	U	11	UJ	11	UJ
Methyl cyclohexane	12	U	12	U	11	U	11	UJ	11	UJ
Methyl Tertbutyl Ether	12	U	12	U	11	U	11	UJ	11	UJ
Methylene chloride	12	U	12	U	11	U	11	UJ	11	UJ
o-Xylene	12	U	12	U	11	U	11	UJ	11	UJ
Styrene	12	UJ	12	UJ	11	U	11	UJ	11	UJ
Tetrachloroethene	12	UJ	12	UJ	11	UJ	11	UJ	11	UJ
Toluene	12	UJ	12	UJ	11	UJ	11	UJ	11	UJ
trans-1,2-Dichloroethene	12	U	12	U	11	U	11	UJ	11	UJ
trans-1,3-Dichloropropene	12	U	12	U	11	U	11	UJ	11	UJ
Trichloroethene	12	U	12	U	11	U	11	UJ	11	UJ
Trichlorofluoromethane	12	U	12	U	11	U	11	UJ	11	UJ
Vinyl chloride	12	U	12	U	11	U	11	UJ	11	UJ
Xylene, m/p	12	UJ	1.3	J	11	U	11	UJ	11	UJ

Notes:
Results reported in micrograms per kilogram (µg/kg)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration above the reporting limit
J = Estimated value

Appendix D
Table 1.2: Groundwater VOC Results

Lab Sample ID	X1219-01		X1219-02		X1219-05		X1219-06		X1219-07	
Lab Sample Delivery Group	X1219		X1219		X1219		X1219		X1219	
Loc Name	MW-5		MW-5		MW-13		MW-14		MW-PS	
Field Sample ID	CAMW00501501XX		CAMW00501501XD		CAMW01301501XX		CAMW01401501XX		CAMW0PS01501XX	
Field Sample Date	1/19/2006		1/16/2006		1/16/2006		1/16/2006		1/16/2006	
QC Code	FS		FD		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	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
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	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
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U
2-Hexanone	50	U	50	U	50	U	50	U	50	U
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	10	U	10	U	10	U	10	U	10	U
Acetone	50	U	50	U	50	U	50	U	50	U
Benzene	61	J	68	J	10	U	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U

Appendix D
Table 1.2: Groundwater VOC Results

Lab Sample ID	X1219-01		X1219-02		X1219-05		X1219-06		X1219-07	
Lab Sample Delivery Group	X1219		X1219		X1219		X1219		X1219	
Loc Name	MW-5		MW-5		MW-13		MW-14		MW-PS	
Field Sample ID	CAMW00501501XX		CAMW00501501XD		CAMW01301501XX		CAMW01401501XX		CAMW0PS01501XX	
Field Sample Date	1/19/2006		1/16/2006		1/16/2006		1/16/2006		1/16/2006	
QC Code	FS		FD		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Chloroform	10	U	10	U	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	10	U	10	U	10	U	10	U	7.3	J
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Cyclohexane	9.9	J	11		10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	1.6	J	1.7	J	10	U	10	U	10	U
Isopropylbenzene	1.3	J	1.6	J	10	U	10	U	10	U
Methyl cyclohexane	4.8	J	5.3	J	10	U	10	U	10	U
Methyl Tertbutyl Ether	46		47		31		10	U	10	U
Methylene chloride	10	U	10	U	10	U	10	U	10	U
o-Xylene	10	U	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	UJ	10	UJ	10	UJ	10	UJ	9.4	J
Toluene	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	U	10	U	10	U	10	U	1.3	J
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	10	U	10	U	10	U	10	U	10	U
Xylene, m/p	2.7	J	3.1	J	10	U	10	U	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
- FS = Field Sample
- FD = Field Duplicate
- TB = Trip Blank

Qualifiers:
- U = Not detected at a concentration above the reporting limit
- J = Estimated value
- D = Result is reported from a diluted analytical run

