REPORT

Interim Remedial Measure (IRM) Soil Vapor Extraction System Enhancement and Ozone Pilot Study

Ronhill Cleaners
Glen Cove, New York
Site No. 1-30-071

New York State Department of Environmental Conservation

Investigation and Design Engineering Services

Standby Contract Number: D004437-9

November 2011

CDM

Certification

I, John P. Blaum, certify that I am currently a NYS registered professional engineer, and I certify that the upgrades to the SVE system detailed in the Supplemental Work Plan for the Interim Remedial Measure Soil Vapor Extraction System Enhancement and Ozone Pilot Study were implemented as described in this report and that all operation and maintenance activities were completed in substantial conformance with the DER-approved work plan.

SEAL

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Introduction

This report describes the Interim Remedial Measure (IRM) implemented by Camp Dresser and McKee (CDM), on behalf of New York State Department of Environmental Conservation (NYSDEC), at the former Ronhill Cleaners (herein referred to as the "Site") located at 71 Forest Avenue in the City of Glen Cove, Nassau County, New York (**Figure 1-1**). The report was prepared for NYSDEC under the Engineering Services for Investigation and Design, Standby Contract Number: D004437. The Site is a former dry cleaning facility at which soil, groundwater, and soil vapor contamination have been identified.

The report presents the results of the IRM implemented to address soil and groundwater contamination at the site. The IRM consisted of two phases. Phase I involved enhancing the existing soil vapor extraction system (SVE) to address soil contamination found in the unsaturated zone. Phase II was the implementation of a modified version of Task 2 of the Environmental Resources Management (ERM) June 2006 IRM Ozone Injection Pilot Study Work Plan, designed to address groundwater contamination at the site.

Baseline groundwater sampling and soil gas information for the ozone pilot study was collected by CDM in August 2008. Subsequent ozone injections and sampling were conducted during a four-month period from January 5, 2009 through April 22, 2009. The CDM March 2008 Supplemental Work Plan outlined modifications to the IRM location, design, equipment, installation, operation, maintenance, and monitoring for phases I and II. Changes to the Supplemental Work Plan are noted where appropriate in this report.

1.1 Purpose and Objectives

The objective of the IRM was to remove residual contamination released during the former dry cleaning operations including the compound perchloroethylene (PCE) in the soil and groundwater. Destruction or reduction of the PCE plume will limit the source of soil gas that is impacting local residences and businesses, and mitigate groundwater contamination that has the potential to impact local water supply wells. The IRM was a two-phase measure wherein soil vapor extraction was utilized to address contamination in the vadose zone and an In Situ Chemical Oxidation (ISCO) pilot study was conducted to assess the feasibility of using ozone as a full scale, site-wide remedial measure. The objectives of the IRM were to:

1. Enhance the existing SVE system. Enhancements included the installation of new extraction wells and sealing of several existing extraction wells whose designs were found to be incompatible with a focused SVE remediation system.

2. Monitor SVE performance during the ISCO pilot study to determine the effects of the ozone injection and to determine if fugitive ozone gas would be recovered by the system.

3. Conduct an ISCO pilot study to collect the data necessary to support or reject the selection of ozone as a full-scale, site-wide remedy. This included the installation of the injection points, an ozone generation system, associated equipment, operation, and monitoring. The objectives of the pilot study included the following:

    a. Determine operating parameters, including ozone radius of influence and the ozone dose required to achieve satisfactory PCE destruction;

    b. Determine whether the formation of byproducts (e.g., ketones or bromate) during the Pilot Study would drive a reassessment of the technology;

    c. Determine whether PCE removal kinetics, and/or oxidation products, would reduce aquifer permeability

    d. Determine the potential impacts to human health or the environment from this remedial approach.

    e. Evaluate the efficacy and economics of in situ ozone sparging as a remedial treatment technology appropriate for groundwater at the site.

1.2 Site Description and Background

1.2.1 Site Description

The site is located at 71 Forest Avenue in the City of Glen Cove, Nassau County, New York as shown on **Figure 1-2**. More specifically, the site is located on the northeast corner of Bryce Avenue and Forest Avenue. The site is currently developed with a single-story slab-on-grade building occupied by a Payless Shoes store. The property is surrounded by residential and commercial properties.

1.2.2 Site Background

A dry cleaner operated at the site from 1963 until 1993. During the 1970's, tetrachloroethylene (also known as perchloroethylene; PCE) was detected in two public supply wells at the Seaman Road well field (N-03892 and N-05261). Due to the presence of elevated PCE concentrations, the wells were taken out of service in 1978. The subsequent Nassau County Department of Health (NCDOH) investigation identified Ronhill Cleaners as one of five users of PCE in the area. A summary of the PCE and trichloroethylene (TCE) concentrations in the local supply wells is provided in **Table 1-1** and the well locations are shown on **Figure 1-3**.

An environmental assessment was conducted in 1990 on behalf of the owner of the cleaners, Bedford Affiliates. The investigation included the collection of shallow soil samples outside the building's north and west walls and inside the building in an indoor trench located along the north and west sides of the building. Up to 14,000 mg/kg of PCE was detected in the soil samples within the trench near the northwest corner of the building.

In 1993, approximately 73 tons of soil was excavated from within the trench by Tyree Brothers Environmental Services, Inc. (TBES). This remedial action was conducted without regulatory involvement. Reportedly the excavation extended to about four feet below grade. The excavation was not extended deeper out of concern for the structural stability of the building. Clean endpoint samples were not obtained from the excavation. The excavation was lined with 4-mil polyethylene sheeting and backfilled.

In March 1993 the site was listed in the New York State Registry of Inactive Hazardous Waste Sites when it was determined that leakage or improper disposal of dry cleaning chemicals had impacted the soil and groundwater beneath the site. Bedford Affiliates entered into a Consent Order with NYSDEC to perform a Preliminary Site Assessment (PSA). During this assessment four of the existing monitoring wells MW-1 through MW-4 were installed. Refer to **Table 1-2** for construction details for the onsite wells.

In June 1995, the site was listed as a Class 2 Inactive Hazardous Waste Site. Bedford Affiliates entered into a second Consent Order to perform an IRM.

In August 1996 a soil vapor extraction system designed to remove volatile organic compounds (VOC) from the unsaturated soil beneath the site was constructed as an IRM. The SVE system operated at the site for about four years.

In 1998, the Site was referred to the NYSDEC Division of Environmental Enforcement (DER) for State funding. Roux Associates performed a supplemental investigation at the site, which was completed in July 1998. As part of this investigation, monitoring well WM-5 was installed upgradient of the site.

In July 1999, an RI/FS work plan was finalized, which was to be implemented by NYSDEC. Subsequently, a former operator of the dry cleaner took over the project as a potentially responsible party (PRP) and developed a modified remedial investigation (RI) work plan, which was approved by NYSDEC in December 1999. This work plan was implemented between June and September 2000 and a RI report was completed in May 2001. The RI included a geophysical survey, ambient air sampling, soil vapor survey, shallow and deep soil sampling, vertical groundwater profiling, monitoring well installation and sampling, and groundwater level measurements.

The 2000 RI focused on the area to the southwest of the site, since based on groundwater data collected during the RI, groundwater generally flows to the southwest from the site. During this investigation three monitoring wells (MW-6, MW-7 and MW-8) were installed. PCE was detected in the shallow unsaturated soils at concentrations ranging from not detected to 18 milligrams per kilogram (mg/kg) near the northwest corner of the building. Soil contamination was also identified between 20 and 85 feet below ground surface (bgs) near the northeast corner of the building, with a maximum concentration of 11 mg/kg detected at the 78-80 foot

interval bgs—roughly corresponding to the reported depth of the water table. The investigation identified the presence of non-aqueous phase liquid (NAPL) at the groundwater table interface, approximately 80 feet bgs. On-site groundwater sampling identified dissolved phase contamination extending at least 120 feet below the water table (approximately 200 feet bgs). The RI revealed that the offsite VOC plume was much larger than anticipated. The data also suggested the presence of an offsite source of contamination originating east of the site. Based on the results of the RI, it was concluded that additional investigation would be needed to delineate the extent of the VOC plume. The highest concentrations of dissolved phase VOC detected in groundwater were 190,000 µg/L on-site and 15,000 µg/L off-site.

VOC contamination has also been detected in the City of Glen Cove Public Water Supply Well Field located on Seaman Road, northeast of the site. During the 2000 RI NYSDEC installed transducers in four of the site monitoring wells (MW-5, MW-6, MW-7, and MW-8) and recorded pressure measurements every half hour for a month. During the test period, the City of Glen Cove was conducting pump tests at the Seaman Road supply well field. The groundwater elevation data collected by NYSDEC in 2000 indicated that pumping of the Seaman Road public supply wells could influence groundwater elevations and groundwater flow pathways at the site.

In 2003, NYSDEC referred the site for funding by the New York State Superfund for implementation of a RI/FS and IRM. At that time, a RI was initiated with a state consultant.

In April 2005, a RI conducted by Environmental Resource Management (ERM) included sampling four on-site monitoring wells (MW-01 through MW-04), and collecting outdoor soil vapor, subslab soil vapor, and ambient air samples. Three on-site vertical profile borings (VPR-02, VPR-03 and VPR-04) were also installed and groundwater samples collected every 5 to 10 feet at the locations as part of the RI. A summary of the 2005 concentrations of PCE and its degradation products at these locations are presented on **Table 1-3 and Figure 1-4**.

As part of the preparation for the ISCO pilot study, ERM completed the following activities (refer to the report entitled Interim Remedial Investigation and Interim Remedial Action Report, dated January 2007 for details):

- Installed two soil vapor probes (SVP-01 and SVP-02) east and west of the on-site structure. Soil vapor probe construction details are provided in **Table 1-4**. Soil vapor samples were collected every ten feet from five feet below grade to above 75 bgs, just above the water table to assess the vertical extent/distribution of VOC impacts and to obtain target intervals for ozone injection. PCE was detected in all of the soil gas samples collected from SVP-01 and SVP-02; the concentration generally increased with depth. The highest PCE concentration in SVP-01, 32,000 µg/m^3, was observed at a depth of 65 feet, which is approximately 15 feet above the water table. At SVP-02, the highest PCE concentration was 1,800,000 µg/m^3, which was exhibited in the sample collected immediately above the water table at 75 feet

bgs. A summary of the onsite soil vapor sample results for PCE and its degradation products is provided in **Table 1-5**.

- Installed four vapor observation wells (VOW-1 through VOW-4) east of the property in the vicinity of the proposed injection locations. Well construction details for the VOW wells are provided in **Table 1-6**.

- Conducted testing to determine the radius of influence (ROI) of the SVE system. For the ROI test, vacuum was applied at vapor extraction well VES-4 on the eastern side of the building and the vacuum (in. w.c) was observed at the four vapor observation wells.

The design basis of the ERM ISCO Pilot Study was the injection of gaseous phase ozone into the saturated zone for reaction with dissolved phase VOC's. The pilot study was designed to implement a sparge curtain, where if constructed on a full scale basis, would protect downgradient receptors. An extraction well screened near the ground surface would draw the ozone upward for reaction with VOC throughout the vertical extent of the vadose zone.

CDM evaluated the ERM ozone pilot study work plan and concluded that it would be more effective to address the vadose zone VOC by enhancing the existing SVE system, rather than dispersing ozone across the saturated and unsaturated zones. Under the ERM plan, it was expected that a large fraction of the ozone would react prior to it reaching the unsaturated zone. As such, the ozone would not be expected to be effective at remediating contaminated soil in the vadose zone.

In March 2008, CDM prepared a Supplemental Work Plan to implement a modified version of the ERM June 2006 IRM pilot study work plan. This two-phase IRM utilized soil vapor extraction to remove contamination in the unsaturated zone (Phase I) and ISCO to remove contamination in the saturated zone (Phase II).

This report presents a summary of the implementation and findings of the soil vapor extraction and ISCO phases of the March 2008 Supplemental Work Plan approved by NYSDEC on April 25, 2008.

1.3 Technology Overview

Ozone (O_3) is a highly reactive gas that can oxidize a wide range of organic compounds, including PCE, to carbon dioxide, water, oxygen, and chloride ions. However, other less innocuous compounds such as aldehydes, ketones, and bromate can be formed during the oxidation process. As such, the presence of these compounds must be assessed during a pilot study. Ozone oxidation is either direct or indirect. Direct oxidation via ozone involves the formation of an oxide ion which reacts with the organic compound. Indirect oxidation involves the formation of a hydroxyl radical, which then reacts with the organic compound. Iron in soil and groundwater can increase the effectiveness of ozone by reacting with ozone to form hydroxyl radicals. The hydroxyl radical is a stronger oxidant than ozone. Ozone

alone is appropriate for *in-situ* applications where groundwater velocities are measured in feet per day and hydraulic residence times are high.

PCE reacts with ozone to produce carbon dioxide, chlorine ions and oxygen as follows:
$CCL_2CCL_2 + 6O_3$ ---- > $2CO_2 + 2CL_2O + 6O_2$

Setting up an ozone sparge curtain for PCE plume interception and oxidation involves installing a series of sparge wells into which a mixture of ozone and air is injected. Ozone is generated from compressed air. Ozone and air are injected into the aquifer where ozone (1) strips dissolved PCE into the gas phase and then oxidizes the PCE, and to a lesser degree (2) dissolves into groundwater and oxidizes dissolved PCE in groundwater (the mass transfer of ozone to groundwater is limited). Factors affecting ozone sparge curtain design include local geology and hydrogeology, contaminant concentrations, well point spacing and depth, gas flow rate, and ozone concentration.

Ozone is a non-selective oxidizing agent and will react with naturally occurring dissolved metals, such as iron and manganese, to form insoluble hydroxides and oxides. These solids could potentially reduce the permeability of the aquifer.

1.4 Environmental Setting

The site is relatively flat and lies at an approximate elevation of 125 feet above mean sea level (msl). The groundwater table lies at an approximate elevation of 45 feet above msl at the site (approximately 80 feet below ground surface). The closest surface water body to the site is Glen Cove Creek, which lies approximately 5,000 feet southwest of the site. Glen Cove Creek discharges into Hempstead Harbor.

1.4.1 Site Geology

Based on boring logs prepared by past and present investigators, the subsurface material at the site consists primarily of fine to coarse sand with some silt and gravel.

1.4.2 Site Hydrogeology

Based on the depth to water measurements collected during the Baseline and Round 1 through 5 of the pilot study, groundwater is about 75 to 79 feet bgs and flows to the southwest across the site as shown on **Figure 1-5A** through **Figure 1-5F**. The site is underlain by the Upper Glacial Aquifer (water table) which generally flows to the southwest; however there may be a northwest component to the groundwater flow. Mapping conducted by Kilburn and Krulikas suggests that there is a groundwater high in the site area which may result in radial flow from the site. Groundwater extraction at the Seaman Road supply well number 2 (Designation Number N05261: located approximately 1,300 feet to the north) and the supply well at Glen Cove Hospital (Designation Number N08343: located on Saint Andrews Lane approximately 600 feet to the southeast) may also complicate the groundwater flow. Refer to **Table 1-1** for details of these wells.

The Upper Glacial Aquifer is the surficial unit on Long Island, and is therefore entirely unconfined. Along the Harbor Hill and Ronkonkoma terminal moraines and parts of the north shore, the unit is composed of till consisting of poorly sorted clay, sand, gravel, and boulders. The till is generally of low permeability and may contain perched water. The outwash deposits that are found are mainly between, and south of, the moraines. The outwash deposits are moderately to highly permeable, consisting of gray, brown, and yellow fine to very coarse sand and gravel. The Upper Glacial Aquifer ranges up to 600 feet thick, however the saturated thickness is often much lower. The estimated average horizontal hydraulic conductivity generally exceeds 225 ft/day.

The Upper Glacial Aquifer is underlain by the Raritan Clay, which has been encountered between 200 and 250 feet bgs in the site area. The Raritan Clay is the major confining unit on Long Island, ranging between 150 and 250 feet in thickness. This confining unit consists of solid, multicolored, compact clay (gray, white, red, or tan) with interbedded lenses of sand. The average vertical hydraulic conductivity is reported to be approximately 0.001 ft/day.

1.5 Fate and Transport

PCE is a manufactured chemical that is widely used in the dry-cleaning industry. It is also used for degreasing and is found in consumer products including some paint and spot removers, water repellents, brake and wood cleaners, glues, and suede protectors. Other names for PCE include tetrachloroethene and perchloroethylene.

1.5.1 Fate of PCE

The fate of PCE is dominated by its volatility and degradation. PCE's presence in surface soils or surface water is usually short-lived, providing that a continuing source is not present.

In the atmosphere, PCE is expected to be present primarily in the vapor phase and not sorbed to particulates because of its high vapor pressure of 18 millimeters (mm) of mercury (Hg). Vapor-phase PCE will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals. Direct photolysis is not expected to be an important environmental fate process since PCE only absorbs light weakly in the environmental ultraviolet (UV) spectrum.

The dominant fate of PCE in soils is volatilization. Based on its K_{oc} value of 265 milliliters per gram (mL/g), PCE is moderately mobile in soils. Consequently, PCE has the potential to migrate through the soil into groundwater. PCE has a specific gravity greater than water (1.62) indicating that pure liquid phase PCE will sink when dissolved in groundwater. The solubility of PCE in water is 150 milligrams per Liter (mg/L). Biodegradation under anaerobic conditions in soil and groundwater may occur at a relatively slow rate with half lives on the order of months or longer. PCE in groundwater can undergo reductive dechlorination catalyzed by anaerobic bacteria. The PCE will tend to degrade to TCE. Subsequent degradation to *cis*-1,2-

dichloroethene (DCE) or *trans*-1,2-DCE and then to vinyl chloride can also occur via anaerobic mechanisms. Vinyl chloride can further degrade to ethylene.

Reductive dechlorination of PCE:

PCE ⟶ TCE ⟶ 1,2-DCE ⟶ VC ⟶ Ethene

Volatilization is also an important fate process of PCE in surface waters based on its Henry's Law constant of 1.73×10^{-2} atmosphere meters cubed per mol (atm-m^3/mol). PCE is also not expected to adsorb to suspended solids and sediment in water based upon its K_{oc} value. The half-lives in soil and groundwater were reported to be 180-360 days and 270 days respectively. A reported K_{ow} value of 351 in fish suggests that the potential for PCE to bioconcentrate in aquatic organisms is low.

1.5.2 Transport of PCE

Liquid phase PCE discharged directly to the ground surface would be expected to migrate downward through the unsaturated zone in a relatively linear pattern, with minimal dispersion from the discharge location. The unsaturated zone at the site is primarily sandy material; however the presence of lower permeability silt and clay layers may be encountered which could complicate the migration pathway. The depth to groundwater at the site is about 77 feet bgs, so any PCE entering the unsaturated zone has a significant distance to travel before groundwater is encountered.

Significant soil vapor contamination may be present in the unsaturated zone. The vapor phase PCE vaporizes upward while the liquid phase migrates downward. Chlorinated solvents in the vapor phase can cause significant indoor air contamination due to residual unsaturated soil contamination or vaporization directly from the groundwater table interface.

Once liquid phase PCE encounters the water table, some of the solvent will become dissolved in the groundwater and begin to move in the direction of groundwater flow. If the quantity of solvent reaching the water table is sufficient, some of the solvent will remain in an undissolved state as a dense non-aqueous phase liquid (DNAPL) and, since PCE is denser than water, the solvent will continue to move downward under the influence of gravity. DNAPL will continue to sink until it encounters a lower permeability zone, which would slow or stop the downward migration. DNAPL could pool or accumulate on top of a lower permeability zone and remain stationary or move in the down-slope direction of the lower permeability zone. If sufficient DNAPL is pooled or trapped in the aquifer, it will act as a continual source of dissolved groundwater contamination. Movement of DNAPL in the saturated zone can be very complex, with movement controlled by the permeability of subsurface stratigraphic units, the shape and configuration of lower permeability zones, and/or the dip of bedding planes.

At the site, groundwater generally flows toward the south/southwest. However, movement of PCE in the saturated zone at the site may be complicated by the

groundwater extraction in the area from several public supply wells and supply wells on the Glen Cove LIJ Hospital property to the southeast.

Section 2
SVE System Upgrades, Operations, and Monitoring

This section provides a summary of the upgrade, operation, and monitoring of the soil vapor extraction system.

2.1 Soil Vapor Extraction System

As indicated in Section 1, a soil vapor extraction system was installed at the site in August 1996 as an IRM. The original system utilized four vapor extraction wells (VES-1 through VES-4) and operated at the site for about four years until it was taken off line. The soil vapor extraction (SVE) system was modified and put back on-line by ERM on October 24, 2005 using one well (VES-1) for soil vapor extraction. ERM determined that the other three wells (VES-2, VES-3, and VES-4) were unfit for use for vapor extraction because the screen lengths were too long to be effective while running simultaneously. VES-1, located in the northwest corner of Payless Shoes, was about 80 feet deep and had a screen length of 77 feet. This well remained online, since it was situated in the most contaminated area of the site, near the location of the former building trench. ERM estimated that from October 2005 to January 2007, over 3,100 pounds of vapor phase VOCs had been removed from the unsaturated zone.

The SVE system utilized two, 900 pound activated carbon vessels, a 30 gallon demister drum, and one, 180 cubic foot per minute blower. A sub-slab depressurization system (SSD), installed in the basement of the adjacent Cove 1-Hour Photo, was also connected to the system to mitigate soil vapor infiltration in the building. The SSD system was connected to the on-site SVE system via a 4-inch PVC line and has been in operation since the beginning of April 2006.

2.2 Soil Vapor Extraction System Upgrades

Based on CDM's inspection of the SVE system in May 2009 identified several compounds where enhancements could be affective. It was determined that the current SVE system lacked efficient vapor extraction wells. Similarly, a second vapor phase carbon unit was recommended to be installed to treat contaminated vapor exiting the lead unit when breakthrough occurs. The blower on the system was recommended for upgrade, and the demister drum was rusted and in need of replacement. In order to make the system more effective and efficient for the remediation of soil at the site, soil vapor extraction system enhancements were completed in October 2008. The upgraded SVE system, which treats soil vapor extracted from the Site and the adjacent Cove 1-Hour Photo building, consists of the following components.

- One SSD system at the Cove 1-hour Photo.

- Replaced the existing 5 horsepower (hp) motor with a new 10 hp regenerative blower with explosion proof motor (180 standard cubic feet per minute [SCFM] capacity).
- Replaced the 30 gallon demister drum with a new moisture separator with 40 gallon liquid holding capacity.
- Installed a new filter assembly for removing fine particles from vapor entering the blower.
- Installed an automatic condensate removal system from the moisture separator for treating the collected condensate through liquid phase granulated activated carbon (LPGAC).
- Two vapor phase granulated activated carbon (VPGAC) units, each with a 2,000-pound capacity.
- Eliminated the old 2-inch piping and replaced it with 3-inch piping to accommodate the larger flow to be processed by the system. Installed a new float switch in the demister drum, which is activated in high water level conditions and can shutdown the plant if this condition is reached.
- Installed a new disconnect switch and new circuit breaker at the main panel.
- Installed heat tracing on the exposed system piping.

2.2.1 VES Well Installation

To improve the overall performance of the SVE system, four new 4-inch vapor extraction wells (VES-1A, VES-2A, VES-3A, and VES-5) were installed. Wells VES-1 through VES-3, which were ineffectively screened, were abandoned and replaced with the wells designated with an "A". The new wells were installed by Delta Well and Pump Company using hollow-stem auger drilling techniques. Each well was constructed of 4-inch schedule 40 PVC with 10 feet of 0.020-inch slot screen. The locations of the VES wells are shown on **Figure 2-1**. A summary of the well construction details for the new VES wells is provided in **Table 2-1**.

2.3 SVE System Operation during Pilot Study

In addition to removing PCE impacted soil vapor from the site, the upgraded SVE system was designed to remove fugitive ozone from the unsaturated zone during the ozone pilot study. The SVE system operated normally without reportable down time during the pilot study duration, with the exception of a two day period between January 7 and 9, 2009 due to a thermal overload at the SVE blower motor starter. The thermal overload switch was replaced and the SVE system was restarted. The system ran normally for the remainder of the pilot study period.

The following weekly SVE system operations and maintenance activities were conducted during the pilot study period:

- Field measurements, including PID, vacuum, temperature, and pressure readings at the SVE system influent, sub-slab system, and SVE system effluent locations;
- Monitoring to determine breakthrough of the VPGAC and LPGAC media
- Flow rate measurement at the SVE blower effluent;
- PID measurements at the vapor extraction wells;
- Monthly visit to eight neighboring locations for the SSD system inspection; and
- Maintenance including replacing the VPGAC and LPGAC media periodically.

The data and activities described above are documented in monthly field reports submitted to NYSDEC. Copies of the monthly reports during the pilot study period are provided in **Appendix A**.

In addition to the routine O&M activities, field measurements were collected using a gaseous ozone detector at the VES wells and VOW wells to identify fugitive ozone emissions present, if any. Based on the field observations, no fugitive ozone emissions were observed throughout the pilot study period.