Appendix D
Table 1.2: Groundwater VOC Results

Lab Sample ID	X1219-08		X1225-10		X1225-11		X1225-12		X1225-13	
Lab Sample Delivery Group	X1219		X1225		X1225		X1225		X1225	
Loc Name	QC		GW-1		GW-2		GW-3		GW-3	
Field Sample ID	CAQT001XXX01XX		CAGW00101601XA		CAGW00201701XX		CAGW00301401XX		CAGW00301001XA	
Field Sample Date	1/16/2006		1/17/2006		1/17/2006		1/17/2006		1/17/2006	
QC Code	TB		FS		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	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
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	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
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U
2-Hexanone	50	U	50	U	50	U	50	U	50	U
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	10	U	10	U	10	U	10	U	10	U
Acetone	50	U	50	U	50	U	50	U	50	U
Benzene	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	1.7	J	10	U	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U

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Table 1.2: Groundwater VOC Results

Lab Sample ID	X1219-08		X1225-10		X1225-11		X1225-12		X1225-13	
Lab Sample Delivery Group	X1219		X1225		X1225		X1225		X1225	
Loc Name	QC		GW-1		GW-2		GW-3		GW-3	
Field Sample ID	CAQT001XXX01XX		CAGW00101601XA		CAGW00201701XX		CAGW00301401XX		CAGW00301001XA	
Field Sample Date	1/16/2006		1/17/2006		1/17/2006		1/17/2006		1/17/2006	
QC Code	TB		FS		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Chloroform	2.2	J	10	U	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	10	U	10	U	10	U	19		3.1	J
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	10	U	0.59	J	10	U	10	U	10	U
Isopropylbenzene	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	U	10	U	10	U	10	U	10	U
Methylene chloride	10	U	10	U	10	U	10	U	10	U
o-Xylene	10	U	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	U	10	U	10	U	1400	DJ	190	
Toluene	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	U	10	U	10	U	28		4.4	J
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	10	U	10	U	10	U	10	U	10	U
Xylene, m/p	10	U	0.71	J	10	U	10	U	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
FS = Field Sample
FD = Field Duplicate
TB = Trip Blank
Qualifiers:
U = Not detected at a concentration above the reporting limit
J = Estimated value
D = Result is reported from a diluted analytical run

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Table 1.2: Groundwater VOC Results

Lab Sample ID	X1225-14		X1225-15		X1254-01		X1254-03		X1254-04	
Lab Sample Delivery Group	X1225		X1225		X1254		X1254		X1254	
Loc Name	GW-4		QC		MW-15		GW-5		GW-8	
Field Sample ID	CAGW00401601XX		CAQT002XXX01XX		CAMW01501501XX		CAGW00501401XX		CAGW00801001XA	
Field Sample Date	1/17/2006		1/17/2006		1/18/2006		1/18/2006		1/18/2006	
QC Code	FS		TB		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	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
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	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
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U
2-Hexanone	50	U	50	U	50	U	50	U	50	U
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	10	U	10	U	10	U	10	U	10	U
Acetone	50	U	50	U	50	U	50	U	50	U
Benzene	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	U	1.6	J	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	0.61	J	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U

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Table 1.2: Groundwater VOC Results

Lab Sample ID	X1225-14		X1225-15		X1254-01		X1254-03		X1254-04	
Lab Sample Delivery Group	X1225		X1225		X1254		X1254		X1254	
Loc Name	GW-4		QC		MW-15		GW-5		GW-8	
Field Sample ID	CAGW00401601XX		CAQT002XXX01XX		CAMW01501501XX		CAGW00501401XX		CAGW00801001XA	
Field Sample Date	1/17/2006		1/17/2006		1/18/2006		1/18/2006		1/18/2006	
QC Code	FS		TB		FS		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Chloroform	10	U	2.2	J	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	150		10	U	10	U	110		120	JD
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	3.1	J	10	U	10	U	10	U	10	U
Methylene chloride	10	U	10	U	10	U	10	U	10	U
o-Xylene	10	U	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	650	DJ	0.75	J	10	UJ	42	J	190	JD
Toluene	10	U	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	U	10	U	1.3	J	0.48	J
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Trichloroethene	31		10	U	10	U	14		88	J
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	10	U	10	U	10	U	10	U	3	J
Xylene, m/p	10	U	10	U	10	U	10	U	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
FS = Field Sample
FD = Field Duplicate
TB = Trip Blank
Qualifiers:
U = Not detected at a concentration above the reporting limit
J = Estimated value
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Table 1.2: Groundwater VOC Results

Lab Sample ID	X1254-07		X1254-08		X1254-09		X1254-10		X1254-11RE	
Lab Sample Delivery Group	X1254		X1254		X1254		X1254		X1254	
Loc Name	GW-8		GW-9		GW-9		GW-11		QC	
Field Sample ID	CAGW00802001XX		CAGW00901401XX		CAGW00901801XA		CAGW01101801XX		CAQT003XXX01XX	
Field Sample Date	1/18/2006		1/18/2006		1/18/2006		1/18/2006		1/18/2006	
QC Code	FS		FS		FS		FS		TB	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	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
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	UJ	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	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
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U
2-Hexanone	50	U	50	U	50	U	50	U	50	U
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	10	U	10	U	10	U	10	U	10	U
Acetone	50	U	50	U	50	U	50	U	50	U
Benzene	10	UJ	10	U	10	U	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	1.7	J
Bromoform	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	UJ	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U

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Table 1.2: Groundwater VOC Results

Lab Sample ID	X1254-07		X1254-08		X1254-09		X1254-10		X1254-11RE	
Lab Sample Delivery Group	X1254		X1254		X1254		X1254		X1254	
Loc Name	GW-8		GW-9		GW-9		GW-11		QC	
Field Sample ID	CAGW00802001XX		CAGW00901401XX		CAGW00901801XA		CAGW01101801XX		CAQT003XXX01XX	
Field Sample Date	1/18/2006		1/18/2006		1/18/2006		1/18/2006		1/18/2006	
QC Code	FS		FS		FS		FS		TB	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Chloroform	10	U	10	U	10	U	10	U	2.5	J
Chloromethane	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	180	DJ	10	U	10	U	84		10	U
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	10	U	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	10	U	10	U	10	U	0.53	J	10	U
Methylene chloride	10	U	10	U	10	U	10	U	10	U
o-Xylene	10	U	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	360	DJ	10	UJ	9.1	J	93	J	1.2	J
Toluene	10	UJ	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	0.73	J	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Trichloroethene	91	J	10	U	10	U	23		10	U
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	2.9	J	10	U	10	U	10	U	10	U
Xylene, m/p	10	U	10	U	10	U	10	U	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
- FS = Field Sample
- FD = Field Duplicate
- TB = Trip Blank

Qualifiers:
- U = Not detected at a concentration above the reporting limit
- J = Estimated value
- D = Result is reported from a diluted analytical run

Appendix D
Table 1.2: Groundwater VOC Results

Lab Sample ID	X1284-02		X1284-03		X1284-04		X1284-05		X1284-06	
Lab Sample Delivery Group	X1284		X1284		X1284		X1284		X1284	
Loc Name	GW-6		GW-6		GW-6		GW-7		GW-7	
Field Sample ID	CAGW00601001XA		CAGW00601801XD		CAGW00601801XX		CAGW00703001XX		CAGW00703001XD	
Field Sample Date	1/19/2006		1/19/2006		1/19/2006		1/19/2006		1/19/2006	
QC Code	FS		FD		FS		FS		FD	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	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
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	4.2	J	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
1,2-Dibromo-3-chloropropane	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	0.62	J	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	0.58	J	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U	50	U
2-Hexanone	50	UJ	50	UJ	50	UJ	50	UJ	50	UJ
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	50	U	10	U	10	U	10	U	10	U
Acetone	50	U	50	U	50	U	50	U	50	U
Benzene	13		130		130		10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U