Section 3
Ozone Pilot Study

The ozone pilot study consisted of sparging dilute ozone in air streams into the groundwater at two zones within two shallow and deep injection well clusters (IW-1S/D and IW-2S/D). Subsurface soil gas concentrations and groundwater chemistry was monitored in wells along the presumed groundwater flow direction. The pilot study was conducted from January 5, 2009 to April 22, 2009.

3.2 Pilot Study System Components

The ozone pilot study area was located along the northeast side of the Site, downgradient of the presumed northeast source area and the locations of high historic soil vapor and groundwater concentrations. **Figure 3-1** shows a plan view of the ozone pilot study area. The pilot study was designed to assess the effectiveness of an ozone sparge curtain.

3.2.1 Wells and Monitoring Points

3.2.1.1 Injection Wells

Two ozone injection well clusters (IW-1S/D and IW-2S/D) were installed northeast of the onsite building between June 30 and July 3, 2008 by Delta Well and Pump Company using hollow stem auger drilling methods. The flush-mounted wells were constructed of 2-inch diameter, flush-threaded steel casing equipped with a stainless steel diffuser designed to generate 100 micron bubbles. The casing joints were pressure tight to maximum pressures of 75 psig. A threaded cap was installed on the bottom of the casing string. The shallow wells (IW-1S and IW-2S) were screened (diffuser) from 98 to 100 feet bgs and the deep wells (IW-1D and IW-2D) were screened from 118 to 120 feet bgs at each cluster. A well construction summary is provided in **Table 3-1**.

Ozone feed-lines were installed from an ozone generator situated in a trailer located northeast of the Payless ShoeSource building to the injection wells. These lines were buried beneath the parking lot pavement.

3.2.1.2 Monitoring Wells

A pilot study monitoring well (PTW-01) was installed by Delta Well and Pump Co. to monitor groundwater downgradient of the ozone sparge curtain, presuming a westerly gradient. The well was installed to 115 feet bgs and is screened from 105 to 115 feet bgs. It is constructed of 2-inch diameter schedule 40 PVC flush-threaded blank casing and schedule 40 slotted PVC screen with 0.020-inch slots.

In addition to PTW-01, existing wells MW-1 through MW-4, which are screened across the water table, were used to monitor groundwater downgradient of the ozone sparge curtain (refer to Table 3-1 for well construction details). MW-05, located immediately upgradient of the Site, was monitored as a background location during the pilot study. Well construction details are provided in **Table 3-1**.

During the pilot study, the wells were monitored weekly for volatile organic compounds using a photoionization detector (PID), pH, conductivity, dissolved oxygen (DO), temperature, oxidation-reduction potential (ORP), dissolved carbon dioxide (CO_2), CO_2 gas, dissolved iron, turbidity, dissolved ozone, and ozone gas. The weekly field readings are provided in **Appendix B.** Groundwater samples were collected from the wells during a baseline round in August 2008, four times during the pilot test ozone injection, and one month after completion of injection activities to examine rebound. Groundwater sampling is discussed further in Section 3.4.

3.2.1.3 Soil Vapor Sampling Points

It was concluded that the existing soil vapor wells (SVP-01A, -01B, and 02) installed by ERM in 2005 were not functioning correctly and may be clogged. In order to monitor on-site soil vapor during the pilot study, two co-located shallow and deep soil vapor points (SV-1S/D and SV-2S/D) were installed by Zebra Environmental Corp. on June 11, 2008 using direct-push drilling methods at the locations shown on **Figure 3-1**. Co-located boreholes were drilled to depths of 8 feet bgs and 65 feet bgs. At each boring, a 6-inch (length) by one-inch (width) double woven stainless steel sampling screen connected to 3/8-inch Teflon®-lined tubing was placed at the desired screen interval. Each borehole was backfilled with sand to a minimum depth of 6-inches above the screen interval followed by 6-inches of dry bentonite. Bentonite slurry was then placed to the ground surface. Well construction details for the soil vapor sampling points are provided in **Table 3-2**. The soil vapor points were sampled for VOC by EPA Method TO-15 during the baseline round, one round during the pilot study and one round following the ozone injection shutdown.

3.2.1.4 Sub-Slab Soil Vapor Points

A sub-slab sample point was installed in the site structure and the adjacent Cove One-Hour Photo building to monitor sub-slab soil vapor during the pilot study. The sub-slab sample locations were installed as permanent points to facilitate future sampling events. A hammer drill was used to advance a boring to a depth of approximately two inches beneath the building slab. A permanent port constructed of stainless steel tubing and fittings was then installed in the opening. The annular space between the borehole and the sample tubing was filled and sealed with anchoring cement. Teflon tubing was connected to the stainless steel sample port and utilized for sample collection. Construction details for the sub-slab ports are provided in **Table 3-2**. The sub-slab ports were sampled during the baseline round, once during the pilot study, and one month after the pilot study shutdown for VOC by EPA Method TO-15. The sub-slab points were also monitored once per week for ozone gas.

3.2.1.5 Vapor Observation Wells

The four vapor observation well clusters (VOW-1 through VOW-4; shallow, intermediate, deep) installed by ERM were used during the pilot study to monitor for ozone gas in the unsaturated zone (**Table 1-6**). These wells were monitored weekly during the study.

3.2.2 Ozone Generation System

The sparge gas for wells IW-1S/D and IW-2S/D consisted of a mixture of ozone and dry air generated from an ozone generator trailer provided by Blue Lightning Underground (BLUE)/Resource Control Corporation (RCC). The trailer was placed at the northeast corner of the site, north of the injection wells, and consisted of the following major elements:

- One 0.9 kilowatt (kw) ozone generator capable of producing 3 pounds per day (lb/day) ozone at 4 to 6 percent by weight, at 35 psi injection delivery pressure
- 5.5 kw air compressor capable of delivering 20 scfm at between 50 and 150 psig to the ozone generator
- 60 watt (w) oxygen generator
- 0.23 kw HX-1 dryer
- 1.8kw ozone booster pump
- 3.0kw heater
- Programmable logic controller

Figure 3-2 shows the electrical single line diagram for the ozone trailer. Compressed air was dried in the electric air dryer and then ozone was generated using the ozone generator. The generator was a water-cooled unit. High and low ozone concentration monitors measured ozone in the process stream and in the ambient working environment in the shed, next to the ozone generator, respectively. The ozone stream was compressed and mixed with the compressed air stream prior to distribution to the injection manifold. The rate of the two ozone streams from the manifold was controlled by valve/rotameter assemblies and discharged to wells IW-1S/D, IW-2S/D through Teflon tubing. The air stream and ozone injection was rotated every two hours between the shallow and deep intervals of each injection well (deep points, then shallow points)

3.3 Operations

On August 28, 2008, groundwater, soil vapor, and sub-slab soil vapor samples were collected to provide baseline information about existing soil and groundwater conditions prior to beginning the pilot study. The round was completed in anticipation of a September 2008 pilot system startup; however, due to electrical issues at the site, the system startup was delayed until January 2009.

On January 5, 2009 RCC initiated the *in situ* ozone pilot study at the maximum ozone production and sparge rates of the system. On average, the system injected about 2.6 pounds of ozone per day during the study (**Table 3-3**). At all times during the study,

the volumetric sparge flow rate was held constant at actual cubic feet per minute (acfm) per point. The system was scheduled to operate from January 5 to February 4, 2009 and then shut down for a one week period to evaluate rebound in groundwater concentrations. However, during the weekly O&M visit on January 30, 2009, RCC observed that three of the four solenoid valves had failed. Two of the valves were replaced, leaving injection well IW-2D offline until the planned February 4, 2009 shutdown.

The scheduled system shut down occurred from February 4 to February 12, 2009. However, between the February 12, 2009 restart and February 24, 2009 there were several issues with the solenoid pressure valves. Consequently, four new 100 psi valves were installed on the system on February 24, 2009. As such, February 25, 2009 was considered the true re-start date for the pilot study.

The pilot study injection period concluded on March 25, 2009, and final sampling was conducted on April 22, 2009. Refer to **Table 3-4** for a summary of the injection dates, sparge rates, and ozone produced/injected. The system was monitored daily, excluding weekends and holidays, during the ozone pilot study period.

3.4 Monitoring

A total of six rounds of sampling were conducted as part of the ozone pilot study (Baseline, Round 1 through Round 4, and post-ISCO Round 5). Groundwater samples were collected from monitoring wells MW-1 through MW-5 and PTW-1 during all of the rounds as indicated in **Table 3-5**. In addition to field parameters, the groundwater samples were analyzed for VOC, chloride, bromate, alkalinity, COD, TOC, TDS, dissolved iron, and dissolved manganese. In accordance with the Supplemental Work Plan, wells were purged by low-flow sampling methods until field parameters had stabilized.

Soil vapor and indoor air sampling was conducted during the baseline, Round 2, and post-ISCO Round 5 sampling events. The soil vapor point (SV-01S/D and SV-02S/D) samples were collected using 1.4L SUMMA canisters with 2-hour regulators. The sub-slab and indoor air samples were collected using 6L SUMMA canisters with 24-hour regulators. These samples were analyzed for VOC by EPA Method TO-15.

3.4.1 Field Monitoring Procedures and Rationale for Collection

In addition to groundwater sampling, field readings were collected weekly from the monitoring wells, VOW, and the sub-slab points at the Payless Shoe Store and Cove 1-Hour Photo as indicated in **Table 3-4**. Field readings were measured for VOC using a PID. The field parameters pH, conductivity, dissolved oxygen (DO), temperature, oxidation-reduction potential (ORP), dissolved carbon dioxide (CO_2), CO_2 gas, dissolved iron, turbidity, dissolved ozone, and ozone gas were measured using appropriate meters and field kits. The weekly field readings are provided in **Appendix B.**

The following provides a summary of monitoring parameters, methods for measurement, and rationale for collection of field parameters. Trends of the field parameter results over time are provided in Figures 3-3 through 3-5.

- Groundwater VOC concentrations were measured to assess efficacy of the ozone curtain, screen for potential mobilization of NAPL, and monitor for rebound conditions, if applicable, upon termination of the injection phase.

- Total organic carbon was measured to determine the selectivity of ozone sparging to oxidize organic carbon compared to inorganic constituents carbon (e.g., carbon dioxide, carbonic acid) in the groundwater. Total organic carbon is an ozone scavenger due to the non-selectivity of ozone.

- Total dissolved solids were measured to determine changes in dissolved phase constituents driven by pH shifts or changes in oxygen concentrations due to ozone sparging.

- Ferrous iron and manganese levels were measured to determine changes in the oxidizing environment as these elements react with ozone to form insoluble ferric iron and manganese dioxide. These solids could potentially reduce the permeability of the aquifer. Additionally, these metals, among others, are ozone scavengers. Trends of the dissolved iron and manganese concentrations over time in wells PTW-1 and MW-1 through MW-5 are provided in **Figures 3-3A through 3-3F.**

- Alkalinity was measured to determine changes in the buffering capacity of the aquifer system. Increased alkalinity, particularly carbonate alkalinity, will attenuate ozone reaction rates and scavenge hydroxyl radicals. Time trend graphs of alkalinity, pH, and COD are provided in **Figures 3-4A through 3-4F**

- Chemical oxygen demand (COD) was measured to determine whether ozone sparging was having an effect on the COD of the groundwater. COD is the concentration of oxygen the groundwater necessary to oxidize organic compounds (e.g., PCE) present in the aquifer.

- Chloride levels were measured as an indication of chlorinated VOC (e.g., PCE) degradation by ozone. Time trend graphs of chloride are provided in Figures **3-5A through 3-5F**.

- Bromate was measured to determine the potential for oxidizing bromide present in the aquifer system. Bromate is a probable human carcinogen with a U.S. Environment Protection Agency (USEPA) Maximum Concentration Limit (MCL) of 0.01 mg/L in drinking water. A pH below roughly 6.5 will limit the formation of bromate. Bromine does not occur naturally. Instead, bromine exists exclusively as bromide salts in diffuse amounts in rock and soils. Due to leaching, bromide salts have accumulated in sea water and salt deposits. The major natural sources of bromide in groundwater are saltwater intrusion and bromide dissolution from

geologic formations. Bromate (BrO3) is not a natural component of water but may be formed during the disinfection of drinking water using ozone or a combination of ozone and hydrogen peroxide. During ISCO, bromate is formed during injection of an oxidant, notably ozone. The concentration of bromide in raw water is a major factor in the formation of bromate.

- Dissolved carbon dioxide (CO_2) was measured. The presence of CO_2 is an indicator of the reaction of ozone with organic compounds.

Specific conductivity, pH, temperature, and turbidity were measured using an YSI 600 XL hand unit during groundwater purging. These parameters assisted in determining the representativeness of purged groundwater. Stabilization of these parameters indicates the groundwater being drawn from the wells was representative of the aquifer formation, and not standing water in the well. The rationale for measuring each of these parameters is provided below.

- Specific conductivity (SC) is a measure of the ions in solution (e.g. bicarbonate or chloride in groundwater) and is directly related to TDS. It may be an indicator of the activity resulting from the reaction of ozone with formation materials and contaminants.

- pH was measured to assess the potential for changed conditions that may for example increase or decrease TDS during the pilot study.

- Temperature was recorded to assess reactions.

- Turbidity was measured as an indicator of the oxidative environment and formation of solids via oxidative processes that can impact aquifer permeability.

Section 4
Results

4.1 Groundwater

Groundwater samples, collected according to the schedule below, were analyzed for VOC and Tentatively Identified Compounds (TIC). Analytical results for each of the sampling rounds appear in corresponding **Tables 4-1 through 4-6**. Copies of the analytical data reports are provided on a CD in **Appendix D**. Please note that duplicate samples from MW-3 have been designated as MW-30 in the Baseline data tables and as MW-103 in the data tables for Round 2 and Round 3.

Sampling Round	Sample Collection Date	Data Table Number
Baseline	August 28, 2008	4-1A-C
Round 1	January 13-14, 2009	4-2
Round 2	February 2-3, 2009	4-3A-C
Round 3	February 10, 2009	4-4
Round 4	March 25, 2009	4-5
Post-ISCO Round 5	April 22, 2009	4-6A-C

Quality Assurance/Quality Control (QA/QC) samples were collected to verify appropriate field and laboratory procedures. Duplicate samples, trip blanks, and field blanks were collected and analyzed throughout the pilot study. Unless otherwise noted, QA/QC samples were generally non-detect, or were reported at concentrations within the accepted method/calibration range (refer to Section 4.3).

Groundwater sample analytical data were compared to the Technical and Operational Guidance Series (TOGS), 1.1.1 Ambient Water Quality Standards and Guidance Values, and Groundwater Effluent Limitations for Class GA waters. New York statute 6 NYCRR Part 701, Classifications-Surface Waters and Groundwaters, subsection 701.15, defines Class GA waters as "fresh groundwaters" with a best usage of "a source of potable water supply". The site is a former dry cleaning facility at which soil, groundwater, and soil vapor contamination, primarily from PCE, has been identified. Therefore, the results reported below focus on PCE and its degradation products: trichloroethene (TCE), 1,2-dichloroethene (*cis* and *trans* as applicable), and vinyl chloride. Additionally, compounds (e.g., ketones and bromate) that can be used to assess efficacy of ISCO are also discussed.

It should be noted that the method detection limits for the compounds *cis*- and *trans*-1,3-dichloropropene, 1,2-dibromoethane, and 1, 2-dibromo-3-chloropropane were greater than the NYSDEC TOGS 1.1.1 standards and guidance values for all sampling rounds. Additionally, in Round 5 (post-ISCO), *cis*-1,3-dichloropropene and toluene were detected at concentrations above the NYSDEC TOGS 1.1.1 guidance values in PTW-1 and MW-5, and MW-1 and MW-11, respectively.

With the exception of monitoring well PTW-1 and MW-5, the compound PCE was detected at concentrations greater than the NYSDEC TOGS 1.1.1 guidance value (5 ug/L) in each well during each of the six sampling events. In PTW-1, PCE was slightly below TOGS criteria in samples collected during Round 1 and Round 2. In MW-5, PCE was slightly below TOGS criteria in the sample collected during Round 4. Monitoring well PTW-1 is situated approximately 25 feet west and downgradient of the ozone injection gallery. MW-5 is situated approximately 60 feet upgradient of the ozone injection gallery. The PCE concentration ranges for each round are summarized below. Refer to **Figures 4-1A through 4-F** for time trend graphs of PCE, TCE, chloride, ORP, and dissolved carbon dioxide. Refer to **Figures 4-2A through 4-2F** for concentration isopleth maps for each round.

- Baseline: PCE concentrations ranged from a low of 25 µg/L in MW-5 to a high of 6,900 µg/L in MW-4. Upgradient well MW-5 exhibited a concentration of 25 µg/L during Baseline.

- Round 1: PCE concentrations ranged from a low of 3.8 µg/L in PTW-1 to a high of 24,000 µg/L in MW-3. Upgradient well MW-5 exhibited a concentration of 15 µg/L during Round 1.

- Round 2: PCE concentrations ranged from a low of 4 µg/L in PTW-1 to a high of 15,000 µg/L in MW-3. Upgradient well MW-5 exhibited a concentration of 11 µg/L during Round 2.

- Round 3: PCE concentrations ranged from a low of 5.6 µg/L in PTW-1 to a high of 19,000 µg/L in MW-3 (MW-3 duplicate sample exhibited a concentration of 20,000 ug/L). Upgradient well MW-5 exhibited a concentration of 18 µg/L during Round 3.

- Round 4: PCE concentrations ranged from a low of 10 µg/L in PTW-1 to a high of 28,000 µg/L in MW-3. Upgradient well MW-5 exhibited a concentration of 4.6 µg/L during Round 4.

- Round 5 Post-ISCO: PCE concentrations ranged from a low of 5.2 µg/L in MW-5 to a high of 9,800 µg/L in MW-3. Monitoring well PTW-1 exhibited a concentration of 5.7 µg/L during the post-ISCO sampling.

The compound TCE was detected during each sampling round in the majority of the monitoring wells, including upgradient well MW-5, at concentrations below the NYSDEC TOGS 1.1.1 guidance value of 5 ug/L.

The compound *cis*-1,2-Dichloroethene was detected intermittently during each sampling round, including upgradient well MW-5, at concentrations below the NYSDEC TOGS 1.1.1 guidance value of 5 ug/L. It should be noted that the analytical method detection limit used for MW-1, MW-3, and MW-4 during the Round 5 post-ISCO sampling was greater (50 ug/L) than the guidance value.

The compound trans-1,2-Dichloroethene was not detected above the NYSDEC TOGS 1.1.1 guidance value of 5 µg/L or the method detection limit during any sampling round.

The compound vinyl chloride was not detected above the NYSDEC TOGS 1.1.1 guidance value of 2 µg/L or the method detection limit during the Baseline event, Round 1, or Round 4. For Round 2 and Round 3, the method detection limit for MW-1, MW-3, and MW-4 was slightly higher (5 ug/L) than the guidance value. During Round 5 (post ISCO), vinyl chloride was detected at concentrations above the guidance value in each well, with the exception of PWT-1. The concentrations ranged from 2.5 µg/L in MW-5 (upgradient) to 1,000 µg/L in MW-1 and MW-3. Given the higher concentrations at monitoring locations near the documented source area, it is expected that the presence of vinyl chloride is a function of biological processes. This is supported by the low upgradient concentration (MW-5: 2.5 ug/L) and the concentration exhibited in PWT-1 (below NYSDEC TOGS 1.1.1 guidance value), which is located immediately downgradient of the injection gallery.

In terms of ketones, which may be produced during the oxidation process, neither acetone, 2-butanone, 2-hexanone, or 4-methyl-2-pentanone exhibited concentrations above their method detection limits or respective NYSDEC TOGS 1.1.1 guidance value during any sampling round.

In terms of bromate, which may be produced via the oxidation of bromide and is classified as a probable human carcinogen, the Round 5 post-ISCO event exhibited concentrations above the USEPA MCL of 0.01 mg/L in all of the wells except upgradient monitoring well MW-5. All wells exhibited bromate concentrations below the method detection limit during Round 1 through Round 4. As discussed in Section 4.3 below, based on the presence of bromate in the field blank, the bromate results for MW-2, MW-3 and MW-4 during the Baseline event are considered non-detect. In addition, based on the presence of bromate in the field blank coupled with the excessive matrix spike and matrix spike duplicate (MS/MSD) recoveries, the Baseline bromate data for wells PTW-1 and MW-1 is considered suspect.

In terms of ISCO, chloride is an indicator of the abiotic degradation of chlorinated compounds. While highly variable, chloride exhibited generally increasing trends followed by decreasing trends at the monitoring wells over the course of the pilot study. Monitoring well MW-2 exhibited a good correlation between PCE and chloride concentrations—PCE concentrations declined from the beginning of the pilot study, with chloride increasing as the study progressed and decreasing at the

conclusion. Monitoring well MW-2 is situated approximately 60 feet downgradient of the injection gallery and is screened from 77.3 to 87.3 feet bgs.

Interestingly, this trend was not observed at the nearest monitoring well, PTW-1. This may be a function of the screened interval of PTW-1 versus the ozone injection wells. PTW-1 is situated approximately 25 feet downgradient of the injection gallery and is screened from 105 to 115 feet bgs. The two shallow intervals of the injection gallery are screened from 98 to 100 feet bgs, while the two deep intervals are screened from 118 to 120 feet bgs. It was expected that ozone injected in the shallow intervals would rise and react above the screened interval of PTW-1. However, it was anticipated that ozone injected into the deep intervals would rise and the reaction products would be exhibited in PTW-1. The field and laboratory data collected during the pilot study suggest that this was not the case. The data shows that MW-2 was better positioned to monitor the pilot study.

Potential of Hydrogen (pH) exhibited slightly increasing trends over the course of the pilot study. There was little variability between sampling events. This is likely due to the increase in hydroxyl radicals (indirect oxidation pathway). The presence of dissolved carbon dioxide (oxidation byproduct), and the likely formation of carbonic acid, would moderate pH shifts somewhat. It should also be noted that variability in measurements was observed over the course of the pilot study. Although the same meters were used, collection methodology seemed to result in variable readings. During the groundwater sampling events, the pH was measured after the wells had been purged, whereas during the weekly measurements, no purging was conducted.

Alkalinity was low through the pilot study, and consequently, was not expected to have a significant impact on scavenging hydroxyl radicals. Alkalinity is a measurement of the ability of a given water to neutralize acids. The three main classes of compounds that form alkalinity are hydroxide, carbonate, and bicarbonate. Bicarbonates are the major form of alkalinity and form from the action of carbon dioxide on soil materials. These compounds function as buffers to resist drops in pH. Waters with high hydroxide alkalinity will typically have a high pH (greater than 10). Waters with carbonate alkalinity will typically have a pH greater than 8. Waters with bicarbonate alkalinity will have a pH of less than approximately 8 but greater than approximately 4.5. Therefore, it is beneficial to understand the types of alkalinity present in terms of the scavenging of hydroxyl radicals.

In general, iron and manganese concentrations tended to decrease over the course of the study and then either stabilized or increased following shutdown of ozone injection. The measurements suggest that iron was oxidized by the ozone during the pilot study.

4.2 Soil Vapor and Indoor Air

Soil vapor, sub-slab vapor, and indoor air samples were collected during the Baseline, Round 2, and Round 5-Post ISCO sampling events. Sub-slab and indoor air samples were collected at the Payless Shoes and the Cove 1-Hour Photo (**Tables 4-1B, 4-3B**

and 4-6B) and soil vapor samples were collected at points SV-1S/1D and SV-2S/2D (**Tables 4-1C, 4-3C and 4-6C**).

The baseline event, collected in August 2008, was conducted prior to the upgrades to the SVE system at the site. Sub-slab soil vapor concentrations of PCE and TCE were significantly higher, 21,238 µg/m^3 and 25 µg/m^3 respectively, than the concentrations observed during Round 2 and Round 5, after the upgrades. Between Round 2 and Round 5, PCE and TCE, sub-slab concentrations stayed at the same order of magnitude (PCE concentrations decreased only from 141 µg/m^3 to 119 µg/m^3 between Round 2 and Round 5), but were significantly lower than those observed prior to the upgrades.

According to the soil vapor matrix tables presented in NYSDOH's *Guidance for Evaluating Soil Vapor Intrusion in the State of New York,* the sub-slab soil vapor analytical results observed during the Baseline round would require mitigation within the Payless Shoes based on the PCE concentrations, and monitoring for the TCE concentrations. At the Cove One-Hour Photo, the Baseline sampling results suggested that reasonable and practical actions be taken to identify source(s) and reduce exposures. Following the SVE system upgrades, based on the concentrations observed in Round 2 and Round 5 the NYSDOH Guidance recommends monitoring at the Payless Shoes. There was no change in status for the Cove One-Hour Photo location.