Appendix D
Table 1.2: Groundwater VOC Results

Lab Sample ID	X1284-02		X1284-03		X1284-04		X1284-05		X1284-06	
Lab Sample Delivery Group	X1284		X1284		X1284		X1284		X1284	
Loc Name	GW-6		GW-6		GW-6		GW-7		GW-7	
Field Sample ID	CAGW00601001XA		CAGW00601801XD		CAGW00601801XX		CAGW00703001XX		CAGW00703001XD	
Field Sample Date	1/19/2006		1/19/2006		1/19/2006		1/19/2006		1/19/2006	
QC Code	FS		FD		FS		FS		FD	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Chloroform	10	U	10	U	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	6200	JD	8.1	J	6.9	J	8	J	6	J
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Cyclohexane	4.6	J	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U
Ethyl benzene	0.79	J	10	U	10	U	10	U	10	U
Isopropylbenzene	0.98	J	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	53		88		96		730	JD	690	DJ
Methylene chloride	10	U	10	U	10	U	10	U	10	U
o-Xylene	0.44	J	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	1600	JD	13	J	12	J	11	J	11	J
Toluene	0.9	J	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	18		10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
Trichloroethene	900	JD	3	J	2.5	J	3.6	J	10	U
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U
Vinyl chloride	460	JD	10	U	10	U	10	U	10	U
Xylene, m/p	0.58	J	10	U	10	U	10	U	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
FS = Field Sample
FD = Field Duplicate
TB = Trip Blank
Qualifiers:
U = Not detected at a concentration above the reporting limit
J = Estimated value
D = Result is reported from a diluted analytical run

Appendix D
Table 1.2: Groundwater VOC Results

Lab Sample ID	X1284-07		X1284-08		X1284-09		X1284-10	
Lab Sample Delivery Group	X1284		X1284		X1284		X1284	
Loc Name	GW-7		GW-10		GW-10		QC	
Field Sample ID	CAGW00701801XA		CAGW01002201XA		CAGW01003401XX		CAQT004XXX01XX	
Field Sample Date	1/19/2006		1/19/2006		1/19/2006		1/19/2006	
QC Code	FS		FS		FS		TB	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U	10	U	10	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	10	UJ	10	UJ	10	UJ	10	U
1,2-Dibromo-3-chloropropane	10	U	10	U	10	U	10	U
1,2-Dibromoethane	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U
2-Butanone	50	U	50	U	50	U	50	U
2-Hexanone	50	UJ	50	UJ	50	UJ	50	U
4-Methyl-2-pentanone	50	U	50	U	50	U	50	U
Acetic acid, methyl ester	10	U	10	U	10	U	10	U
Acetone	50	U	50	U	50	U	11	J
Benzene	10	U	0.73	J	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	2.1	J
Bromoform	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U
Carbon disulfide	10	U	10	U	10	U	10	U
Carbon tetrachloride	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	10	U
Chlorodibromomethane	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U

Appendix D
Table 1.2: Groundwater VOC Results

Lab Sample ID	X1284-07		X1284-08		X1284-09		X1284-10	
Lab Sample Delivery Group	X1284		X1284		X1284		X1284	
Loc Name	GW-7		GW-10		GW-10		QC	
Field Sample ID	CAGW00701801XA		CAGW01002201XA		CAGW01003401XX		CAQT004XXX01XX	
Field Sample Date	1/19/2006		1/19/2006		1/19/2006		1/19/2006	
QC Code	FS		FS		FS		TB	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Chloroform	10	U	10	U	10	U	2.8	J
Chloromethane	10	U	10	U	10	U	10	U
Cis-1,2-Dichloroethene	6.4	J	180	JD	13		10	U
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U
Ethyl benzene	10	U	10	U	10	U	10	U
Isopropylbenzene	10	U	10	U	10	U	10	U
Methyl cyclohexane	10	U	10	U	10	U	10	U
Methyl Tertbutyl Ether	100		79		1.6	J	10	U
Methylene chloride	10	U	10	U	10	U	0.9	J
o-Xylene	10	U	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U
Tetrachloroethene	21	J	1000	JD	33	J	10	U
Toluene	10	U	10	U	10	U	10	U
trans-1,2-Dichloroethene	10	U	7	J	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U
Trichloroethene	3.4	J	110		3.6	J	10	U
Trichlorofluoromethane	10	U	10	U	10	U	10	U
Vinyl chloride	10	U	2	J	10	U	10	U
Xylene, m/p	10	U	10	U	10	U	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
- FS = Field Sample
- FD = Field Duplicate
- TB = Trip Blank

Qualifiers:
- U = Not detected at a concentration above the reporting limit
- J = Estimated value
- D = Result is reported from a diluted analytical run

Appendix D
Table 1.3: Groundwater SVOC Results

Lab Sample ID	X1284-01	
Lab Sample Delivery Group	X1284	
Loc Name	MW-5	
Field Sample ID	CAMW00501501XX	
Field Sample Date	1/19/2006	
QC Code	FS	
Parameter	**Result**	**Qualifier**
2,4,5-Trichlorophenol	10	U
2,4,6-Trichlorophenol	10	U
2,4-Dichlorophenol	10	U
2,4-Dimethylphenol	10	U
2,4-Dinitrophenol	10	U
2,4-Dinitrotoluene	10	U
2,6-Dinitrotoluene	10	U
2-Chloronaphthalene	10	U
2-Chlorophenol	10	U
2-Methylnaphthalene	10	U
2-Methylphenol	18	
2-Nitroaniline	10	U
2-Nitrophenol	10	U
3,3`-Dichlorobenzidine	20	U
3-Nitroaniline	10	U
4,6-Dinitro-2-methylphenol	10	U
4-Bromophenyl phenyl ether	10	U
4-Chloro-3-methylphenol	10	U
4-Chloroaniline	10	U
4-Chlorophenyl phenyl ether	10	U
4-Methylphenol	10	U
4-Nitroaniline	10	U
4-Nitrophenol	10	U
Acenaphthene	10	U
Acenaphthylene	10	U
Acetophenone	1.2	J
Anthracene	10	U
Atrazine	10	U
Benzaldehyde	10	U
Benzo(a)anthracene	10	U
Benzo(a)pyrene	10	U
Benzo(b)fluoranthene	10	U
Benzo(ghi)perylene	10	U
Benzo(k)fluoranthene	10	U
Biphenyl	10	U
Bis(2-Chloroethoxy)methane	10	U
Bis(2-Chloroethyl)ether	10	U
Bis(2-Chloroisopropyl)ether	10	U
Bis(2-Ethylhexyl)phthalate	10	U
Butylbenzylphthalate	10	U
Caprolactum	10	U
Carbazole	10	U
Chrysene	10	U
Di-n-butylphthalate	10	U
Di-n-octylphthalate	10	U
Dibenz(a,h)anthracene	10	U
Dibenzofuran	10	U
Diethylphthalate	10	U
Dimethylphthalate	10	U
Fluoranthene	10	U
Fluorene	10	U
Hexachlorobenzene	10	U
Hexachlorobutadiene	10	U
Hexachlorocyclopentadiene	50	U
Hexachloroethane	10	U
Indeno(1,2,3-cd)pyrene	10	U
Isophorone	10	U
N-Nitrosodi-n-propylamine	10	U
N-Nitrosodiphenylamine	10	U

Appendix D
Table 1.3: Groundwater SVOC Results

Lab Sample ID	**X1284-01**	
Lab Sample Delivery Group	**X1284**	
Loc Name	**MW-5**	
Field Sample ID	**CAMW00501501XX**	
Field Sample Date	**1/19/2006**	
QC Code	**FS**	
Parameter	**Result**	**Qualifier**
Naphthalene	10	U
Nitrobenzene	10	U
Pentachlorophenol	10	U
Phenanthrene	10	U
Phenol	2.7	J
Pyrene	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for SVOCs by EPA method OLM04.2
QC Code:
FS = Field Sample
Qualifiers:
U = Not detected at a concentration above the reporting limit
J = Estimated value

Appendix D
Table 1.4: Surfacewater VOC Results

Lab Sample ID	X1254-12RE	
Lab Sample Delivery Group	X1254	
Loc Name	SW201	
Field Sample ID	CASW201XXX01XX	
Field Sample Date	1/18/2006	
QC Code	FS	
Parameter	**Result**	**Qualifier**
1,1,1-Trichloroethane	10	U
1,1,2,2-Tetrachloroethane	10	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	10	U
1,1,2-Trichloroethane	10	U
1,1-Dichloroethane	10	U
1,1-Dichloroethene	10	U
1,2,4-Trichlorobenzene	10	UJ
1,2-Dibromo-3-chloropropane	10	U
1,2-Dibromoethane	10	U
1,2-Dichlorobenzene	10	U
1,2-Dichloroethane	10	U
1,2-Dichloropropane	10	U
1,3-Dichlorobenzene	10	U
1,4-Dichlorobenzene	10	U
2-Butanone	50	U
2-Hexanone	50	UJ
4-Methyl-2-pentanone	50	U
Acetic acid, methyl ester	10	U
Acetone	50	U
Benzene	10	U
Bromodichloromethane	10	U
Bromoform	10	U
Bromomethane	10	U
Carbon disulfide	10	U
Carbon tetrachloride	10	U
Chlorobenzene	10	U
Chlorodibromomethane	10	U
Chloroethane	10	U
Chloroform	10	U
Chloromethane	10	U
Cis-1,2-Dichloroethene	10	U
cis-1,3-Dichloropropene	10	U
Cyclohexane	10	U
Dichlorodifluoromethane	10	U
Ethyl benzene	10	U
Isopropylbenzene	10	U
Methyl cyclohexane	10	U
Methyl Tertbutyl Ether	10	U
Methylene chloride	10	U
o-Xylene	10	U
Styrene	10	U
Tetrachloroethene	10	UJ
Toluene	10	U
trans-1,2-Dichloroethene	10	U
trans-1,3-Dichloropropene	10	U
Trichloroethene	10	U
Trichlorofluoromethane	10	U
Vinyl chloride	10	U
Xylene, m/p	10	U