Similar to the sub-slab vapor concentrations, soil vapor samples collected from the shallow soil vapor points (SV-1S and SV-2S) had an order of magnitude decrease in PCE concentration between the Baseline round and Round 5 (Concentrations decreased from 37,947 µg/m^3 to 1029 µg/m^3 in SV-1S and 698 µg/m^3 to 66 µg/m^3 at SV-2S). PCE soil vapor concentrations at deep soil vapor point SV-1D decreased significantly between the Baseline round and Round 2 (6048 µg/m^3 to 91 µg/m^3) but increased between Round 2 and post-ISCO Round 5 to a concentration at the same order of magnitude as the Baseline round (8,863 µg/m^3). At deep soil vapor point SV-2D, the PCE concentration also decreased significantly between the Baseline round and Round 2 (606,509 µg/m^3 to 19.6 µg/m^3), but then increased between Round 2 and post-ISCO Round 5 to a concentration that was still an order of magnitude lower than the Baseline result (22,181 µg/m^3).

Sampling for fugitive ozone was conducted over the course of the pilot study; however, ozone was not identified, indicating reaction in the saturated and vadose zones prior to reaching soil vapor extraction points.

4.3 Data Usability Summary Report (DUSR)

All samples collected were validated in accordance with NYSDEC Data Usability Summary Report (DUSR) guidance by a party that is independent of the laboratory which performed the analyses and CDM. A usability analysis was conducted by Nancy Potak, a qualified data validator. The DUSR is provided in **Appendix C**.

It should be noted that in all rounds of groundwater data collected during the pilot study, except for MW-5 during the Baseline event and all the results for Round 2, the bromate results are qualified with a "J" indicating the results are estimated. This qualification was made by the data validator based on matrix spike recoveries for bromate that were outside of the normal (75%-125%) recovery range. Of particular note, the matrix spike and matrix spike duplicate (MS/MSD) recovery for bromate in the baseline sample delivery group Z4328 was 3,520%. For the other sampling rounds, the recoveries were between 60% and 140%. Also, based on the presence of 1.61 mg/L of bromate in the field blank collected with Baseline event SDG Z4328 (sample number: FB082708), bromate results for this sample delivery group that are less than five times the concentration in the field blank (up to 8.05 mg/L) are considered non-detect. The presence of bromate in the field blank for this SDG, coupled with the excessive MS/MSD recovery, indicates that the results for bromate that are over five times the field blank value in samples PTW-1BASELINE and MW-1-BASELINE are suspect.

Section 5
Findings and Conclusions

The objective of the IRM was to remove residual contamination in the soil and to assess the potential for In-Situ Chemical Oxidation (ISCO) via the use of gaseous ozone for groundwater remediation at the site. Destruction or reduction of the PCE plume will limit the source of soil gas that is impacting local residences and businesses, and mitigate groundwater contamination that can impact local supply wells. The IRM was a two-phase measure wherein soil vapor extraction was utilized to address contamination in the unsaturated zone and an ISCO pilot study was conducted to assess the feasibility of using ozone as a full scale remedial measure to address contamination in the saturated zone.

5.1 Findings

SVE System

Enhancements to the onsite soil vapor extraction system were completed in October 2008 to make the system more effective and efficient for the remediation of soil at the site. As part of the upgrades to improve the overall performance of the SVE system, four new 4-inch vapor extraction wells (VES-1A, VES-2A, VES-3A, and VES-5) were installed, as well as a higher horse power blower, new demister drum, and filter assembly.

During the pilot study weekly field measurements were collected from January 6 to April 22, 2009, including PID, vacuum, temperature, and pressure readings at the SVE system influent, sub-slab system, and SVE system effluent locations. PID measurements were also collected weekly at the vapor extraction wells during the study. Ozone gas was measured at four vapor observation well (VOW) clusters. Each cluster included a shallow, intermediate and deep VOW. Fugitive ozone was not identified during the pilot study, indicating reaction in the saturated and vadose zones.

Ozone Pilot Study

An ISCO pilot study was performed at the site to collect the data necessary to support or reject the selection of ozone as the ISCO agent to treat the PCE contamination at the site. Ozone (O_3) is a highly reactive gas that can oxidize PCE to form carbon dioxide, water, oxygen, and chloride ions. However, other less innocuous compounds such as aldehydes, ketones, and bromate can be formed during the oxidation process and as such the presence of these compounds was assessed during the pilot study. The pilot study was designed to assess the feasibility of implementing a full scale remedy.

Due to logistical constraints at the site and with NYSDEC approval, the pilot study was completed on the eastern portion of the site, in an area that exhibited low concentrations of the primary site contaminant. This area is generally upgradient of the primary source area ("hot spot") known to be present along the northwest corner of the onsite building. The study included the installation of four injection points

(IW-1S, IW-2S, IW-1D, and IW-2D), associated equipment, operation, and monitoring. Ozone was injected from approximately 20 to 40 feet below the water table via air sparging at the injection wells at a rate of between 1.5 and 3 pounds per day, from January 5 to March 25, 2009. It is estimated that over the course of the pilot study, approximately 179 pounds of ozone was generated and injected via sparging. During the pilot study groundwater was monitored at five onsite monitoring wells (PTW-1 and MW-1 through MW-4) and an offsite upgradient well (MW-5).

Since the reaction of ozone with PCE will result in the formation of chloride ions, an increase in the concentration of chloride is an indicator that the reaction is occurring. The only evidence of a good correlation between PCE and chloride (abiotic indicator) concentrations was observed in the data collected from monitoring well MW-2. In this well, the PCE concentrations declined from the beginning of the pilot study, with chloride increasing as the study progressed and decreasing at the conclusion. Monitoring well MW-2 is situated approximately 60 feet downgradient of the injection gallery. This trend was not apparent at monitoring well PTW-1, which is situated closer to the injection wells at approximately 25 feet downgradient. This disparity may be a function of the screened intervals of MW-2 (77 to 87 ft bgs) and PTW-1 (105 to 115 ft bgs) versus the screens of the ozone injection wells (98 to 100 and 118 to 120 ft bgs). Given the low PCE concentrations in the vicinity of PTW-1, combined with the high hydraulic conductivity of the formation (up to 225 ft/day) and the depth of the MW-2 screened interval, MW-2 was better positioned to monitor the pilot study. The other wells monitored during the pilot study did not show significant PCE reduction due to the ozone injection.

The strongest indirect evidence of ozone reaction was the presence of bromate at concentrations above the USEPA MCL of 0.01 mg/L in samples collected during Round 5 (post-ISCO). Bromate is not derived from natural sources, but instead forms when ozone reacts with the naturally occurring bromide ion commonly found in water. The amount of bromate formed is influenced by the quantity of bromide in the water. The oxidation of bromide via ozone is well documented in ISCO programs, and is the basis for including bromate in the sampling program. Bromate is produced via the oxidation of bromide and is classified as a potential human carcinogen. The Round 5 samples were collected approximately one month following completion of the pilot study. With the exception of upgradient monitoring well MW-5, bromate exhibited concentrations two orders of magnitude greater than the MCL in all wells during Round 5. The concentration in MW-5 was below the method detection limit and MCL. Bromate was not exhibited above the method detection limit or MCL (0.01 mg/L in both cases) in any groundwater sample collected during Rounds 1 through 4. As discussed previously, the bromate data collected during the Baseline Event is considered suspect due to the MS/MSD recovery (3,520%) and the presence of bromate (1.61 mg/L) in the field blank.

The presence of bromate post injection may be a function of the pH adjustment that occurred during the pilot study. The pH of the formation increased between baseline through post-ISCO, with baseline below 6.0 for all wells and post-injection above 6.5.

A pH of less than approximately 6.5 would reduce bromate formation. It should be noted that evidence for the formation of ketones was not observed during the pilot study.

Sub-slab soil vapor analytical data collected prior to the SVE system upgrade exhibited high concentrations of PCE at the Payless Shoes and Cove One-Hour Photo locations. As shown in the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York,* the sub-slab soil vapor analytical results observed during the Baseline round would require mitigation within the Payless Shoes based on the PCE concentrations, and monitoring based on the TCE concentrations. At the Cove One-Hour Photo, the Baseline sampling results indicated that reasonable and practical actions would need to be taken to identify source(s) and reduce exposures. Following the SVE system upgrades, the NYSDOH Guidance recommends monitoring at the Payless Shoes location. There was no change in status for the Cove One-Hour Photo location; however, it should be noted that the location has a SSD system in place.

5.2 Conclusions

The following conclusions have been prepared based on the findings of the ISCO pilot study. The data produced during the pilot study does not provide conclusive evidence that ISCO using ozone is an appropriate technology to be applied on either an interim or long-term basis. Further assessment of bromate formation must be completed in order to verify that the bromate observed during the pilot study was actually generated due to the ozone reaction. If that is the case, then the use of ozone at the site could represent a threat to human health. In addition, the pilot study has yielded information that suggests further site characterization may be necessary, the findings of which may drive a revised remedial action approach.

- The pilot study was performed with low to moderate injection rates of ozone (1.5 to 3 pounds/day) and produced only limited results suggesting that ozone was reacting with PCE in the groundwater beneath the site during the study. The data collected from MW-2 (60 feet downgradient of injection) did show a good correlation between PCE and chloride (abiotic indicator) concentrations. At this well, the PCE concentrations in the groundwater declined from the beginning of the pilot study, while chloride concentrations increased as the study progressed and decreased at the conclusion. However, given the scale and location of the injection program in comparison to known source areas, little direct evidence of contaminant destruction was identified via field sampling and laboratory analysis to allow for a general conclusion as to its effectiveness for full scale implementation at the Site.

- Based on the Round 5 pilot study data, bromate was potentially formed and dispersed over a relatively wide area in a short timeframe. Since bromate was only detected during the final sampling round, the formation of bromate should be substantiated via further pilot testing, or preferably, via treatability testing. If in fact it is determined that bromate is being produced as a result of the ozone

reaction at the site, the use of ozone for the remedy for the site would not be recommended, as it would represent a threat to human health.

- The iron and manganese data collected during the pilot study, particularly in MW-2, suggest that iron was oxidized by the ozone. However, no direct lines of evidence of aquifer permeability reduction due to the oxidation of iron from ferrous to ferric in the formation were observed during the pilot study.

- The data from MW-2 and MW-1 suggest that injected ozone was reacting with contaminants at least 60 feet but less than 120 feet downgradient from the injection point; however there was no evidence of impact within 25 feet upgradient or crossgradient of the injection points as displayed by the data from MW-5, and MW-4, respectively. This suggests that once injected, the ozone is moving laterally in the direction of groundwater flow and not dispersing outward. Since the radius of influence of the injected ozone at the Site is highly dependent on groundwater flow direction and velocity, the data suggests that in order to get adequate contact time with the contaminant, injection points would need to be spaced fairly closely together along transects (creating a sparge curtain) for a successful full scale application of the technology.

- Fugitive ozone was not identified during the pilot study, indicating reaction in the saturated zone. As such, ozone was not coming into contact with contamination in the unsaturated zone. These findings suggest that this technology would not be effective in addressing source material in the unsaturated zone. However, it must be noted that the limited scale of the study may drive these findings.

- Based on the data, the onsite SVE system and the SSDS system at the Cove One-Hour Photo are effectively preventing vapor intrusion into the structures.

- Source material was left in place approximately 5 feet bgs along the northwest corner of the building following the trench excavation in 1993. The data collected during the pilot study identified consistent and high concentrations of PCE and a relative lack of daughter products at the west-southwestern portions of the site via groundwater sampling (i.e., MW-1 and MW-3). These concentrations show that the material left in place is acting as a continued source of groundwater contamination at the Site. ISCO using ozone would not be appropriate to address this source material. Due to the short life of the oxidant, higher injection rates than were used for the pilot study would likely be necessary. This would make the technology both cost prohibitive, requiring significant ongoing commitment of resources, including injection wells, oxidant, labor, maintenance, and monitoring, and a potential threat to human health due to the likely release of fugitive ozone from injecting at such a shallow depth.

- Since there is not a full understanding of the mass of contamination at the site, it would be difficult to determine an accurate dose required to achieve satisfactory PCE destruction in terms of in situ ozone demand for the source area based on the

pilot study data. In general, 1.5 to 3 pounds of ozone is typically required for each pound of contaminant to be treated.

- During the pilot study approximately $700/month was spent on electricity to operate the ozone trailer and approximately $15,000/month was spent for the ozone system usage (vendor cost). So over the three month period of the pilot study, it cost $523/day to operate the system. Over the three month pilot study period a total of 179 pounds of ozone was generated and injected for a material cost of $2.92/pound. In comparison, the material cost for Fenton's regent including hydrogen peroxide, and amendments for pH control and ferrous iron addition is typically $1.20 per pound, and potassium permanganate is $1.80 per pound (EPA *In-situ* Chemical Oxidation Paper).

5.3 Recommendation

Treatability testing is recommended in order to better evaluate ozone as well as other oxidants in order to identify unwanted byproducts and provide a better understanding of oxidant demand and stoichiometry. Samples for the treatability tests should be collected from the western portion of the site, downgradient of the known source area. Following the completion of the treatability tests, and as appropriate, a second pilot study could then be completed downgradient of the known source area (west-southwest portion of the site) to test efficacy within the plume. The treatability/pilot information would then be incorporated into a full scale design and implementation.

Section 6
References

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Figures

Source: USGS 7.5 Minute Topographic Mamaroneck, Bayville, Sea Cliff and Hicksville NY Quadrangles.

Figure 1-1
Site Location Map
Ronhill Cleaners Site
Glen Cove, New York

Aerial Source: New York State GIS Clearinghouse, 2007.

Site Boundary

N

60 30 0 60

Feet

Figure 1-2
Site Map
Ronhill Cleaners Site
Glen Cove, New York

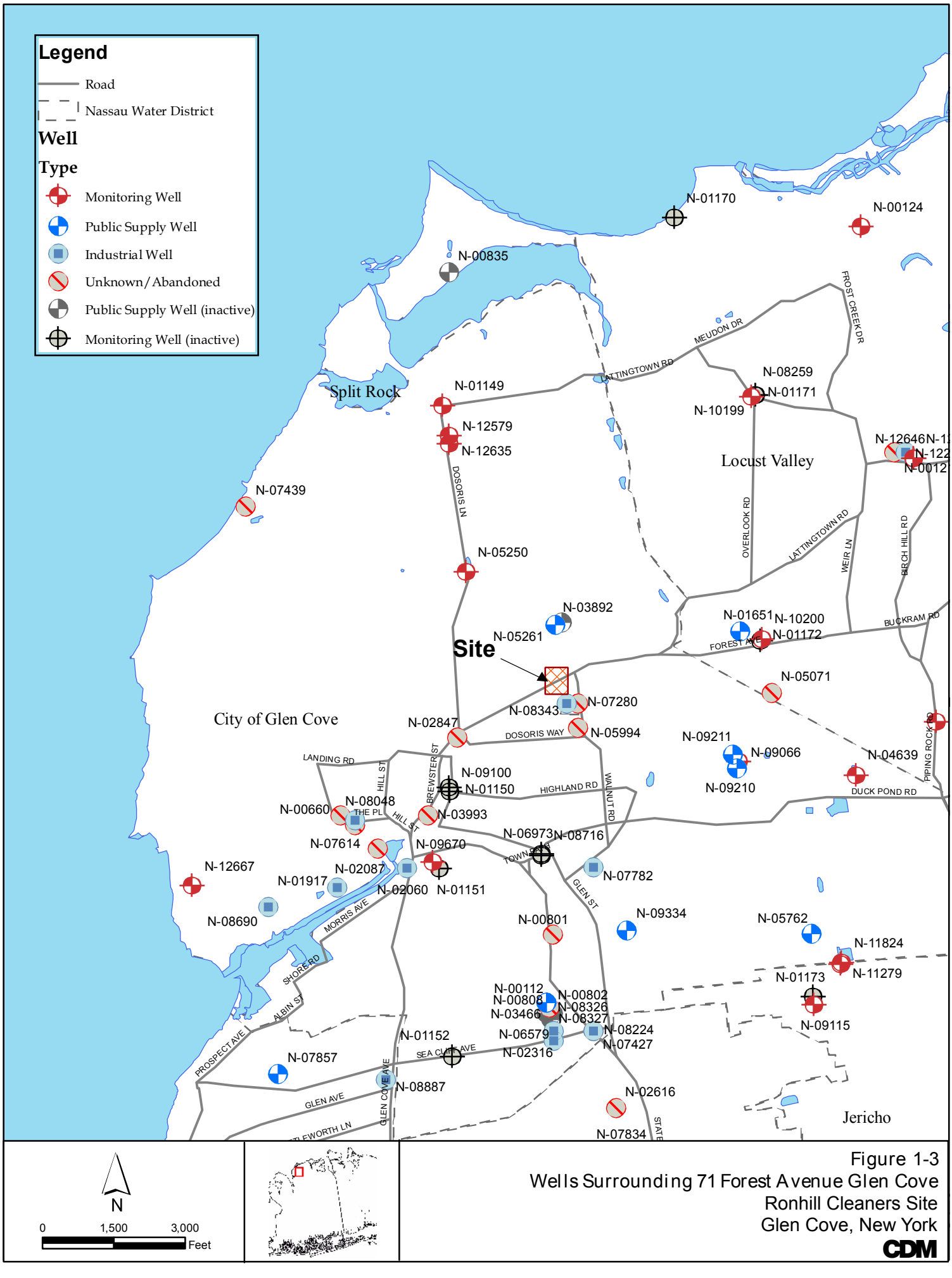
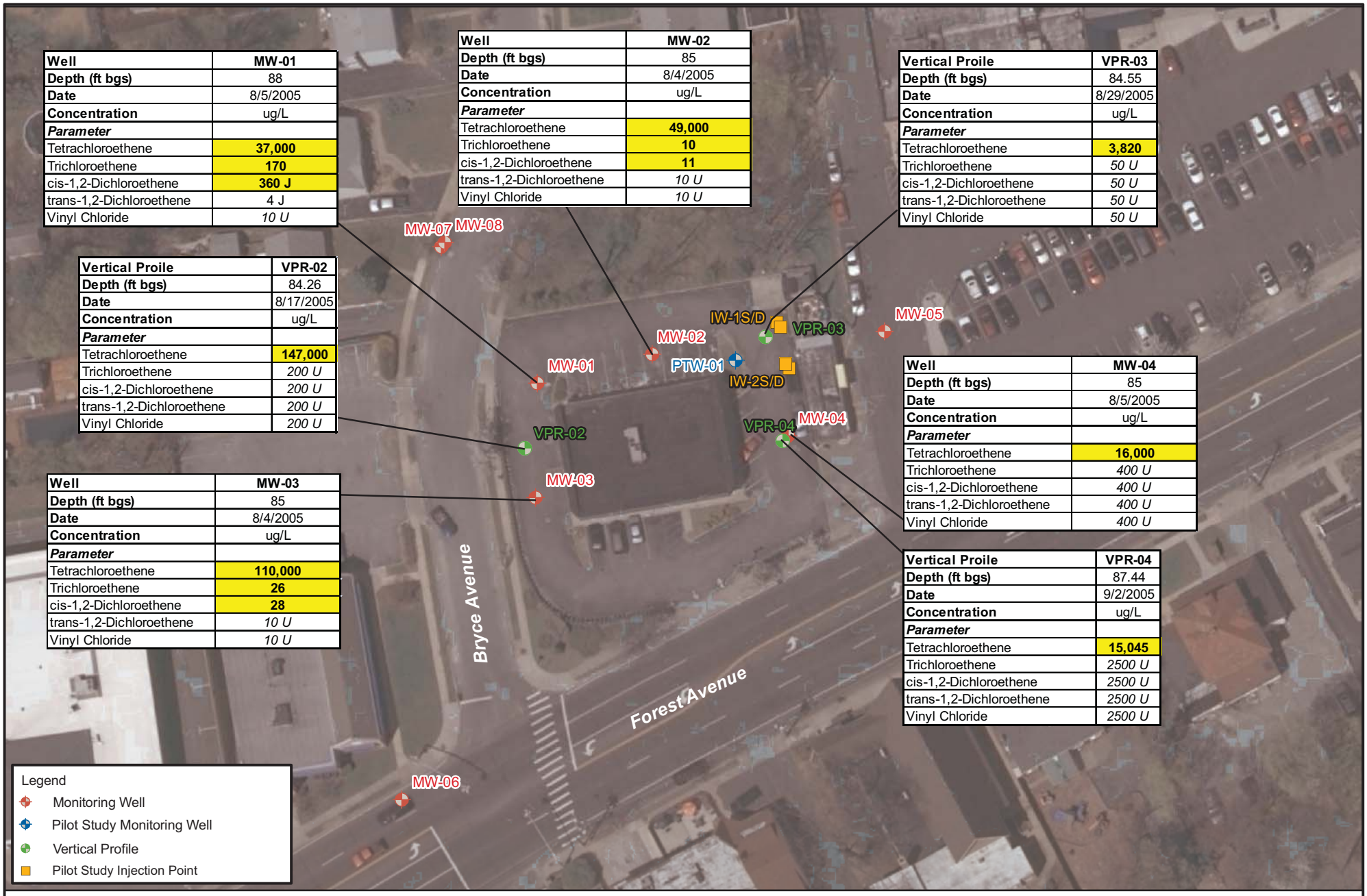


Figure 1-3
Wells Surrounding 71 Forest Avenue Glen Cove
Ronhill Cleaners Site
Glen Cove, New York
CDM



Well	MW-01
Depth (ft bgs)	88
Date	8/5/2005
Concentration	ug/L
Parameter	
Tetrachloroethene	**37,000**
Trichloroethene	**170**
cis-1,2-Dichloroethene	**360 J**
trans-1,2-Dichloroethene	4 J
Vinyl Chloride	*10 U*

Well	MW-02
Depth (ft bgs)	85
Date	8/4/2005
Concentration	ug/L
Parameter	
Tetrachloroethene	**49,000**
Trichloroethene	**10**
cis-1,2-Dichloroethene	**11**
trans-1,2-Dichloroethene	*10 U*
Vinyl Chloride	*10 U*

Vertical Proile	VPR-03
Depth (ft bgs)	84.55
Date	8/29/2005
Concentration	ug/L
Parameter	
Tetrachloroethene	**3,820**
Trichloroethene	*50 U*
cis-1,2-Dichloroethene	*50 U*
trans-1,2-Dichloroethene	*50 U*
Vinyl Chloride	*50 U*

Vertical Proile	VPR-02
Depth (ft bgs)	84.26
Date	8/17/2005
Concentration	ug/L
Parameter	
Tetrachloroethene	**147,000**
Trichloroethene	*200 U*
cis-1,2-Dichloroethene	*200 U*
trans-1,2-Dichloroethene	*200 U*
Vinyl Chloride	*200 U*

Well	MW-04
Depth (ft bgs)	85
Date	8/5/2005
Concentration	ug/L
Parameter	
Tetrachloroethene	**16,000**
Trichloroethene	*400 U*
cis-1,2-Dichloroethene	*400 U*
trans-1,2-Dichloroethene	*400 U*
Vinyl Chloride	*400 U*

Well	MW-03
Depth (ft bgs)	85
Date	8/4/2005
Concentration	ug/L
Parameter	
Tetrachloroethene	**110,000**
Trichloroethene	**26**
cis-1,2-Dichloroethene	**28**
trans-1,2-Dichloroethene	*10 U*
Vinyl Chloride	*10 U*

Vertical Proile	VPR-04
Depth (ft bgs)	87.44
Date	9/2/2005
Concentration	ug/L
Parameter	
Tetrachloroethene	**15,045**
Trichloroethene	*2500 U*
cis-1,2-Dichloroethene	*2500 U*
trans-1,2-Dichloroethene	*2500 U*
Vinyl Chloride	*2500 U*

Aerial Source: New York State GIS Clearinghouse, 2007.