Notes:
Results reported in micrograms per liter (µg/L)
Sample were analyzed for VOCs by EPA method OLM04.2
QC Code:
FS = Field Sample
Qualifiers:
U = Not detected at a concentration above the reporting limit
J = Estimated value

Appendix D
Table 1.5: Soil Vapor VOC Results

Lab Sample ID	X1129-01		X1129-02		X1129-03		X1129-04	
Lab Sample Delivery Group	X1129		X1129		X1129		X1129	
Loc Name	GV-01		GV-01		GV-02		GV-03	
Field Sample ID	CAGV00100601XX		CAGV00100601XD		CAGV00200601XX		CAGV00300601XX	
Field Sample Date	1/19/2006		1/19/2006		1/20/2006		1/20/2006	
QC Code	FS		FD		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
1,1,1-Trichloroethane	2.18	U	2.18	U	2.18	U	2.18	U
1,1,2,2-Tetrachloroethane	2.75	U	2.75	U	2.75	U	2.75	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	3.06	U	3.06	U	3.06	U	3.06	U
1,1,2-Trichloroethane	2.18	U	2.18	U	2.18	U	2.18	U
1,1-Dichloroethane	1.62	U	1.62	U	1.62	U	1.62	U
1,1-Dichloroethene	1.59	U	1.59	U	1.59	U	1.59	U
1,2,4-Trichlorobenzene	2.96	U	2.96	U	2.96	U	2.96	U
1,2,4-Trimethylbenzene	7.85		6.28		5.5		8.05	
1,2-Dibromoethane	3.08	U	3.08	U	3.08	U	3.08	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	2.8	U	2.8	U	2.8	U	2.8	U
1,2-Dichlorobenzene	2.4	U	2.4	U	2.4	U	2.4	U
1,2-Dichloroethane	1.62	U	1.62	U	1.62	U	1.62	U
1,2-Dichloropropane	1.85	U	1.85	U	1.85	U	1.85	U
1,3,5-Trimethylbenzene	2.36		2.16		1.96	U	2.36	
1,3-Dichlorobenzene	2.4	U	2.4	U	2.4	U	2.4	U
1,4-Dichlorobenzene	2.4	U	2.4	U	2.4	U	2.4	U
1,4-Dioxane	2.88	UJ	2.88	UJ	2.88	UJ	2.88	UJ
2-Butanone	5.77		7.07		28.7		24	
2-Hexanone	3.27	UJ	3.27	UJ	3.27	UJ	3.27	UJ
2-Propanol	337	DJ	483	DJ	5224	EDJ	3276	EDJ
4-Ethyltoluene	7.07		5.89		4.32		5.5	
4-Methyl-2-pentanone	3.27	UJ	3.27	UJ	3.27	UJ	3.27	UJ
Acetone	94.1		118		378	D	323	D
Allyl chloride	1.26	U	1.26	U	1.26	U	1.26	U
Benzene	3.57		4.21		9.19		9.19	
Benzyl chloride	2.31	U	2.31	U	2.31	U	2.31	U
Bromodichloromethane	2.68	U	2.68	U	2.68	U	2.68	U
Bromoform	4.14	U	4.14	U	4.14	U	4.14	U
Bromomethane	1.55	U	1.55	U	1.55	U	1.55	U
Butadiene, 1,3-		R		R		R		R
Carbon disulfide	1.49	J	2.49	J	1.37		1.37	
Carbon tetrachloride	2.52	U	2.52	U	2.52	U	2.52	U
Chlorobenzene	1.85	U	1.85	U	1.85	U	1.85	U
Chlorodibromomethane	3.4	U	3.4	U	3.4	U	3.4	U
Chloroethane	1.06	U	1.06	U	1.06	U	1.06	U
Chloroform	1.95	U	1.95	U	1.95	U	1.95	U
Chloromethane	0.82	U	0.82	U	1.55		1.55	
Cis-1,2-Dichloroethene	3.17		3.02		1.59	U	1.59	U
cis-1,3-Dichloropropene	1.82	U	1.82	U	1.82	U	1.82	U
Cyclohexane	2.01		2.55		2.15		3.22	
Dichlorodifluoromethane	2.18		1.98	U	2.77		3.37	
Ethyl acetate	7.34	J	15.4	J	1.44	U	15.1	
Ethyl benzene	56		41.4		33.5		36.9	
Heptane	4.91		5.07		5.24		6.38	
Hexachlorobutadiene	4.27	U	4.27	U	4.27	U	4.27	U
Hexane	7.32	J	10.4	J	10.7		14.4	
Isooctane	117	J	134	J	65.6	J	1.87	UJ
Methyl Tertbutyl Ether	1.44	U	1.44	U	1.44	U	1.44	U
Methylene chloride	2.78	U	2.78	U	2.78	U	2.78	U
o-Xylene	15.4		11.4		10.6		12	
Propylene	21.8	J	44.6	J	32		30.8	
Styrene	1.7	U	1.7	U	1.7	U	1.7	U
Tetrachloroethene	1720	D	2321	D	27.4		31.2	
Tetrahydrofuran	2.36	U	2.36	U	2.36	U	2.36	U
Toluene	32.4		28.1		36.9		43.6	
trans-1,2-Dichloroethene	1.59	U	1.59	U	1.59	U	1.59	U
trans-1,3-Dichloropropene	1.82	U	1.82	U	1.82	U	1.82	U
Trichloroethene	21.9		21		1.07	U	1.07	U
Trichlorofluoromethane	2.24	U	2.24	U	2.24	U	2.24	U
Vinyl acetate	1.41	U	1.41	U	1.41	U	1.41	U