Notes:
BOLD - Concentration exceeds NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water
Italics - Reporting limit exceeds NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values
Vertical profile concentrations are highest concentrations observed in vertical profile groundwater samples
ug/L - micrograms per liter

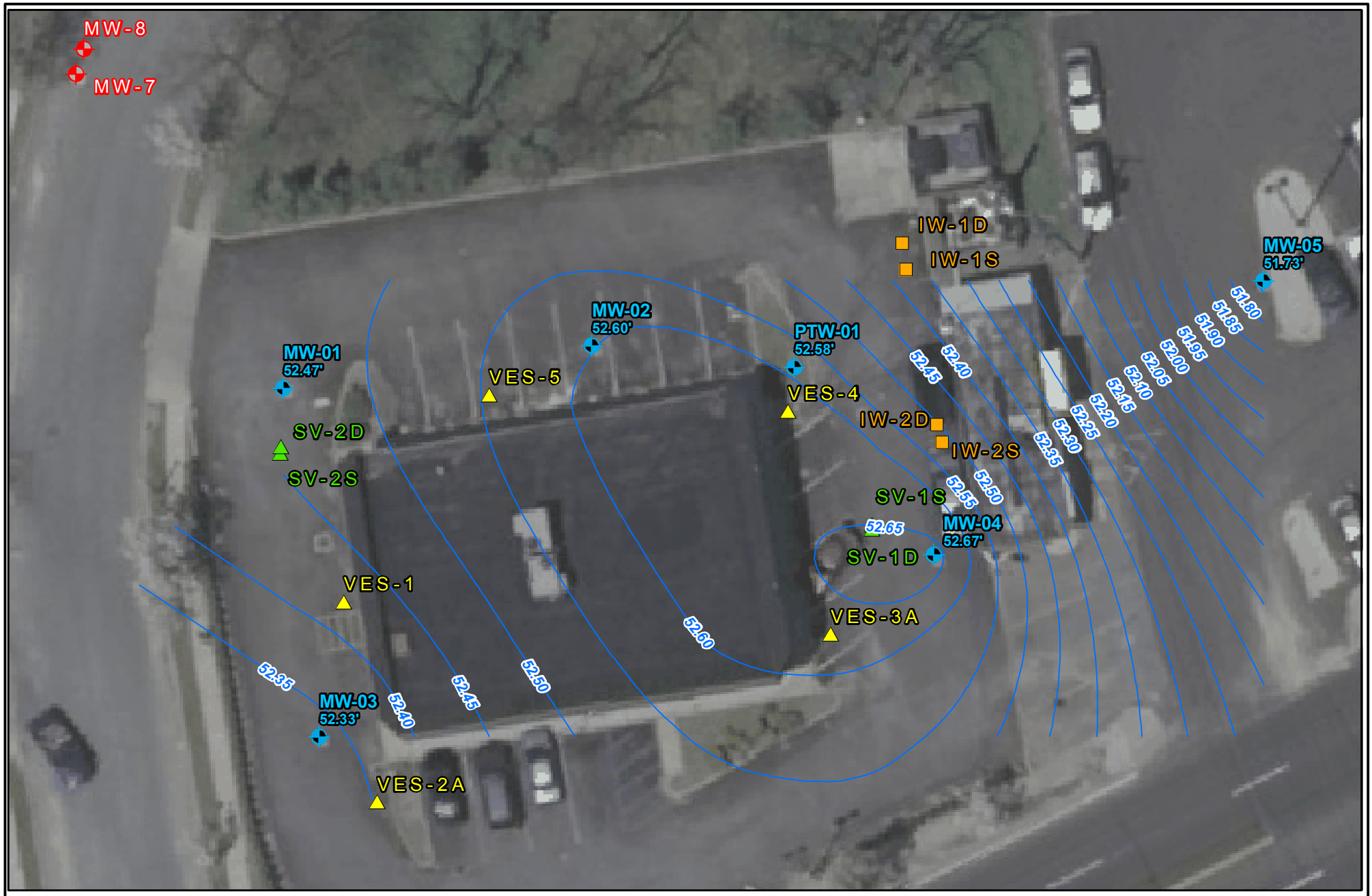
NYSDEC TOGS 1.1.1 Class GA (Groundwater) Standards/Guidance Values	
Parameter	*Conc. (ug/L)*
Tetrachloroethene	5
Trichloroethene	5
cis-1,2-Dichloroethene	5
trans-1,2-Dichloroethene	5
Vinyl Chloride	5

N

60 30 0 60

Feet

Figure 1-4
2005 Groundwater Data
PCE and Degradation Products
Ronhill Cleaners Site
Glen Cove, New York



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

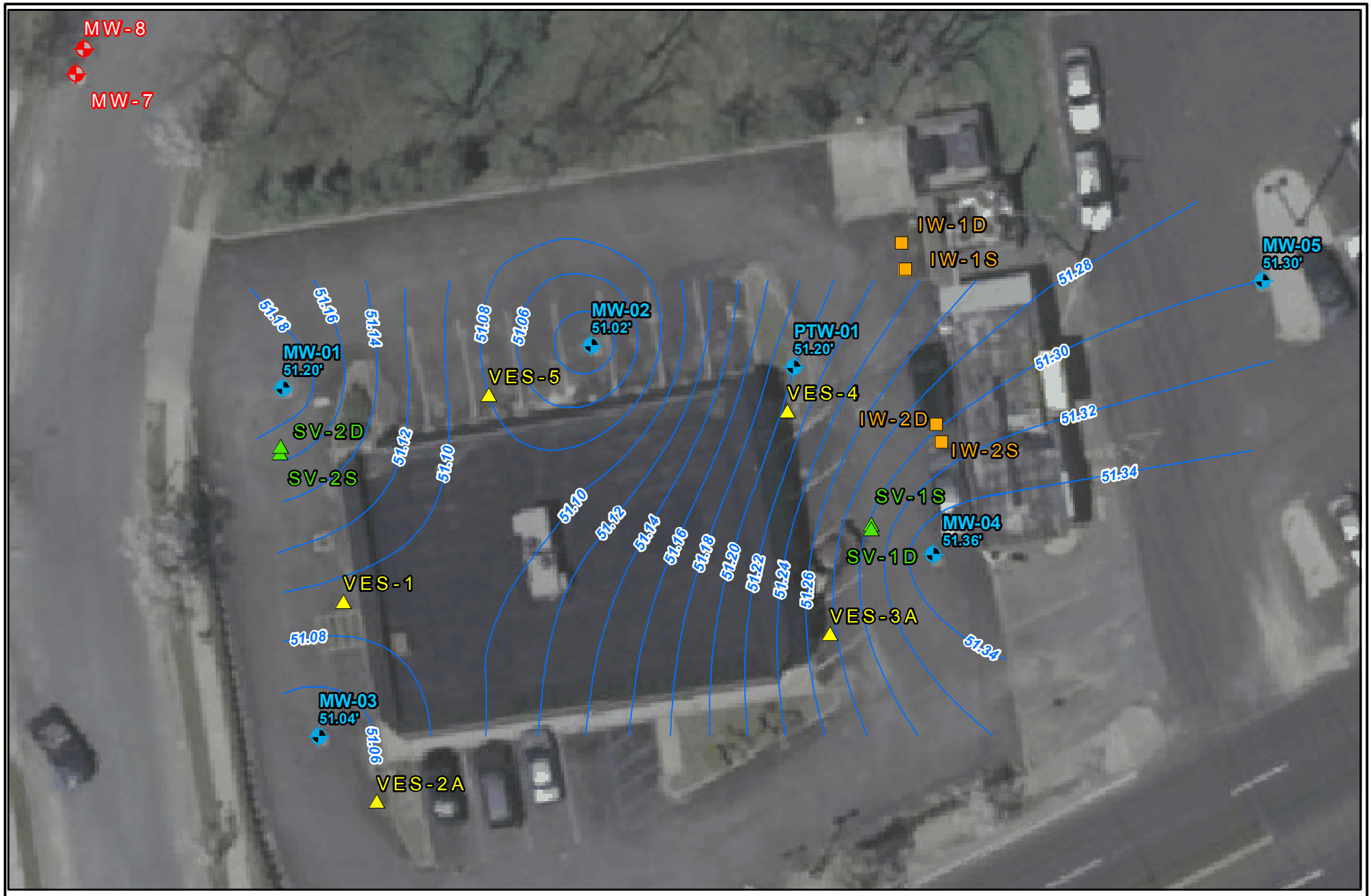
- Injection Wells
- Offsite wells
- Soil Vapor Wells
- Vapor Extraction Wells
- Groundwater Contour
- Monitoring Well

N

0 20 40 Feet

Figure 1-5A
Groundwater Contour Map
Ronhill Cleaners Site
Glen Cove, New York

August 28, 2008



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

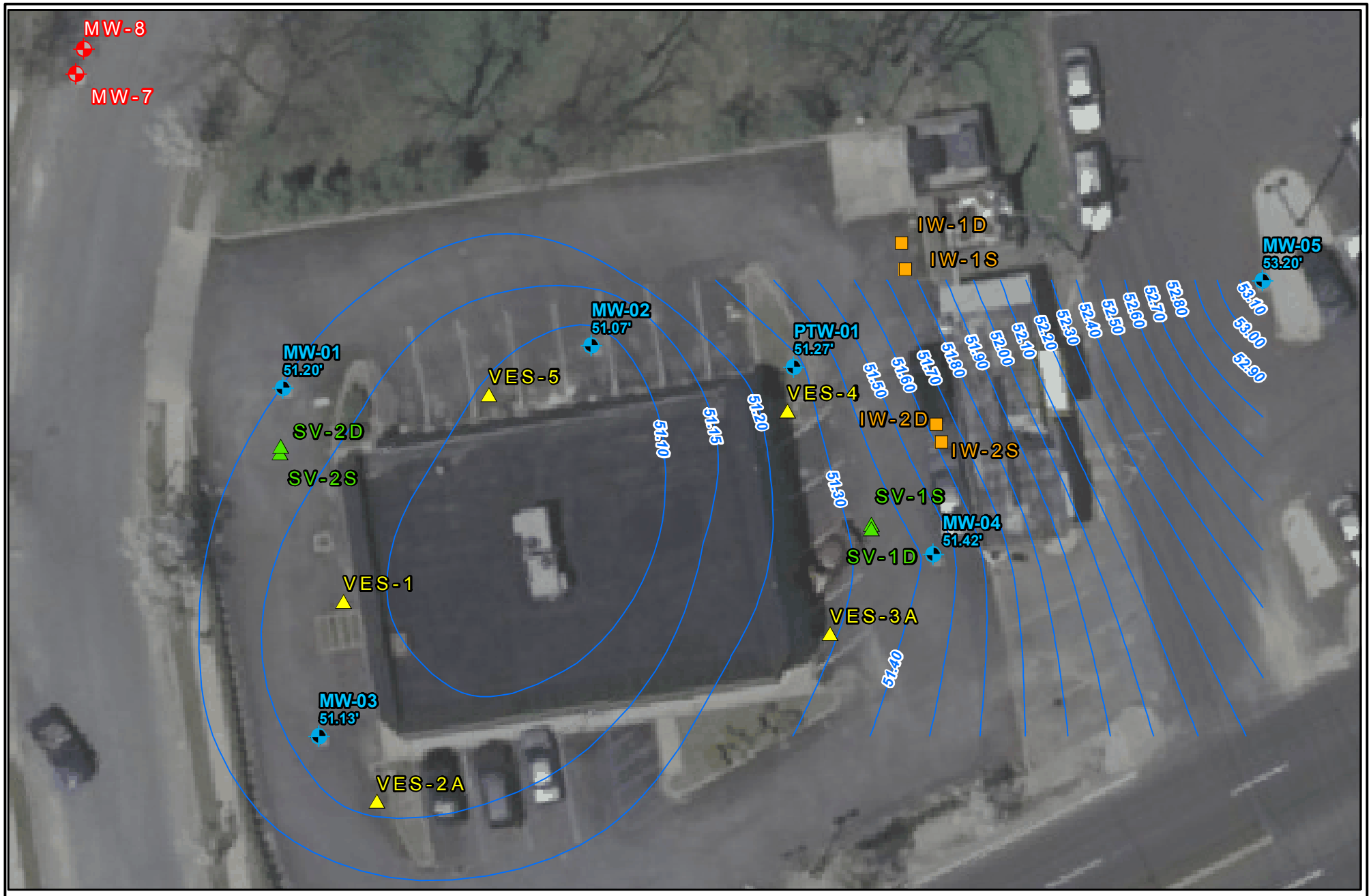
- Injection Wells
- Offsite wells
- Soil Vapor Wells
- Vapor Extraction Wells
- Groundwater Contour
- Monitoring Well

N

0 20 40 Feet

Figure 1-5B
Groundwater Contour Map
Ronhill Cleaners Site
Glen Cove, New York

January 13, 2009



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

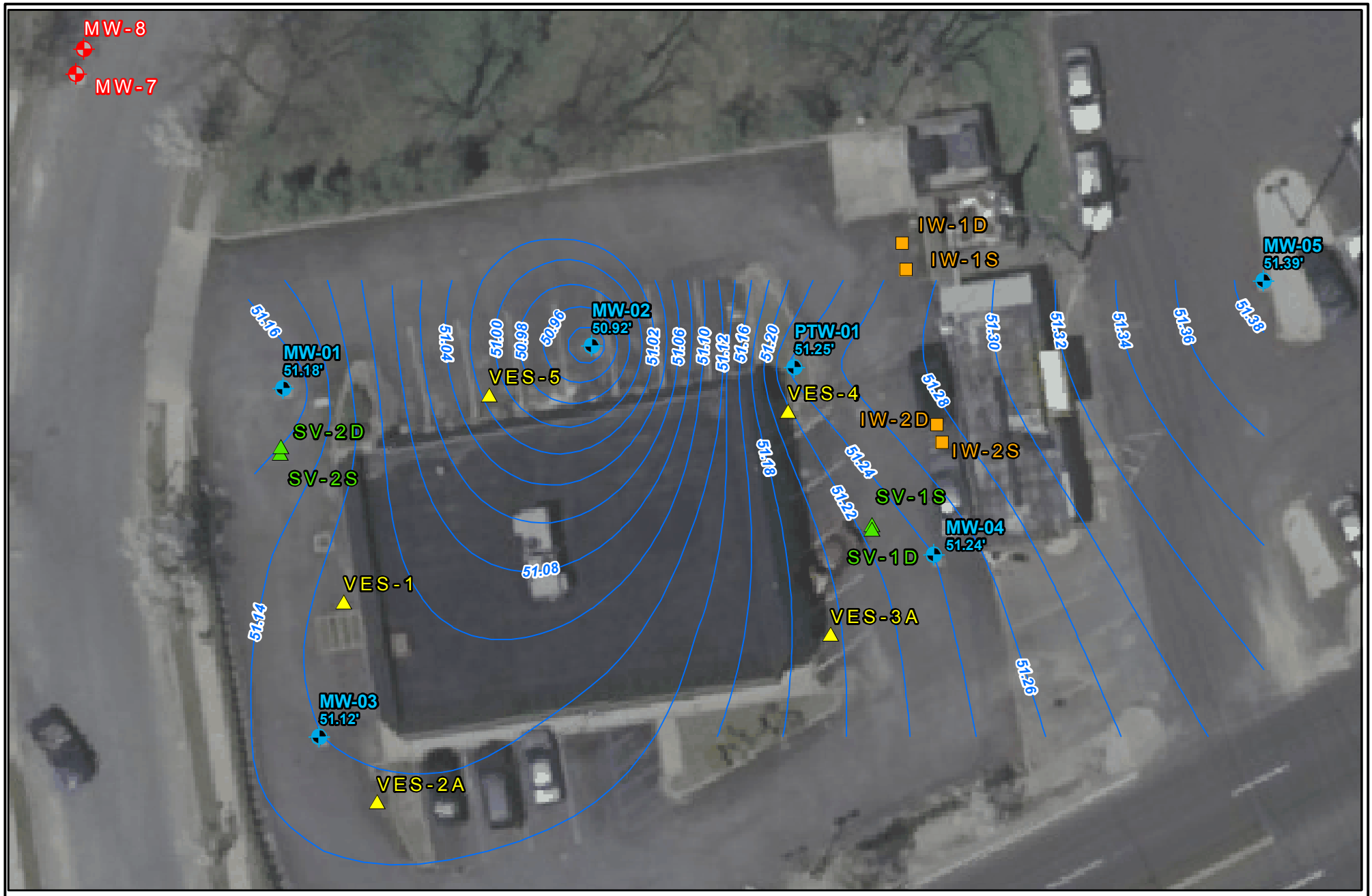
- Injection Wells
- Offsite wells
- Soil Vapor Wells
- Vapor Extraction Wells
- Groundwater Contour
- Monitoring Well

N

0 20 40 Feet

Figure 1-5C
Groundwater Contour Map
Ronhill Cleaners Site
Glen Cove, New York

February 2, 2009



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

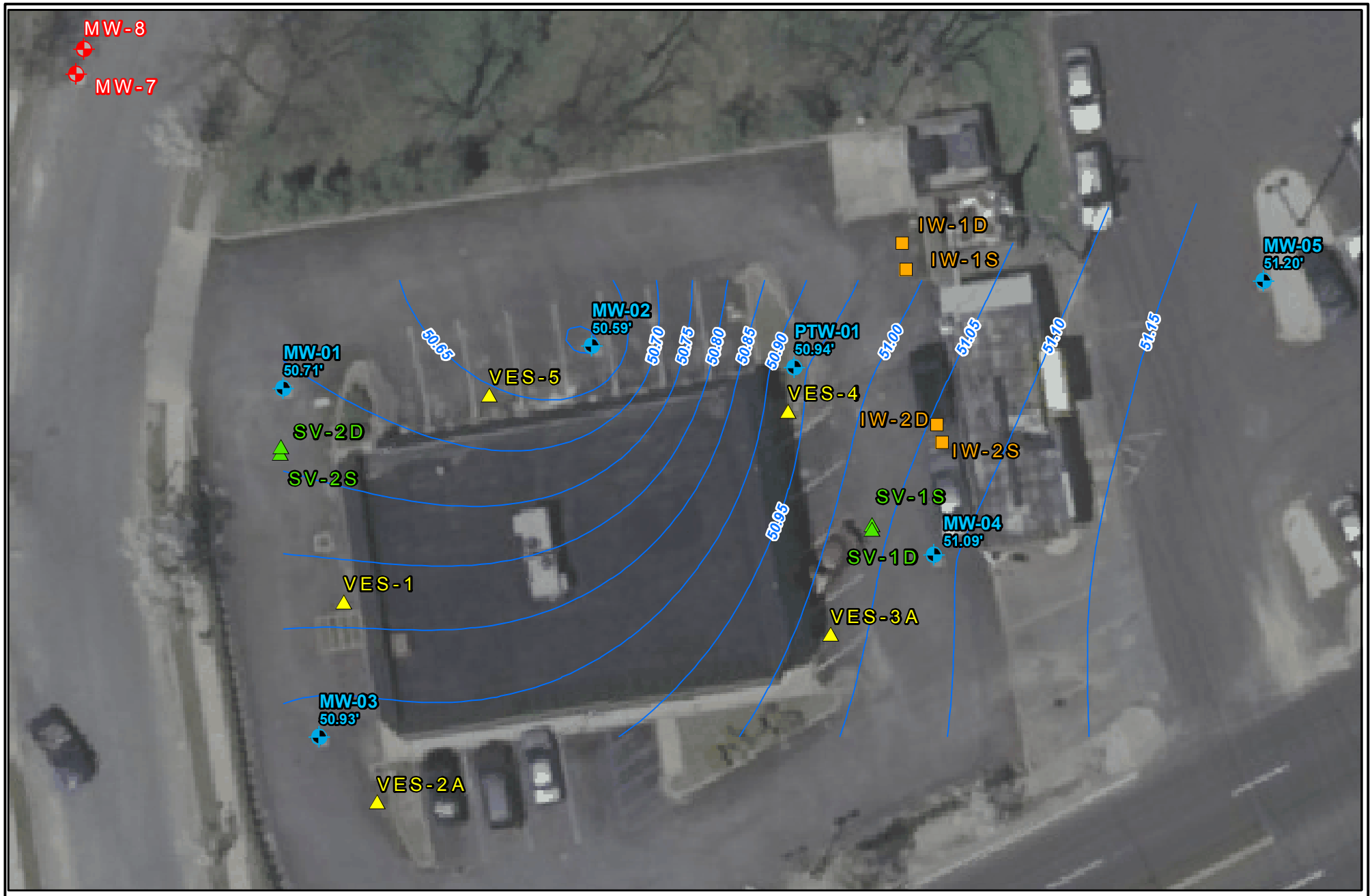
- Injection Wells
- Offsite wells
- Soil Vapor Wells
- Vapor Extraction Wells
- Groundwater Contour
- Monitoring Well

N

0 20 40 Feet

Figure 1-5D
Groundwater Contour Map
Ronhill Cleaners Site
Glen Cove, New York

February 10, 2009



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

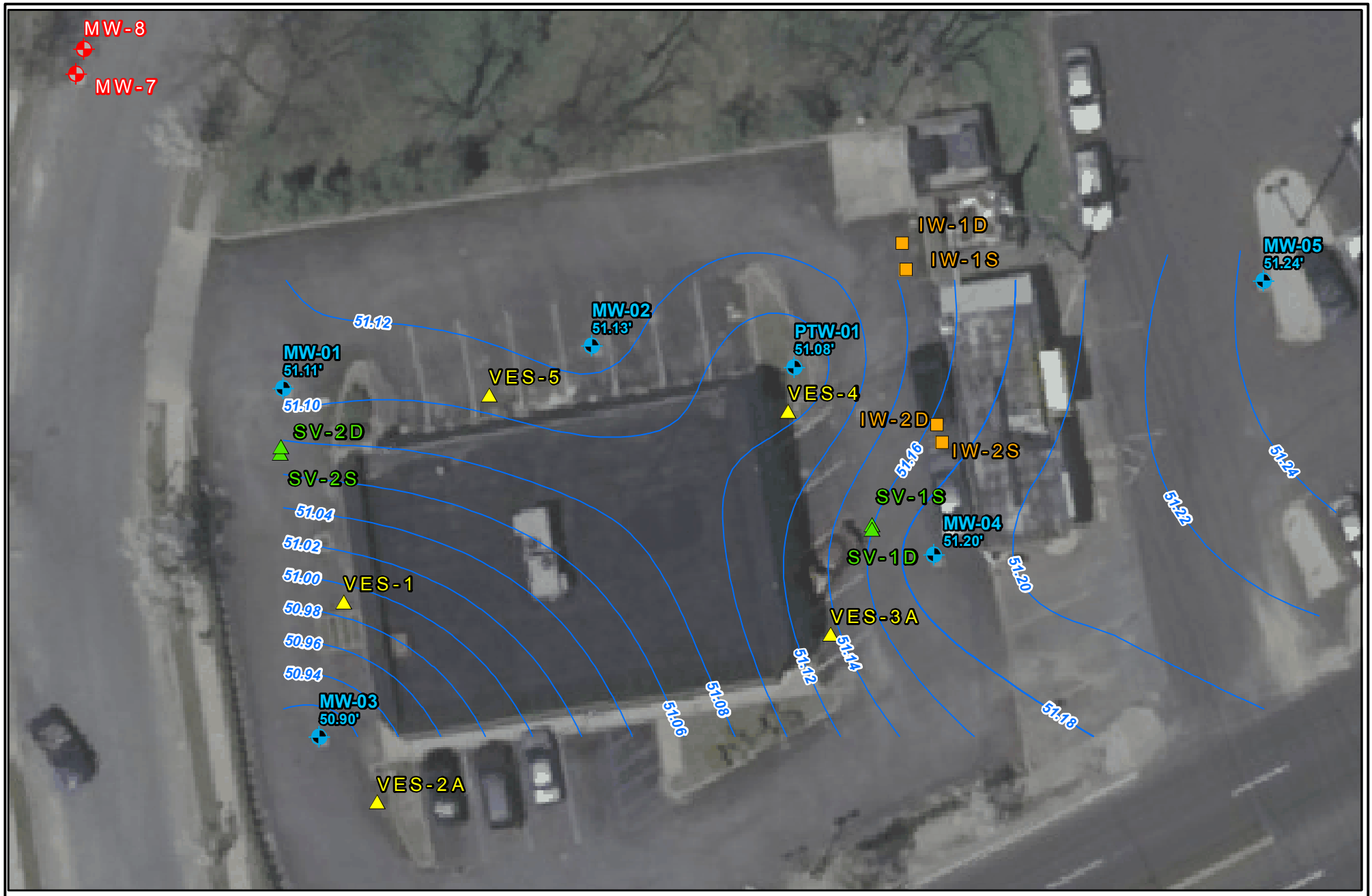
- Injection Wells
- Offsite wells
- Soil Vapor Wells
- Vapor Extraction Wells
- Groundwater Contour
- Monitoring Well

N

0 20 40 Feet

Figure 1-5E
Groundwater Contour Map
Ronhill Cleaners Site
Glen Cove, New York

March 25, 2009



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

- Injection Wells
- Offsite wells
- Soil Vapor Wells
- Vapor Extraction Wells
- Groundwater Contour
- Monitoring Well

N

0 20 40 Feet

Figure 1-5F
Groundwater Contour Map
Ronhill Cleaners Site
Glen Cove, New York

April 22, 2009

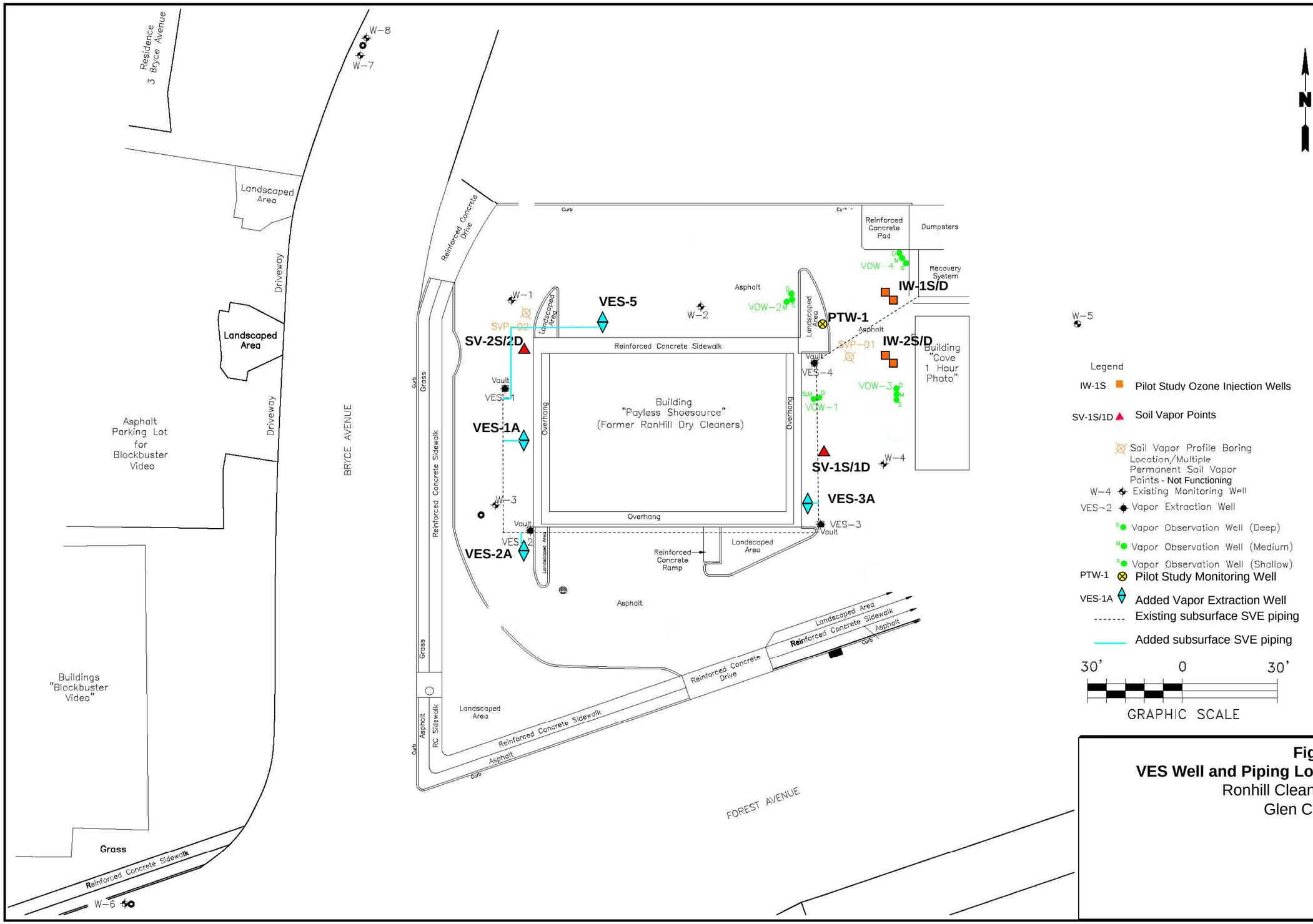


Figure 2-1
VES Well and Piping Locations
Ronhill Cleaners Site
Glen Cove, NY

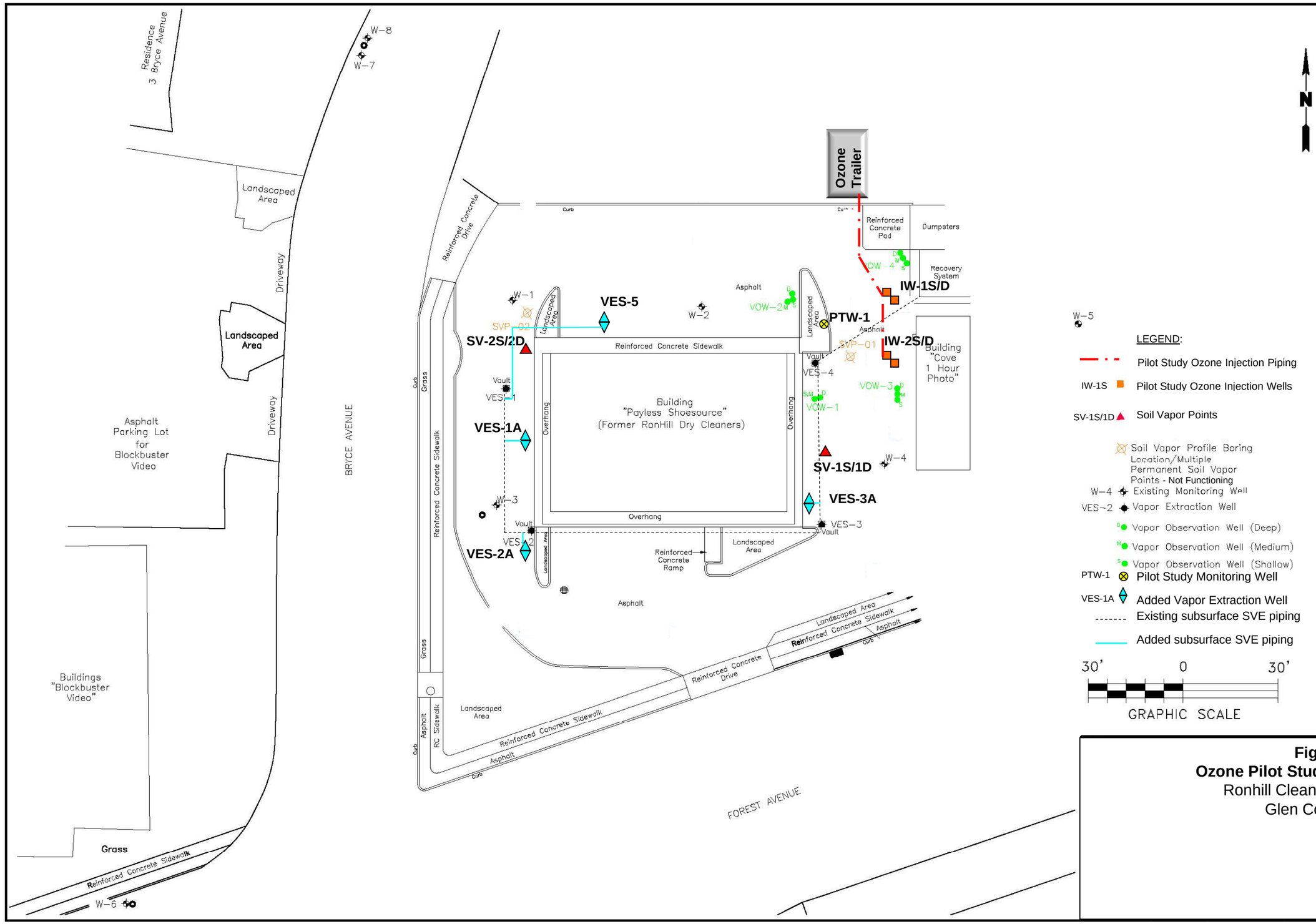
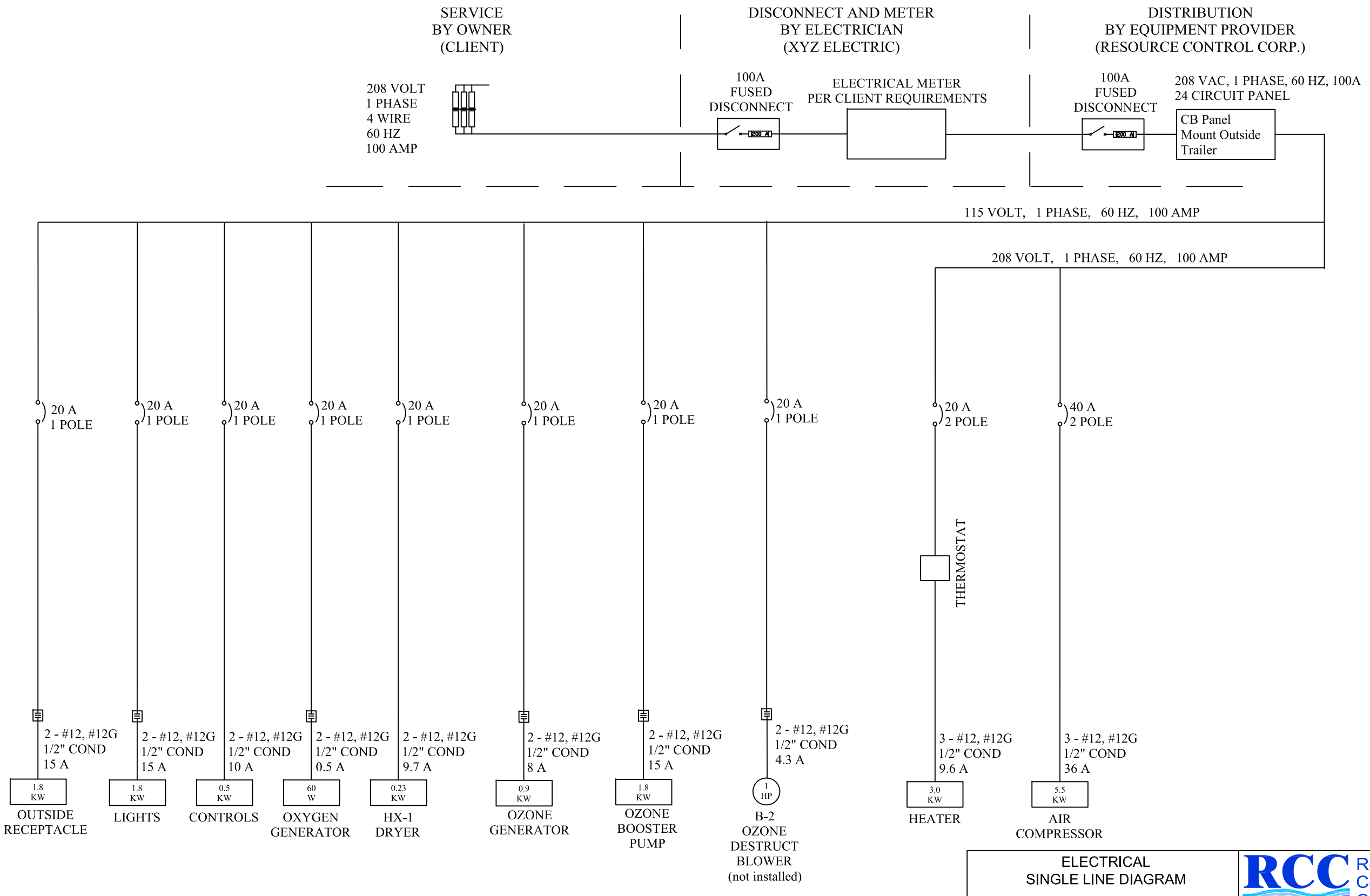


Figure 3-1
Ozone Pilot Study Area
Ronhill Cleaners Site
Glen Cove, NY



ELECTRICAL
SINGLE LINE DIAGRAM

REMEDIATION TRAILER
#16

1274 N CHURCH STREET
MOORESTOWN, NJ 08057

RCC Resource Control Corporation
1274 N. Church Street, Moorestown, NJ 08057
Tel.(856) 273-1009 Fax.(856) 273-1012
1-866-Remedi-8

DESIGNED: AG	
DETAILED: IAK	
CHECKED: RT	
SOURCE: ***RCC***	DATE: 09/23/08
FILE NAME: ELEC 1 LINE	JOB NO.: XYZ
	FIGURE: 1

Table 3-3A
Dissolved Iron & Manganese Concentratiosn vs. Time
PTW-1
Ronhill Cleaners
Glen Cove, NY

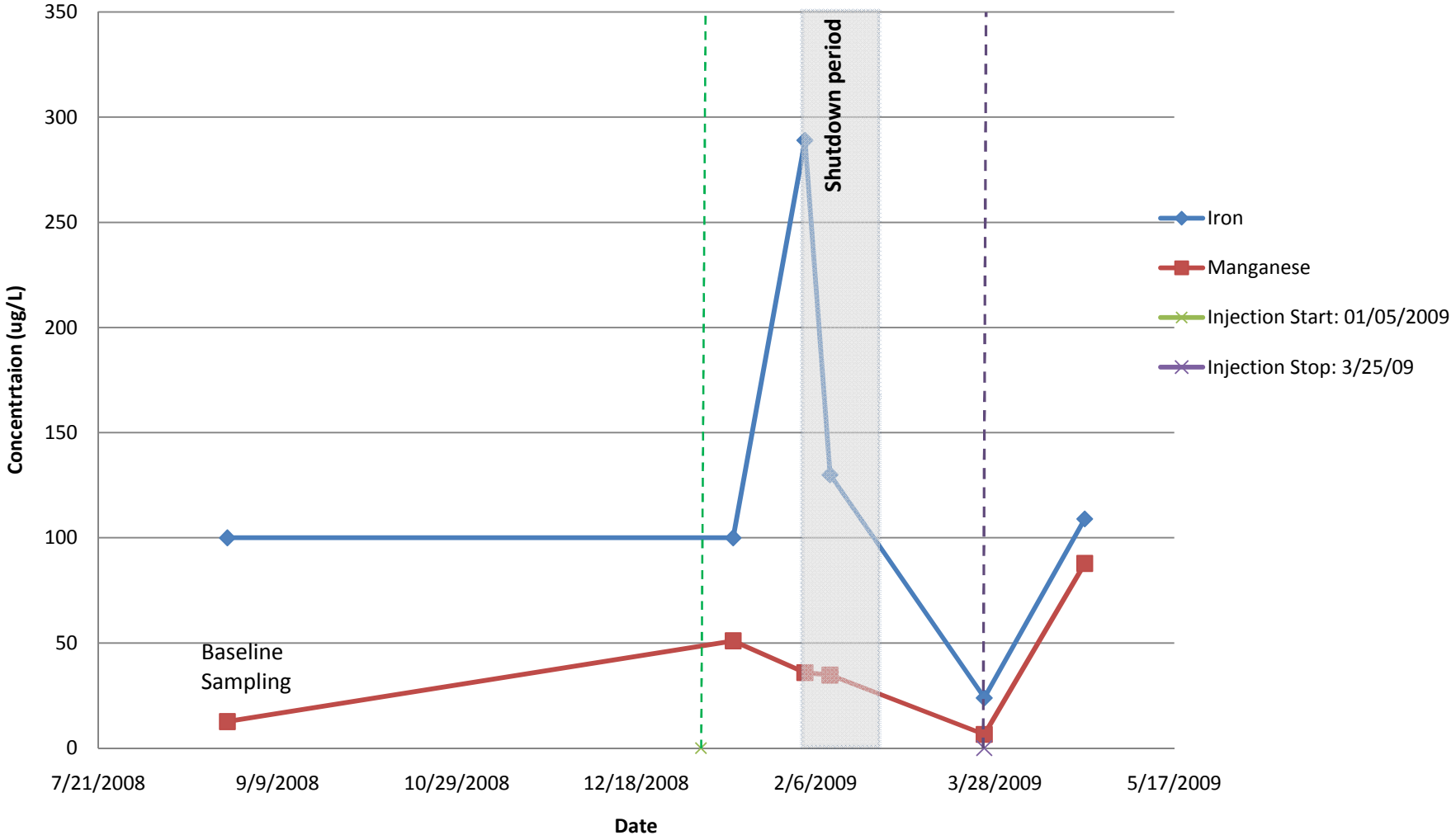


Table 3-3B
Dissolved Iron & Manganese Concentrations vs. Time
MW-1
Ronhill Cleaners
Glen Cove, NY

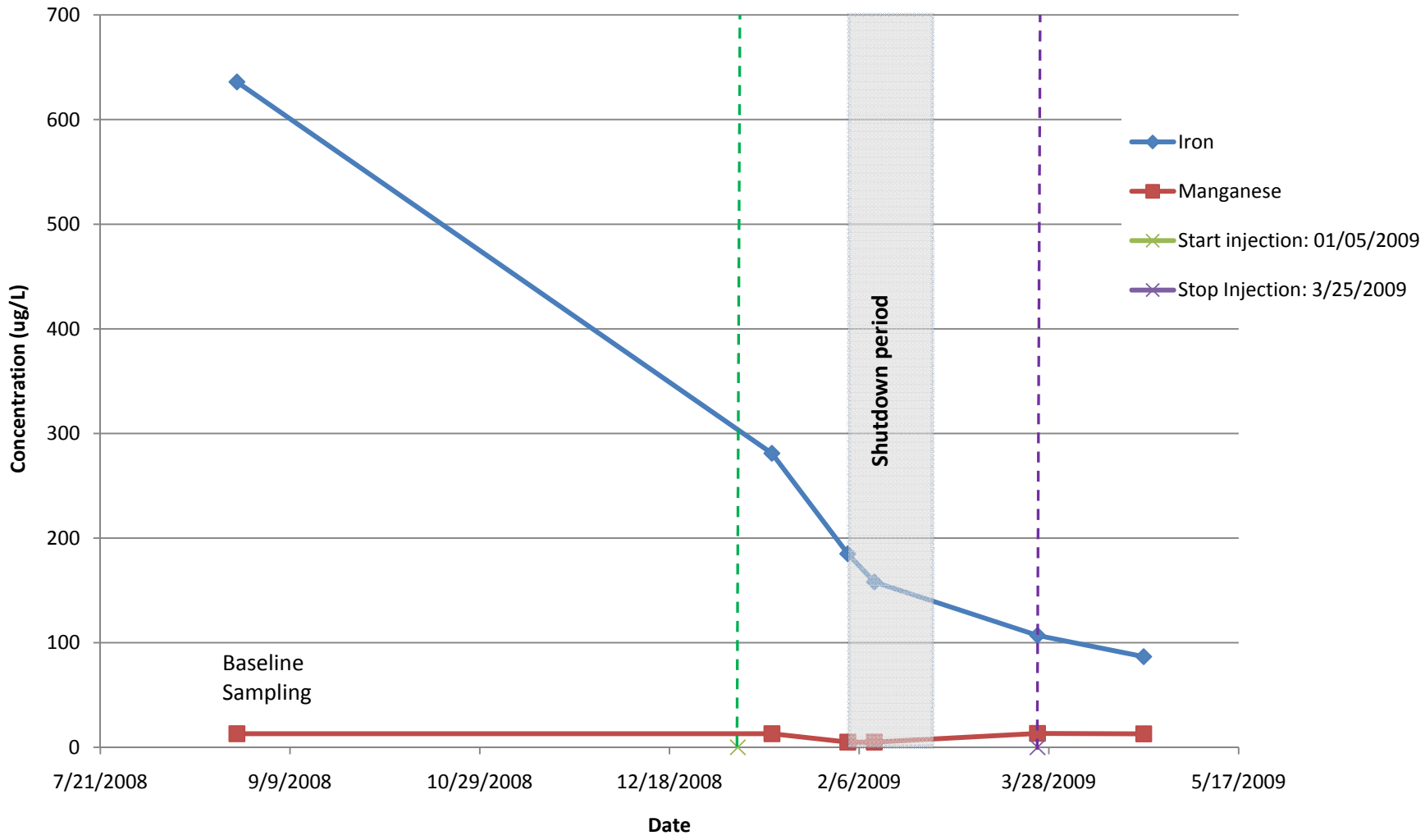


Table 3-3C
Dissolved Iron & Manganese Concentrations vs. Time
MW-2
Ronhill Cleaners
Glen Cove, NY

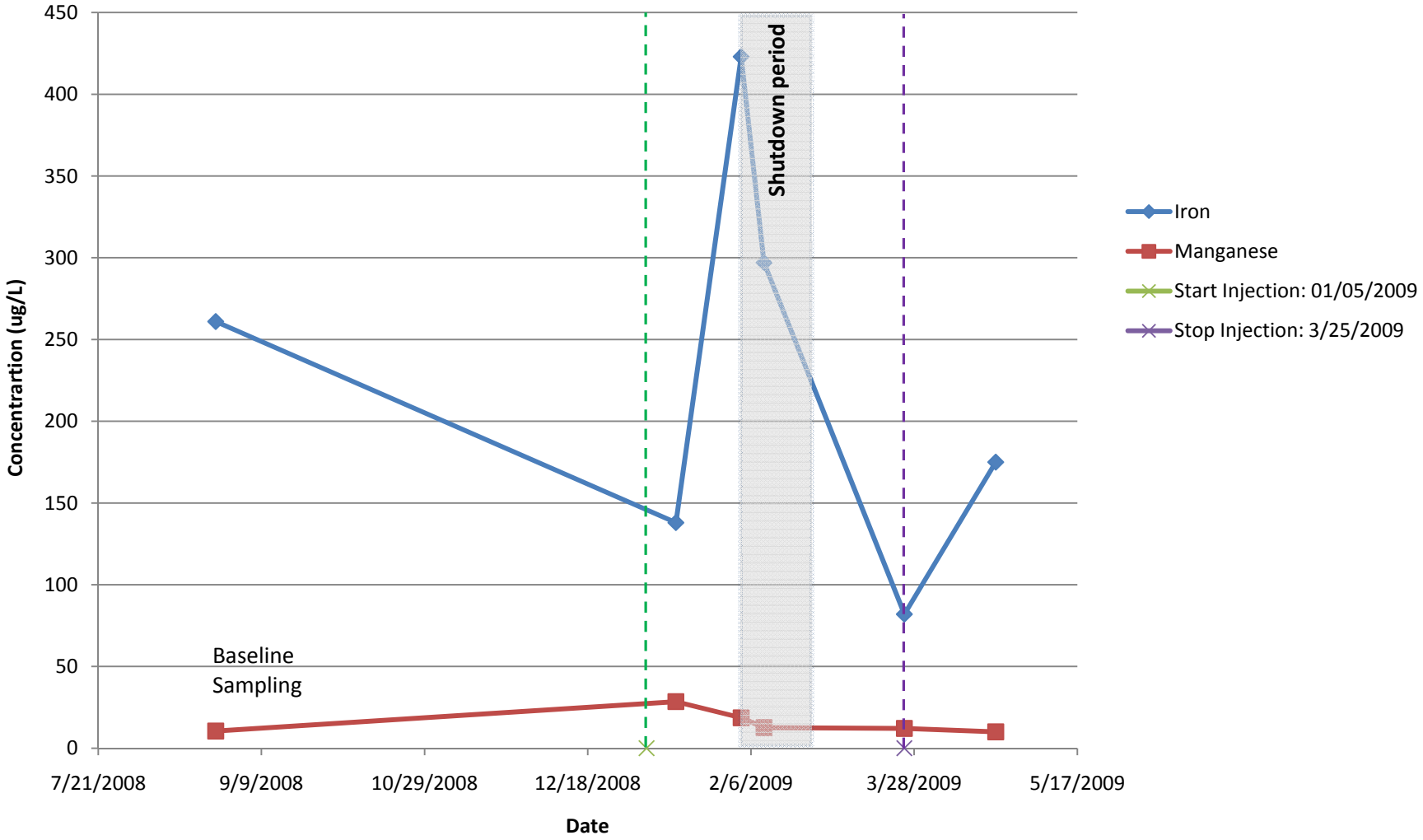


Table 3-3D
Dissolved Iron & Manganese Concentrations vs. Time
MW-3
Ronhill Cleaners
Glen Cove, NY

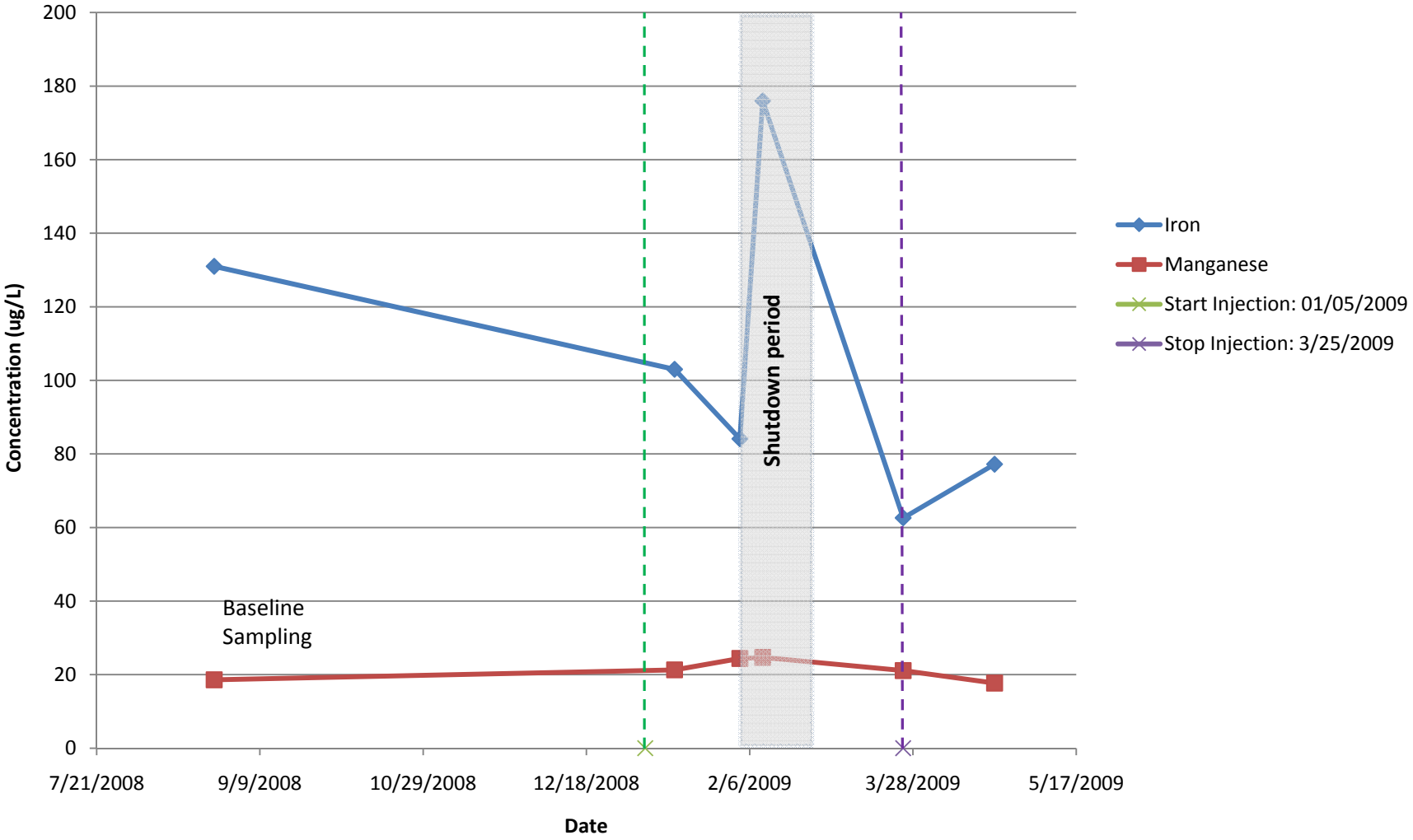


Table 3-3E
Dissolved Iron & Manganese Concentrations vs. Time
MW-4
Ronhill Cleaners
Glen Cove, NY