Appendix D
Table 1.5: Soil Vapor VOC Results

Lab Sample ID	X1129-01		X1129-02		X1129-03		X1129-04	
Lab Sample Delivery Group	X1129		X1129		X1129		X1129	
Loc Name	GV-01		GV-01		GV-02		GV-03	
Field Sample ID	CAGV00100601XX		CAGV00100601XD		CAGV00200601XX		CAGV00300601XX	
Field Sample Date	1/19/2006		1/19/2006		1/20/2006		1/20/2006	
QC Code	FS		FD		FS		FS	
Parameter	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**	**Result**	**Qualifier**
Vinyl bromide	1.75	U	1.75	U	1.75	U	1.75	U
Vinyl chloride	1.02	U	1.02	U	1.02	U	1.02	U
Xylene, m/p	39.2	J	27.9	J	27.1		32.6	

Notes:
Results reported in micrograms per cubic meter ($\mu g/m^3$)
Sample were analyzed for VOCs by method TO-15
QC Code:
FS = Field Sample
FD = Field Duplicate
Qualifiers:
U = Not detected at a concentration above the reporting limit
J = Estimated value
D = Result reported from a diluted analytical run
R = Rejected result

Appendix D
Table 1.6: Soil VOC TICs

Matrix	SOIL		SOIL		SOIL	
Lab ID	X1225-04		X1225-06		X1225-07	
Sample No	CAGS00200901XX		CAGS00400701XX		CAGS00400701XD	
Sample Date	1/17/2006		1/17/2006		1/17/2006	
Parameter	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**
Unknown1.25	1800	J				
Unknown1.257			57	J		
Unknown1.266					56	J