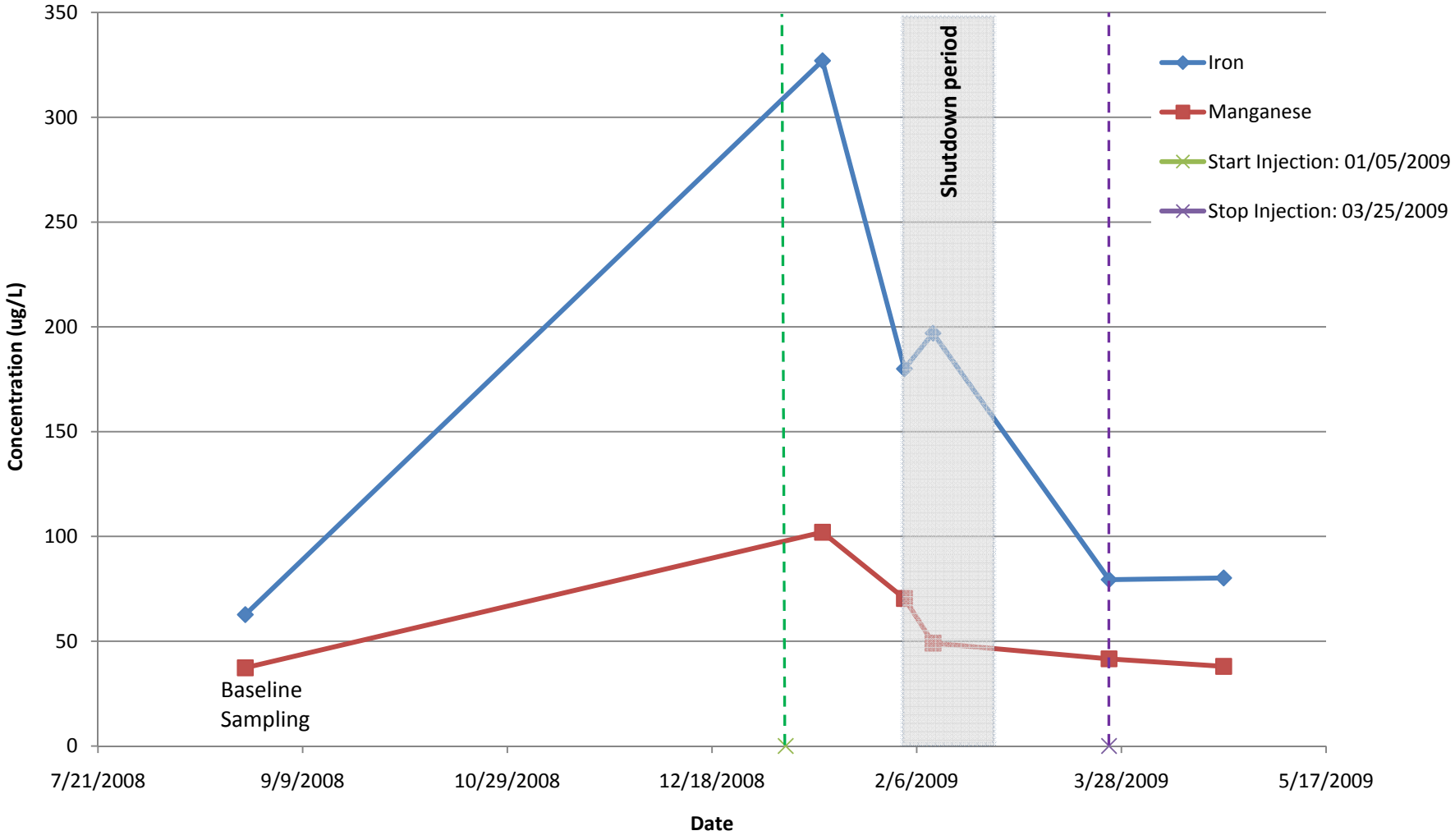


Table 3-3F
Dissolved Iron & Manganese Concentrations vs. Time
MW-5
Ronhill Cleaners
Glen Cove, NY

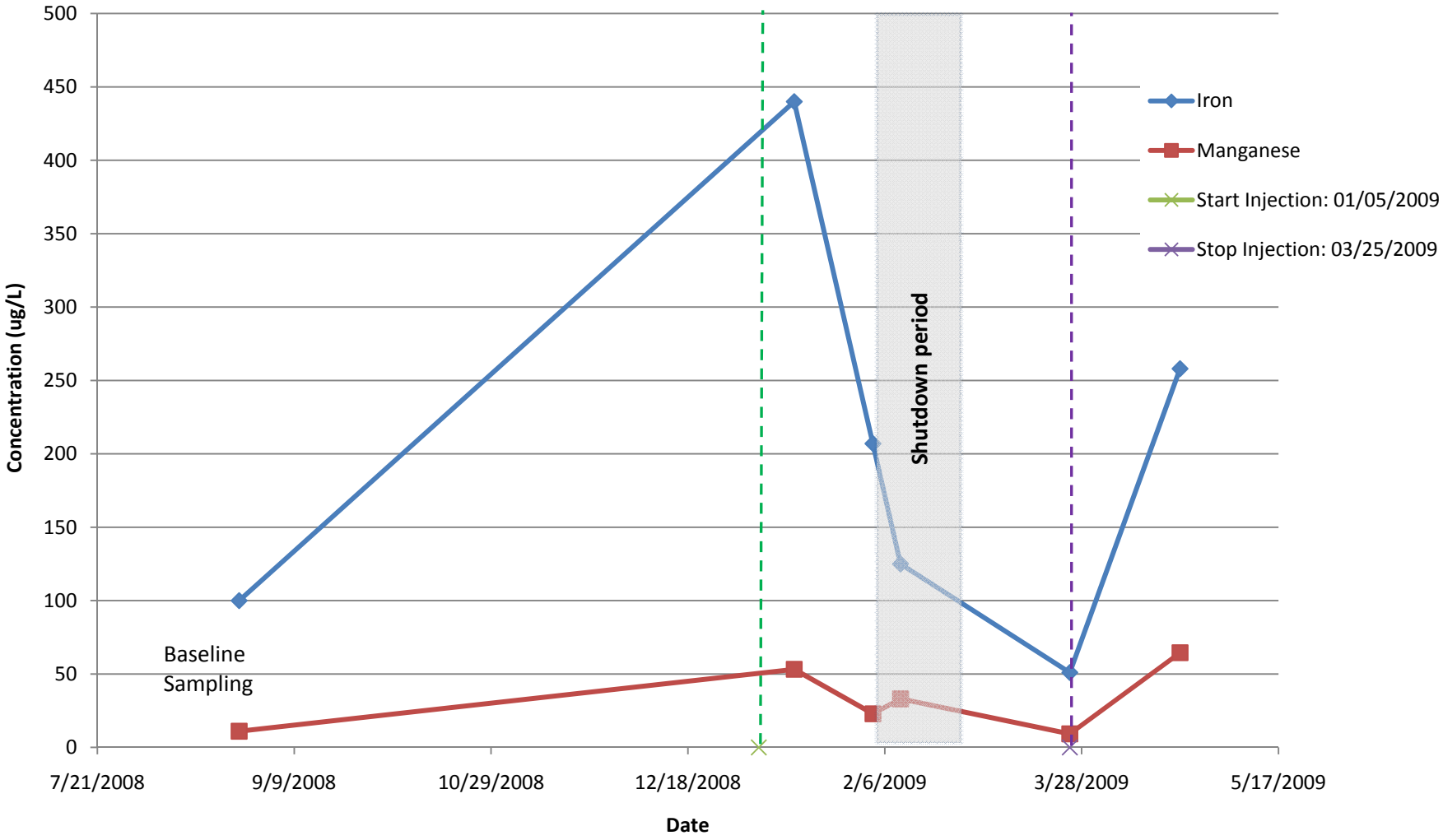


Figure 3-4A
pH, Alkalinity and COD Concentrations vs. Time
PTW-1
Ronhill Cleaners
Glen Cove, NY

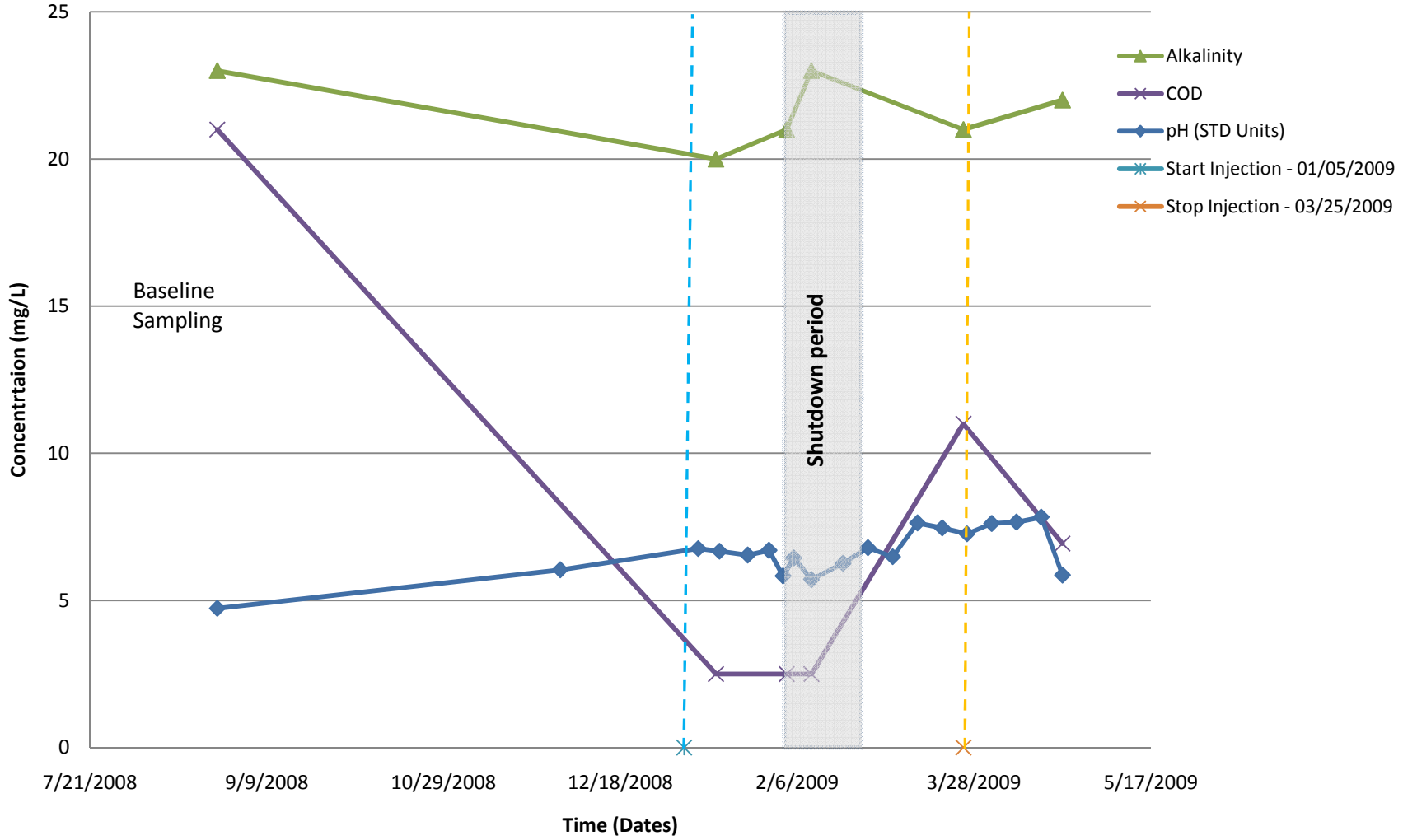


Figure 3-4B
pH, Alkalinity and COD Concentrations vs. Time
MW-1
Ronhill Cleaners
Glen Cove, NY

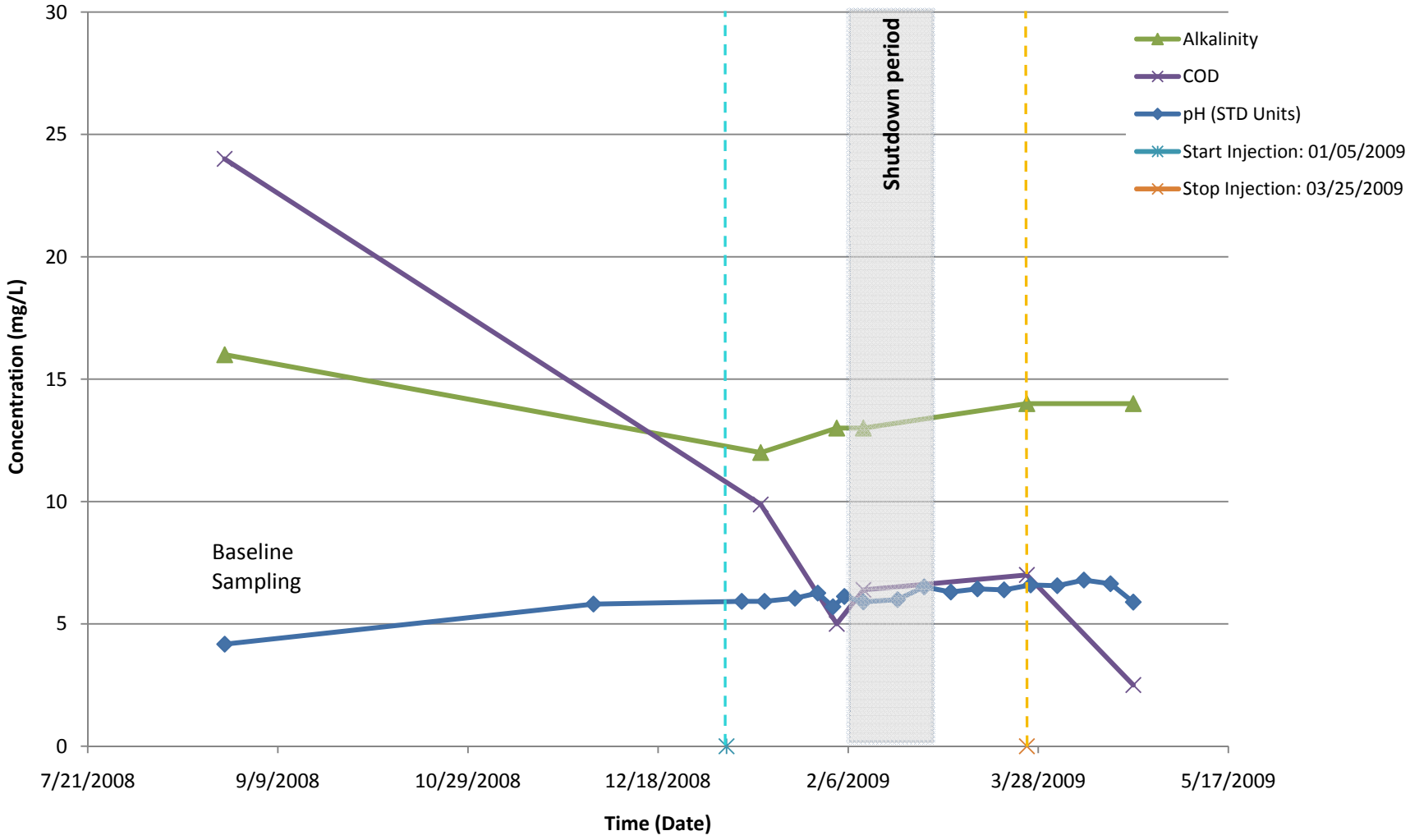


Figure 3-4C
pH, Alkalinity and COD Concentrations vs. Time
MW-2
Ronhill Cleaners
Glen Cove, NY

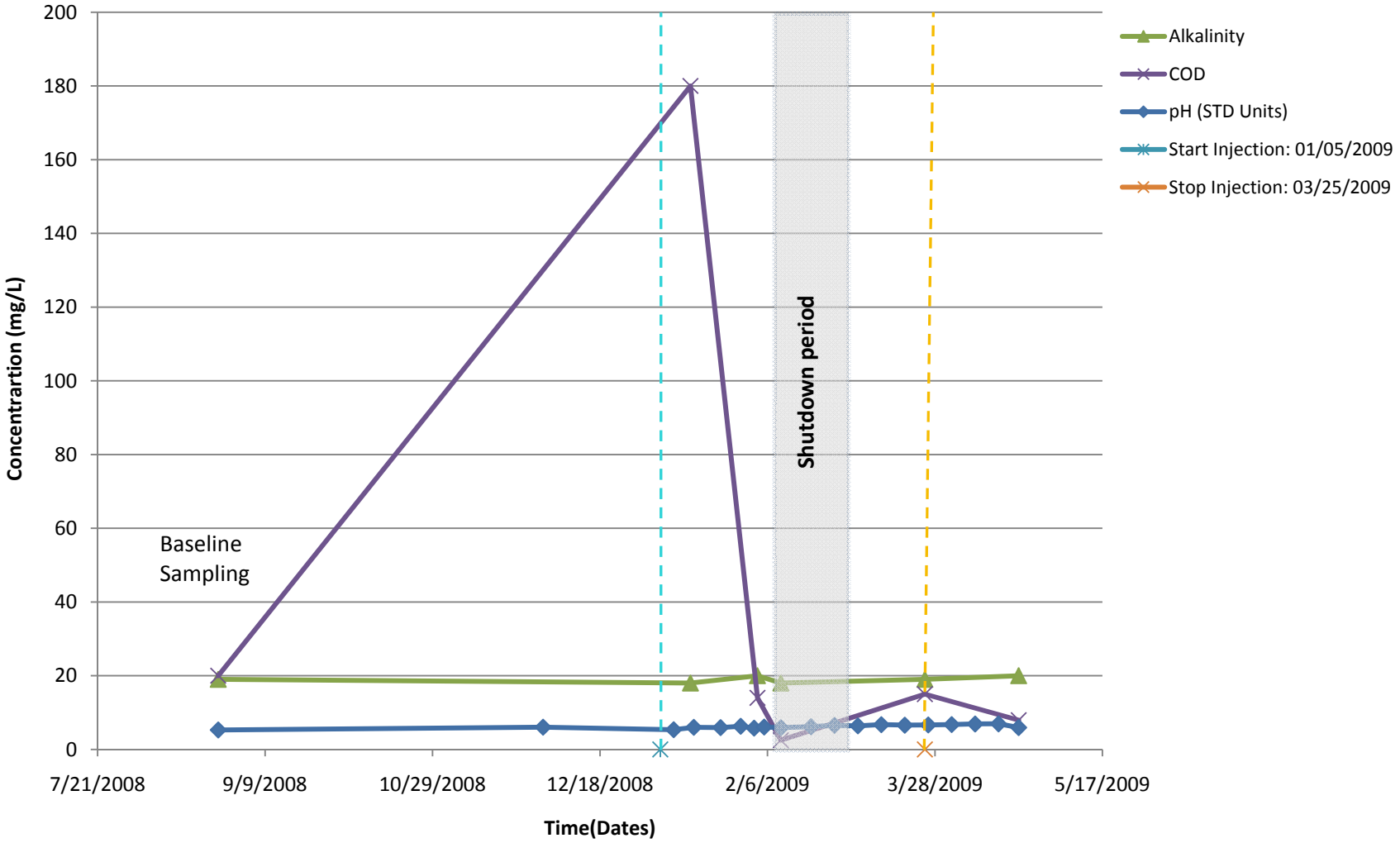


Figure 3-4D
pH, Alkalinity and COD Concentrations vs. Time
MW-3
Ronhill Cleaners
Glen Cove, NY

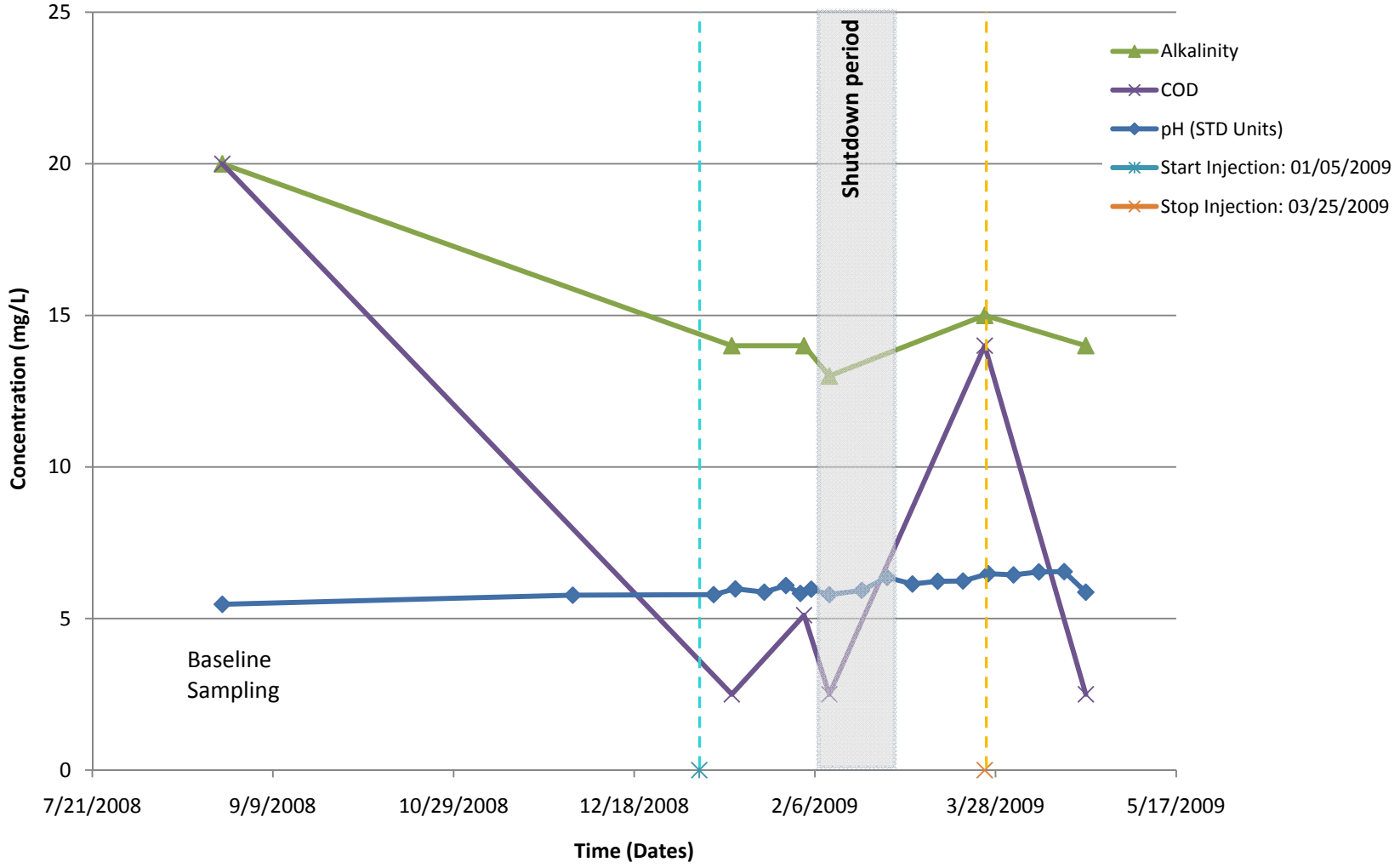


Figure 3-4E
pH, Alkalinity and COD Concentrations vs. Time
MW-4
Ronhill Cleaners
Glen Cove, NY

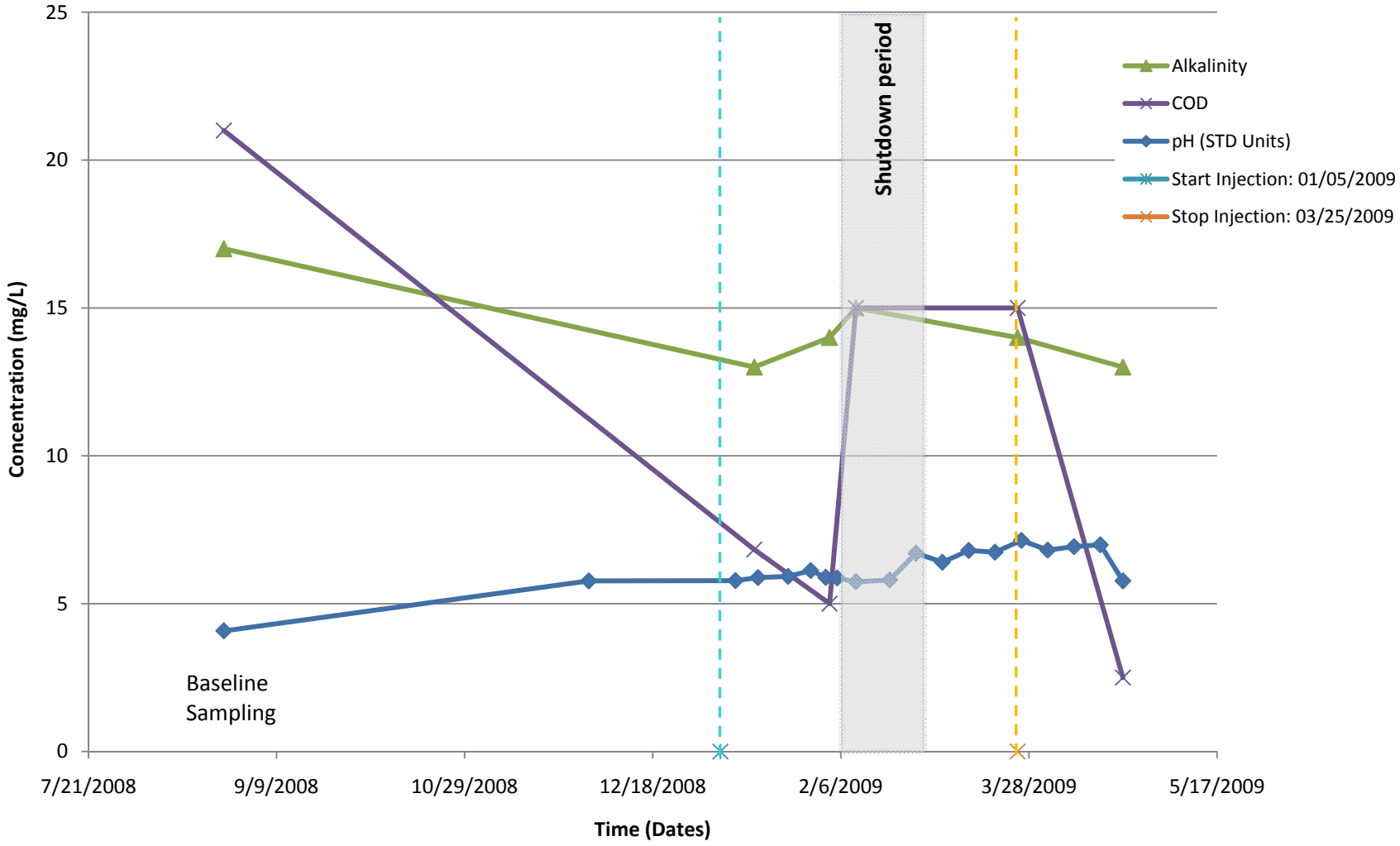


Figure 3-4F
pH, Alkalinity and COD Concentrations vs. Time
MW-5
Ronhill Cleaners
Glen Cove, NY

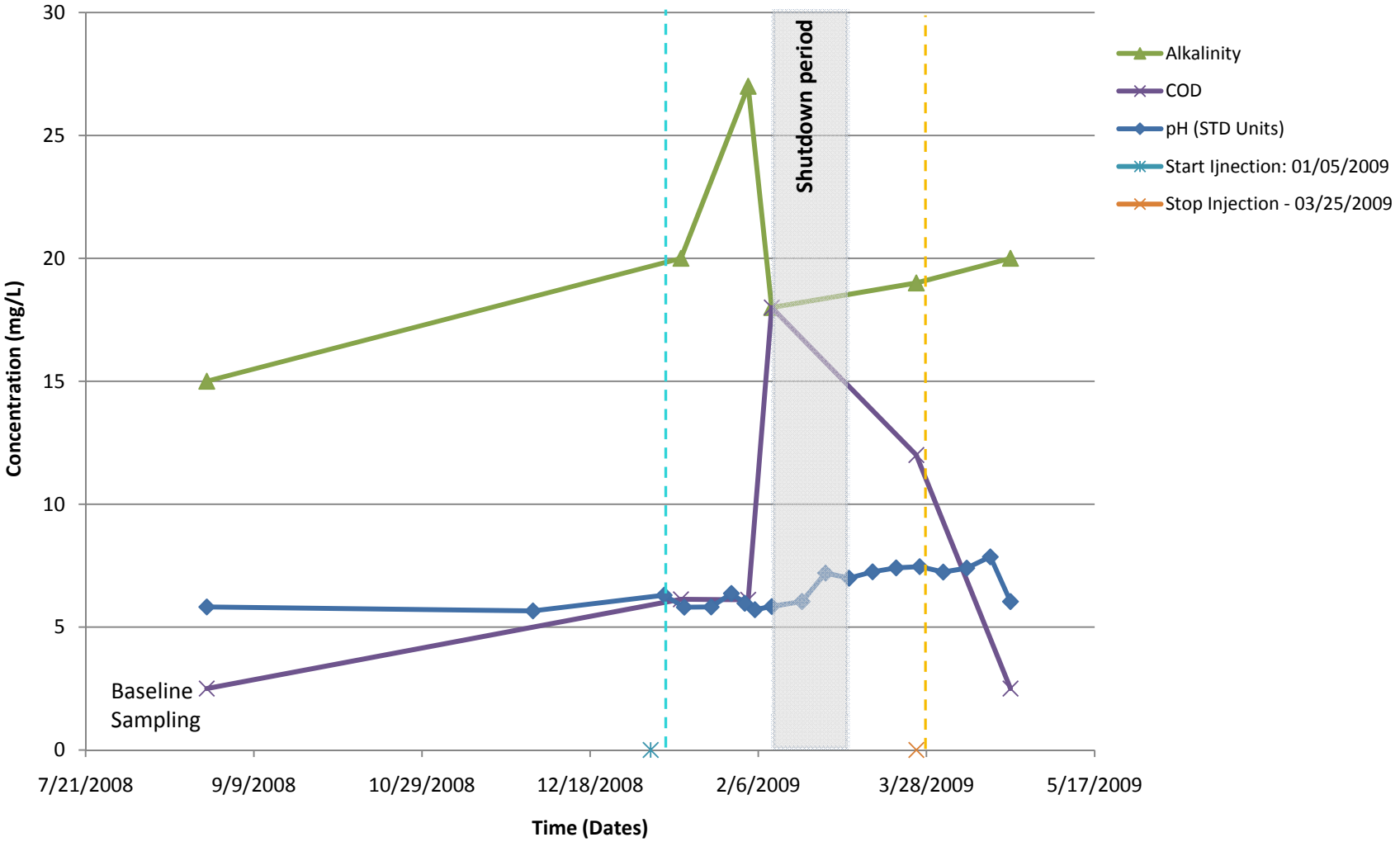


Figure 3-5A
Chloride Concentrations vs. Time
PTW-1
Ronhill Cleaners
Glen Cove, NY