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

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

Appendix D
Table 1.7: Groundwater VOC TICs

Matrix	WATER		WATER		WATER		WATER		WATER	
Lab ID	X1219-01		X1219-02		X1284-10		X1284-11		X1284-12	
Sample No	CAMW00501501XX		CAMW00501501XD		CAQT004XXX01XX		LCMW00101701XX		LCMW00201701XX	
Sample Date	1/16/2006		1/16/2006		1/19/2006		1/19/2006		1/19/2006	
Parameter	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**	**Lab Result**	**Lab Qual**
4,6-Dioxa-3,8-disiladecane, 5-(2,6							5.6	J		
Isobutane					5.2	J				
Silane, trimethyl[1-phenyl-2-[2-(t							8.8	J		
Tetrasiloxane, 1,1,3,3,5,5,7,7-oct					6.7	J			7.9	J
1-Pentene, 2-methyl-	24	J								
3-Hexanol			8.4	J						
Amylene Hydrate	7.4	J								
Benzene, 1,2,3-trimethyl-			10	J						
Benzene, 1-ethenyl-3-ethyl-	6.3	J								
Benzene, 1-ethyl-3-methyl-	9.8	J								
Benzene, cyclopropyl-	17	J								
Butane, 2,2-dimethyl-			20	J						
Butane, 2,3-dimethyl-			86	J						
Butane, 2-methyl-	280	J	320	J						
Cyclopentane, methyl-			27	J						
Indan, 1-methyl-	13	J	13	J						
Oxirane, propyl-	19	J								
Pentane, 2-methyl-	80	J								
Pentane, 3-methyl-	49	J	53	J						
Tetracyclo[3.3.1.0(2,8).0(4,6)]-no			18	J						

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

Table Created by: ASZ 06/1/06
Table Checked by: BAS 07/24/06

Appendix D
Table 1.8: Groundwater SVOC TICs

Matrix	**WATER**	
Lab ID	**X1284-01**	
Sample No	**CAMW00501501XX**	
Sample Date	**1/19/2006**	
Parameter	**Lab Result**	**Lab Qual**
Caffeine	20	J
Vanillin	20	J

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

Table Created by: ASZ 06/1/06
Table Checked by: BAS 07/24/06

Appendix D - Castle

Example Form I = Representative sample result showing CHEMTECH's OLM 04.2 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:**	**01/16/06**
Project ID:	**D003826 Region 8 Dry Cleaners-Castle MEC02060003**	**Date Received:**	**01/17/06**
Customer Sample No.:	**CAMW00501501XX**	**Lab Sample ID:**	**X1219-01**
Test:	**VOC-TCLVOA 4.3-10NP**	**SDG ID:**	**X1219**
Analytical Method:	**EPA OLM04.2 - VOA**	**% Moisture:**	**100.00**
Result Type:		**Datafile:**	**VH002456**

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	ND	U	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	46		ug/L	0.50		10	1
79-20-9	Methyl Acetate	ND	U	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	9.9	J	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	ND	U	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	4.8	J	ug/L	0.50		10	1
71-43-2	Benzene	61		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:**	01/16/06
Project ID:	D003826 Region 8 Dry Cleaners-Castle MEC02060003	**Date Received:**	01/17/06
Customer Sample No.:	CAMW00501501XX	**Lab Sample ID:**	X1219-01
Test:	VOC-TCLVOA 4.3-10NP	**SDG ID:**	X1219
Analytical Method:	EPA OLM04.2 - VOA	**% Moisture:**	100.00
Result Type:		**DataFile:**	VH002456

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	1.6	J	ug/L	0.50	10	1	
126777-61-2	m/p-Xylenes	2.7	J	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	1.3	J	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	
000078-78-4	Butane, 2-methyl-	280	J	ug/L	0	0	1	TIC
001003-14-1	Oxirane, propyl-	19	J	ug/L	0	0	1	TIC
000107-83-5	Pentane, 2-methyl-	80	J	ug/L	0	0	1	TIC
000096-14-0	Pentane, 3-methyl-	49	J	ug/L	0	0	1	TIC
000763-29-1	1-Pentene, 2-methyl-	24	J	ug/L	0	0	1	TIC
000075-85-4	Amylene Hydrate	7.4	J	ug/L	0	0	1	TIC
000620-14-4	Benzene, 1-ethyl-3-methyl-	9.8	J	ug/L	0	0	1	TIC