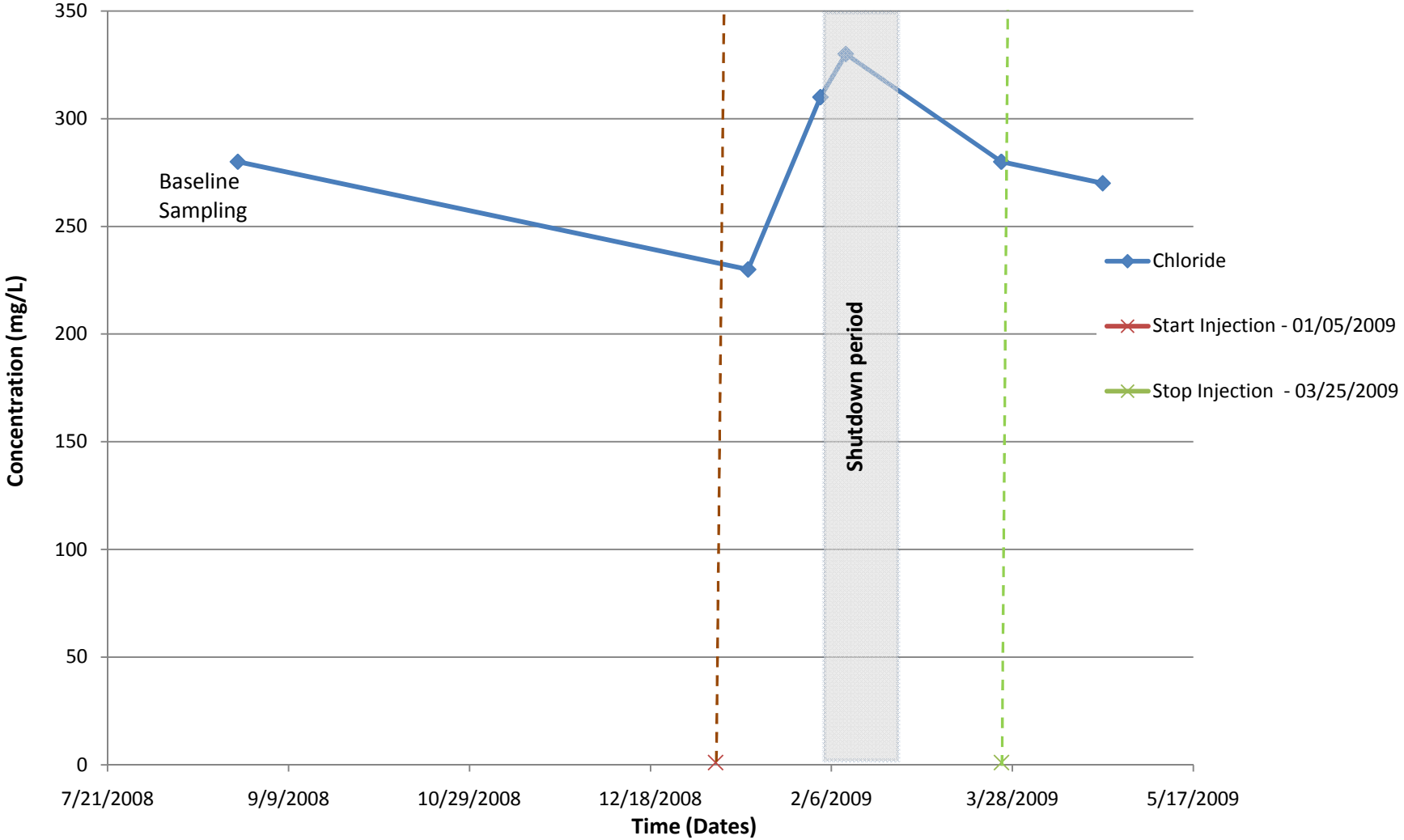


Figure 3-5B
Chloride Concentrations vs. Time
MW-1
Ronhill Cleaners
Glen Cove, NY

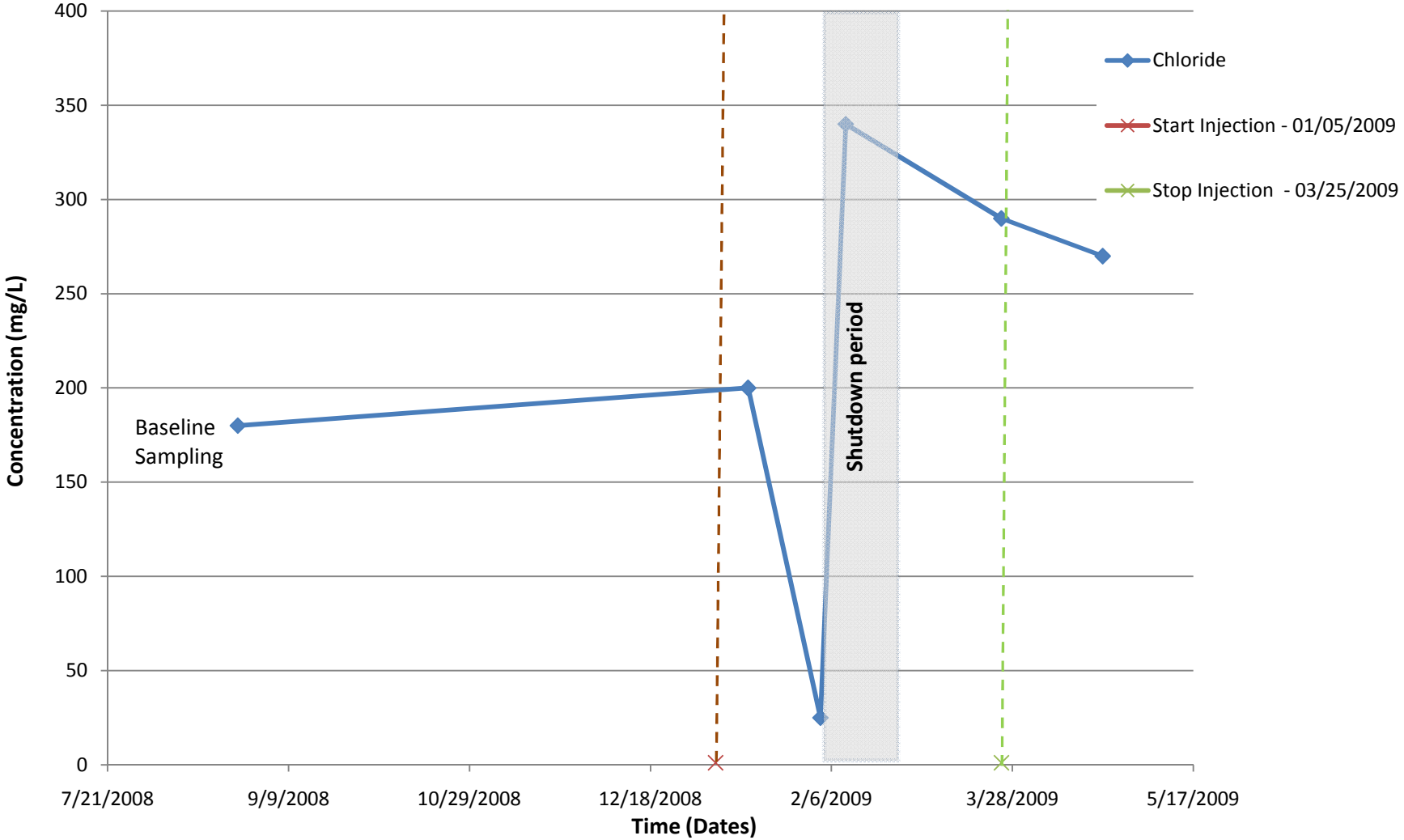


Figure 3-5C
Chloride Concentrations vs. Time
MW-2
Ronhill Cleaners
Glen Cove, NY

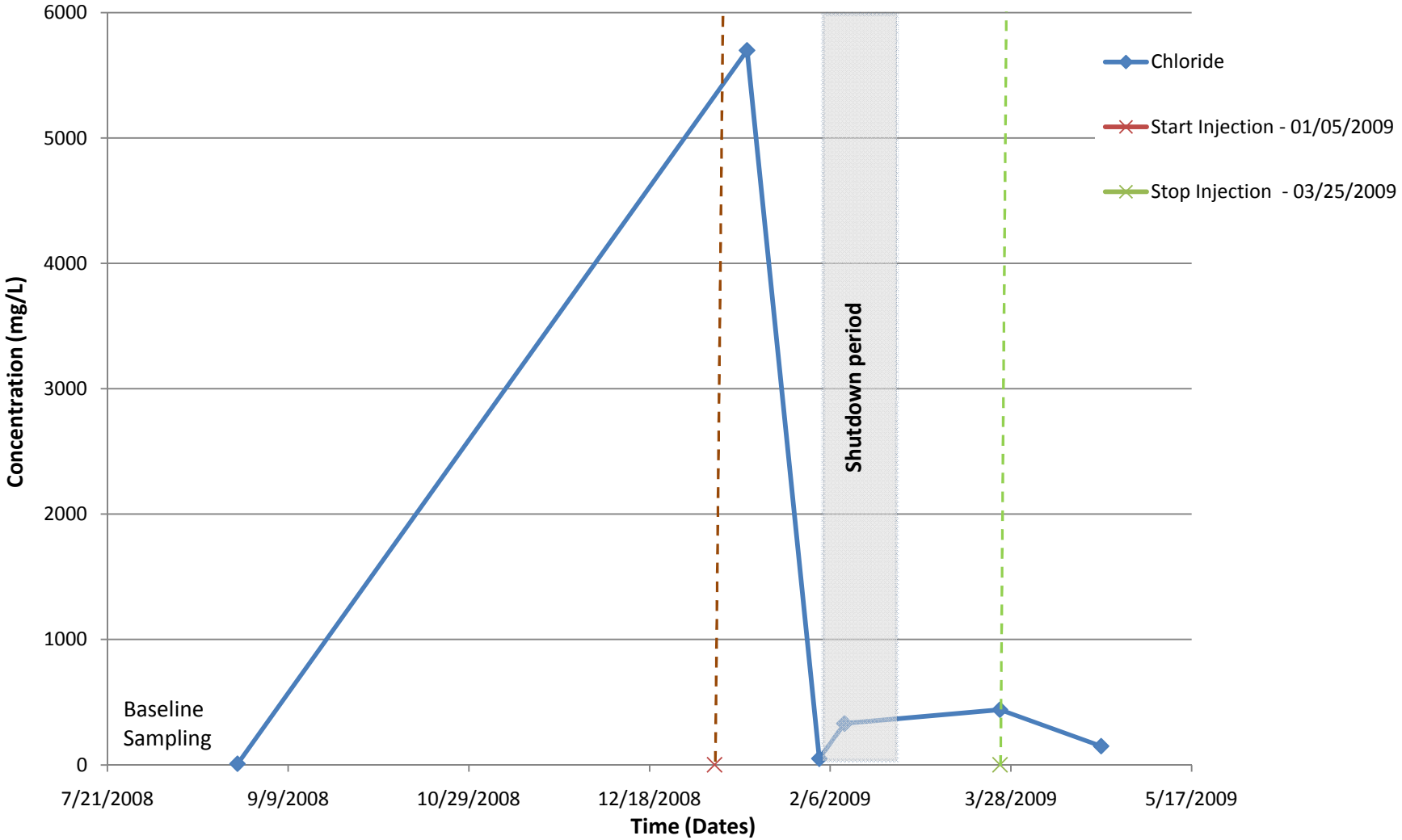


Figure 3-5D
Chloride Concentrations vs. Time
MW-3
Ronhill Cleaners
Glen Cove, NY

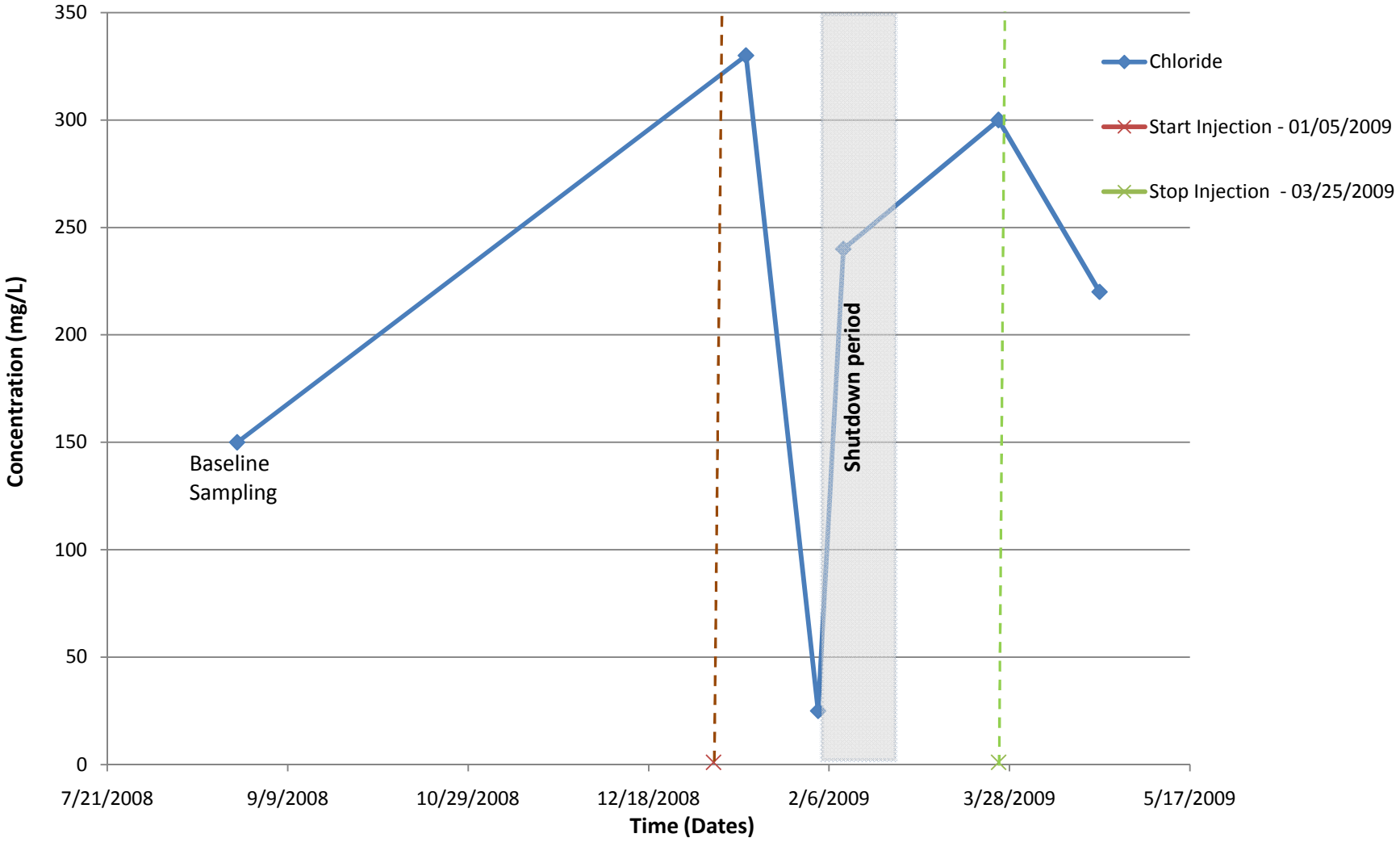


Figure 3-5E
Chloride Concentrations vs. Time
MW-4
Ronhill Cleaners
Glen Cove, NY

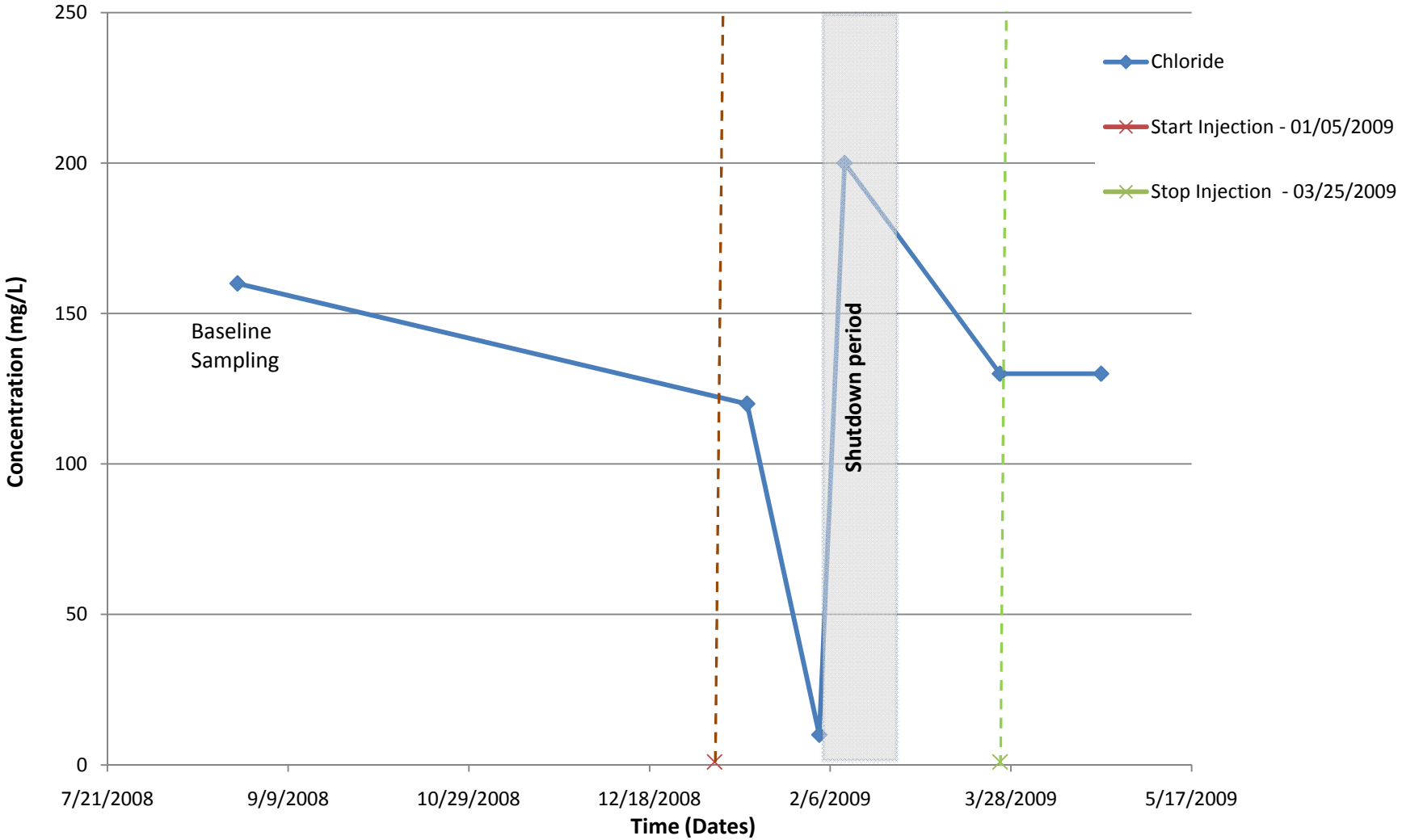


Figure 3-5F
Chloride Concentrations vs. Time
MW-5
Ronhill Cleaners
Glen Cove, NY

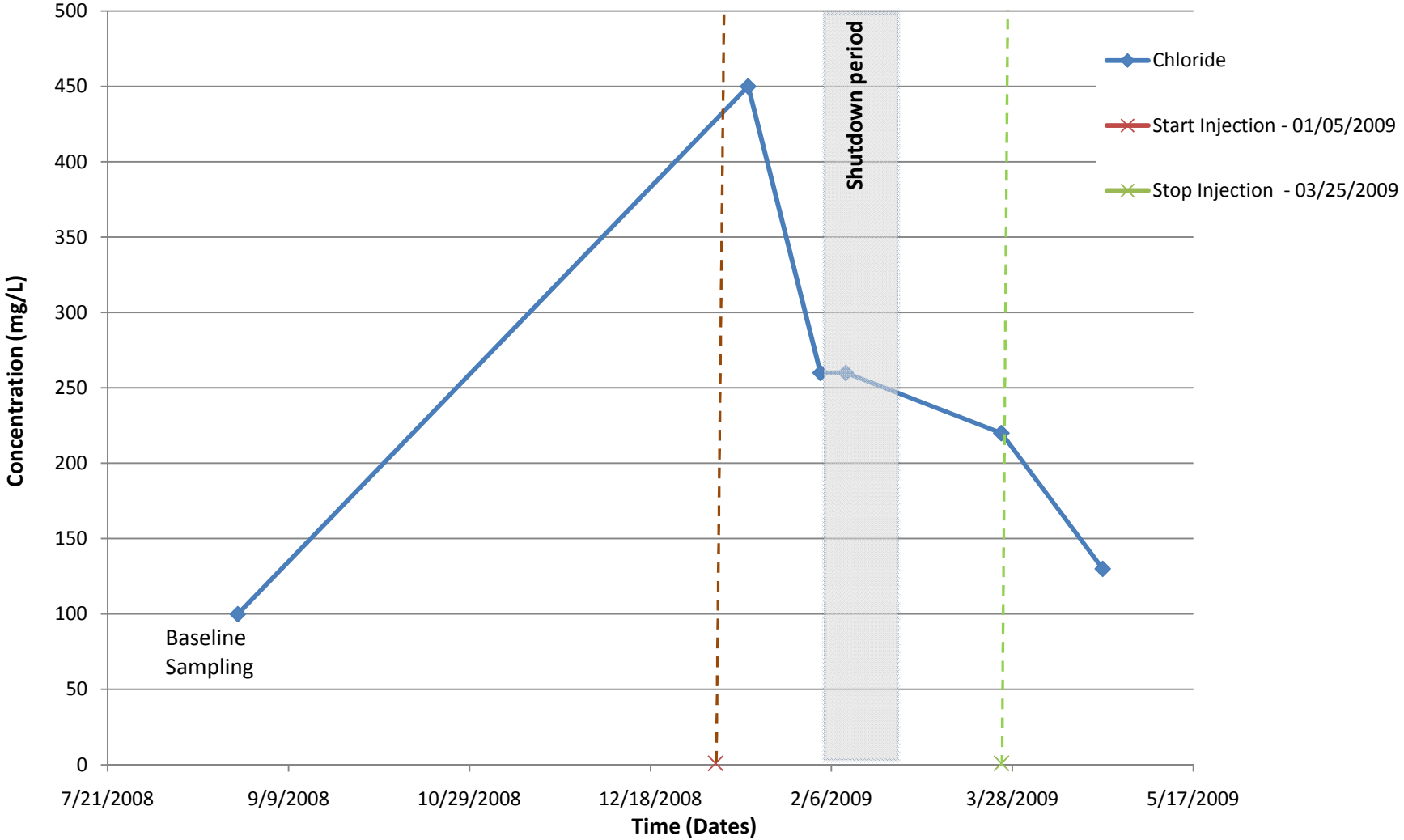


Figure 4-1A
PCE, TCE, Chloride, ORP, and Dissolved CO_2 Concentrations vs. Time
PTW-1
Ronhill Cleaners
Glen Cove, NY

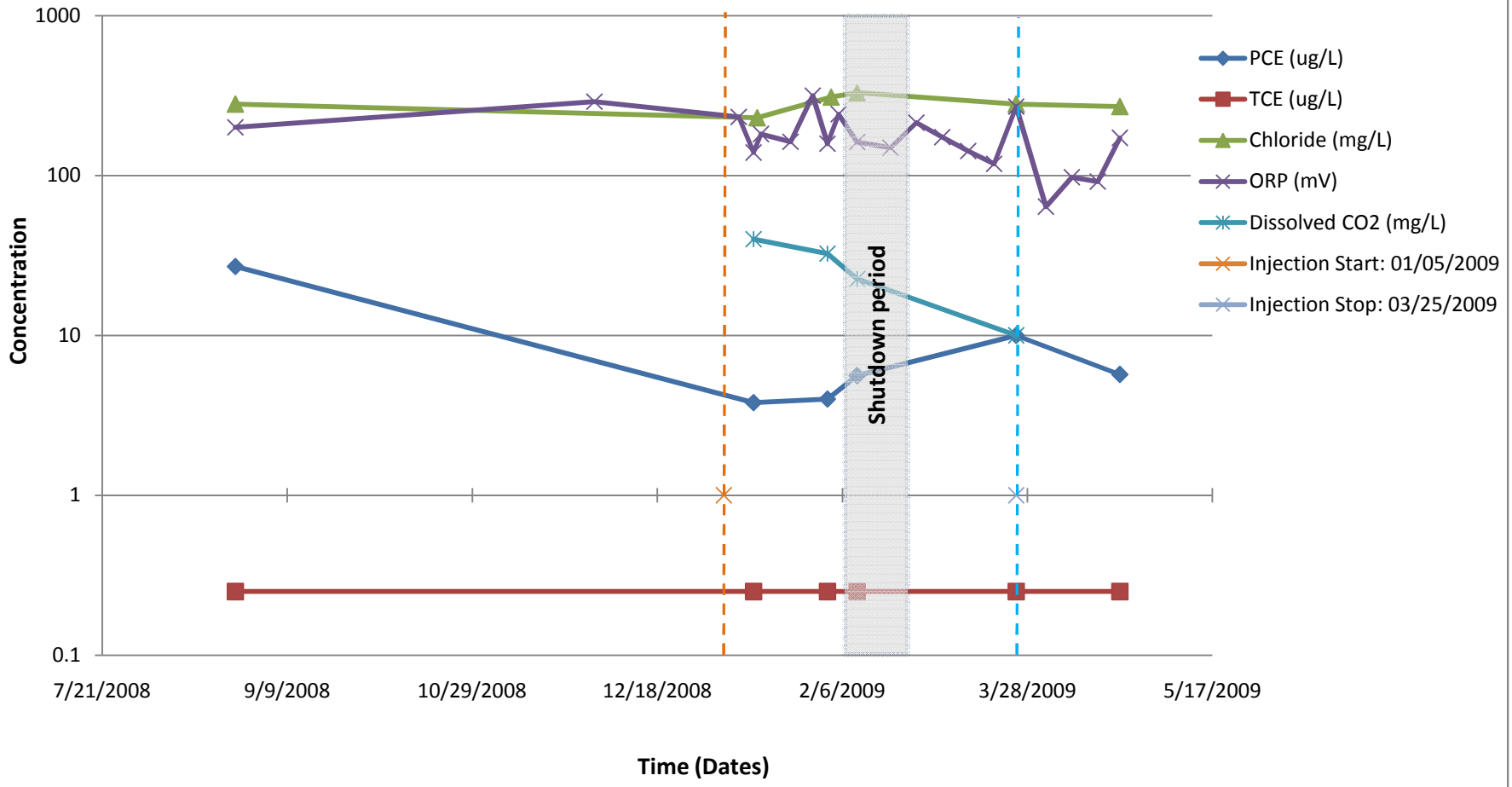


Figure 4-1B
PCE, TCE, Chloride, ORP, and Dissolved CO_2 Concentrations vs. Time
MW-1
Ronhill Cleaners
Glen Cove, NY

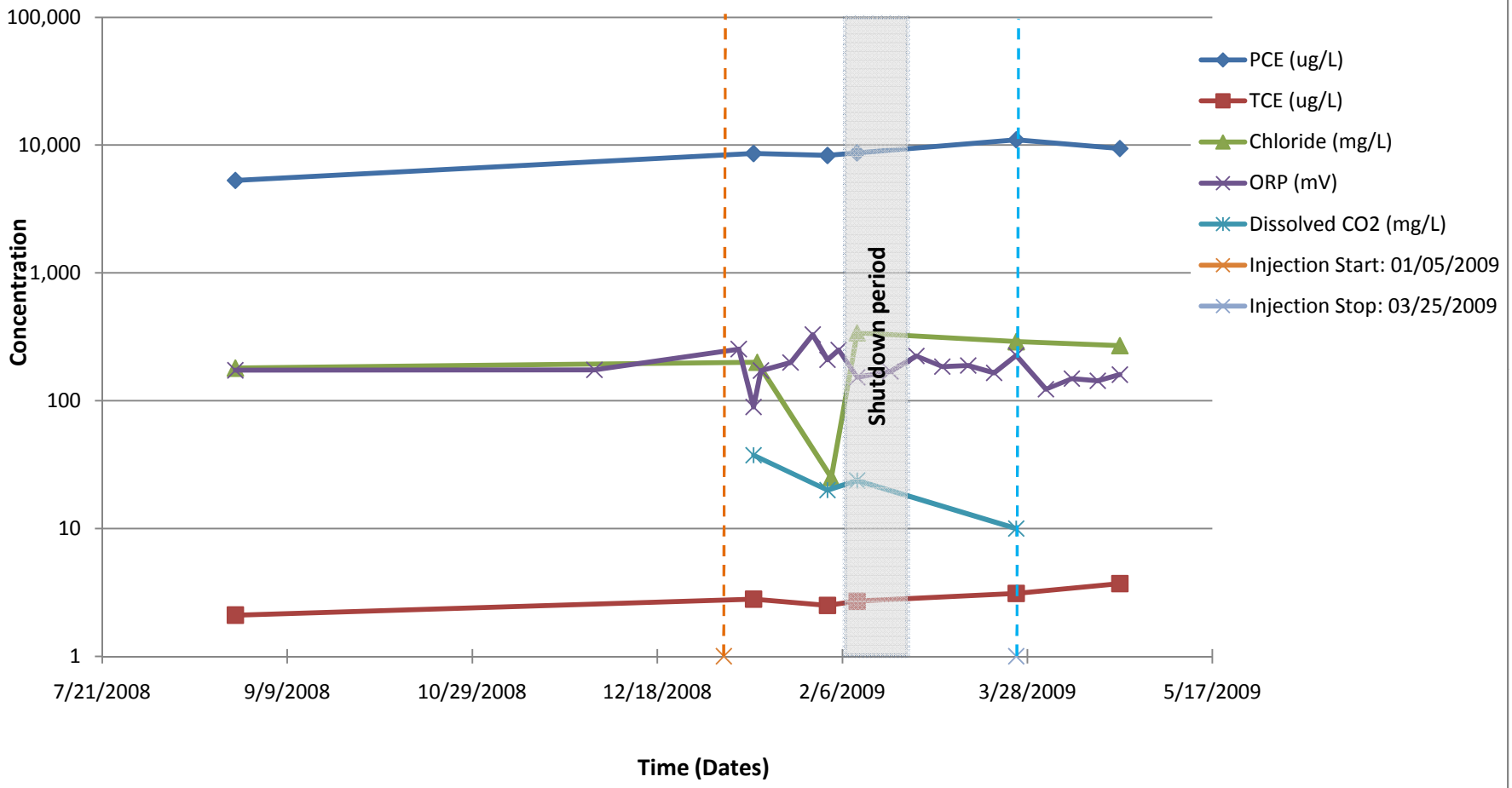


Figure 4-1C
PCE, TCE, Chloride, ORP, and Dissolved CO_2 Concentrations vs. Time
MW-2
Ronhill Cleaners
Glen Cove, NY

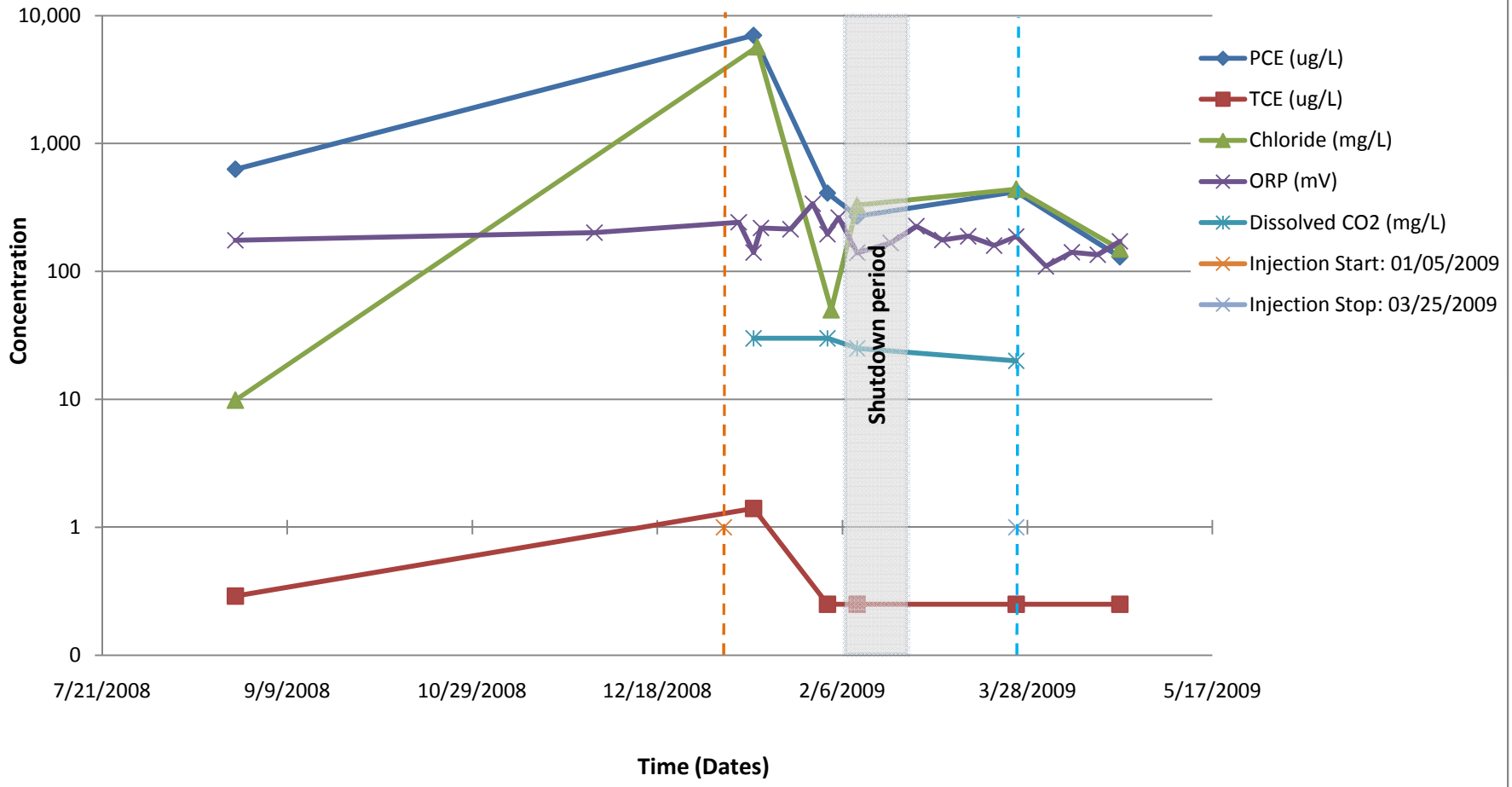


Figure 4-1D
PCE, TCE, Chloride, ORP, and Dissolved CO_2 Concentrations vs. Time
MW-3
Ronhill Cleaners
Glen Cove, NY

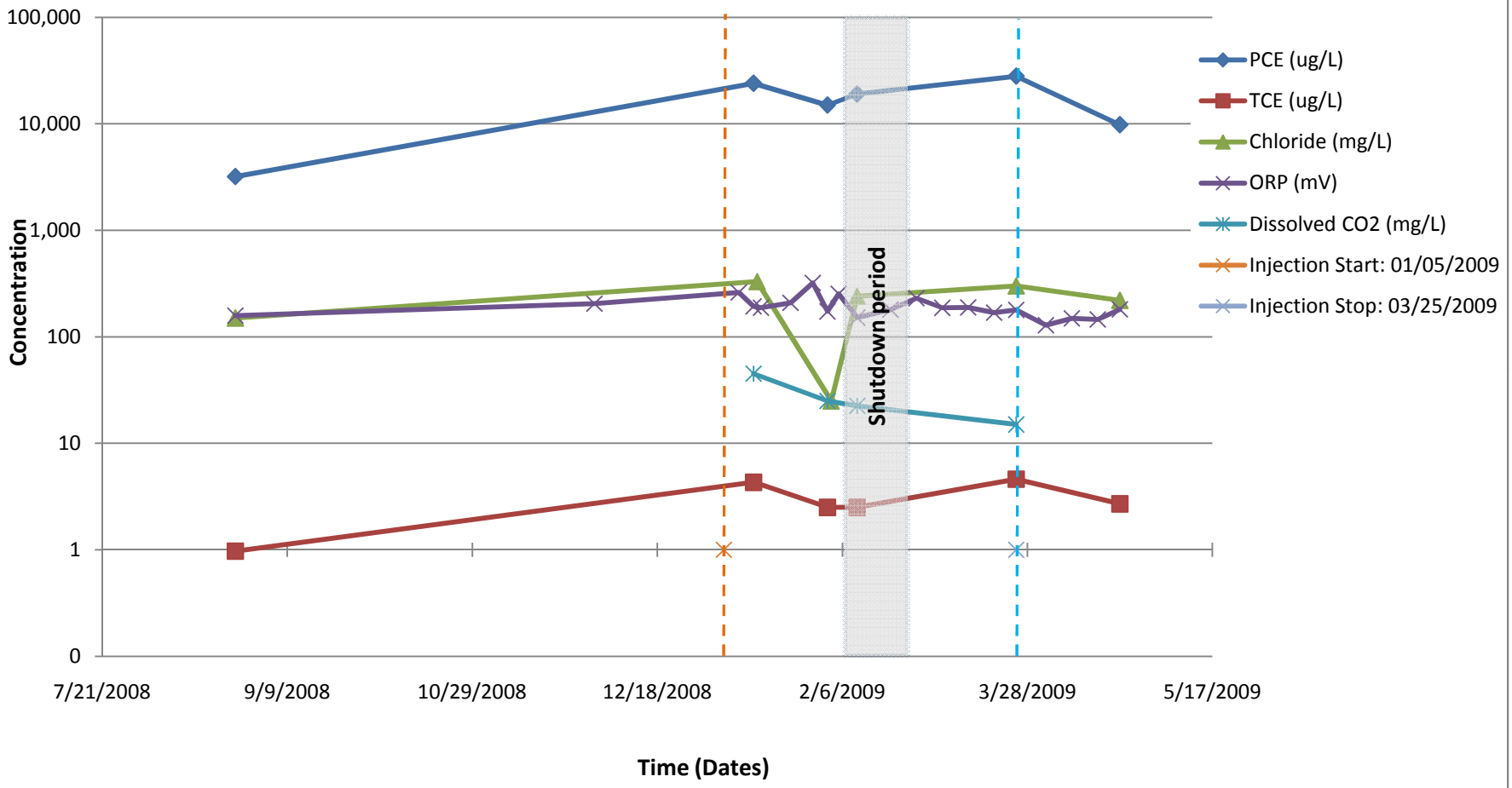


Figure 4-1E
PCE, TCE, Chloride, ORP, and Dissolved CO_2 Concentrations vs. Time
MW-4
Ronhill Cleaners
Glen Cove, NY

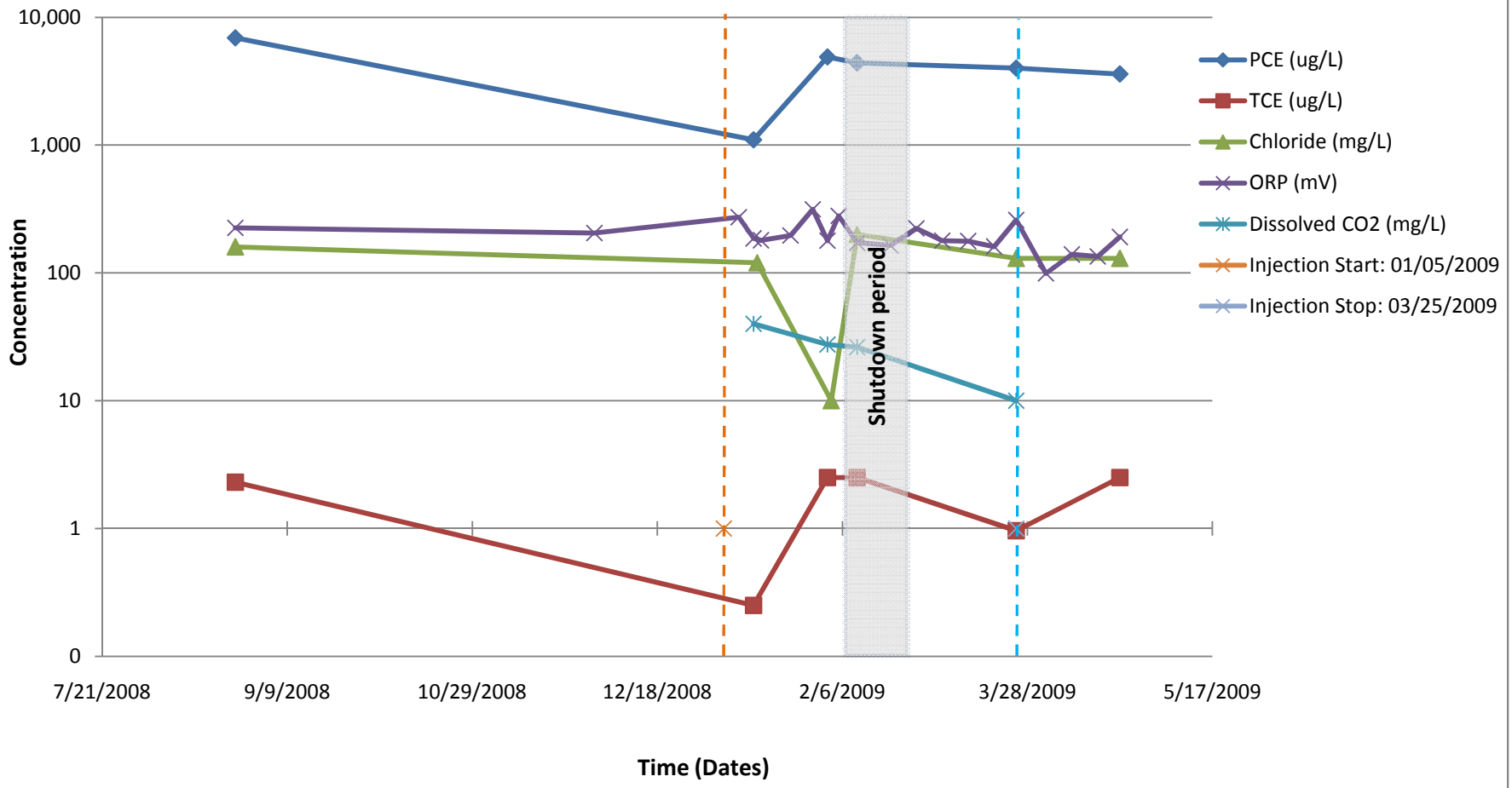
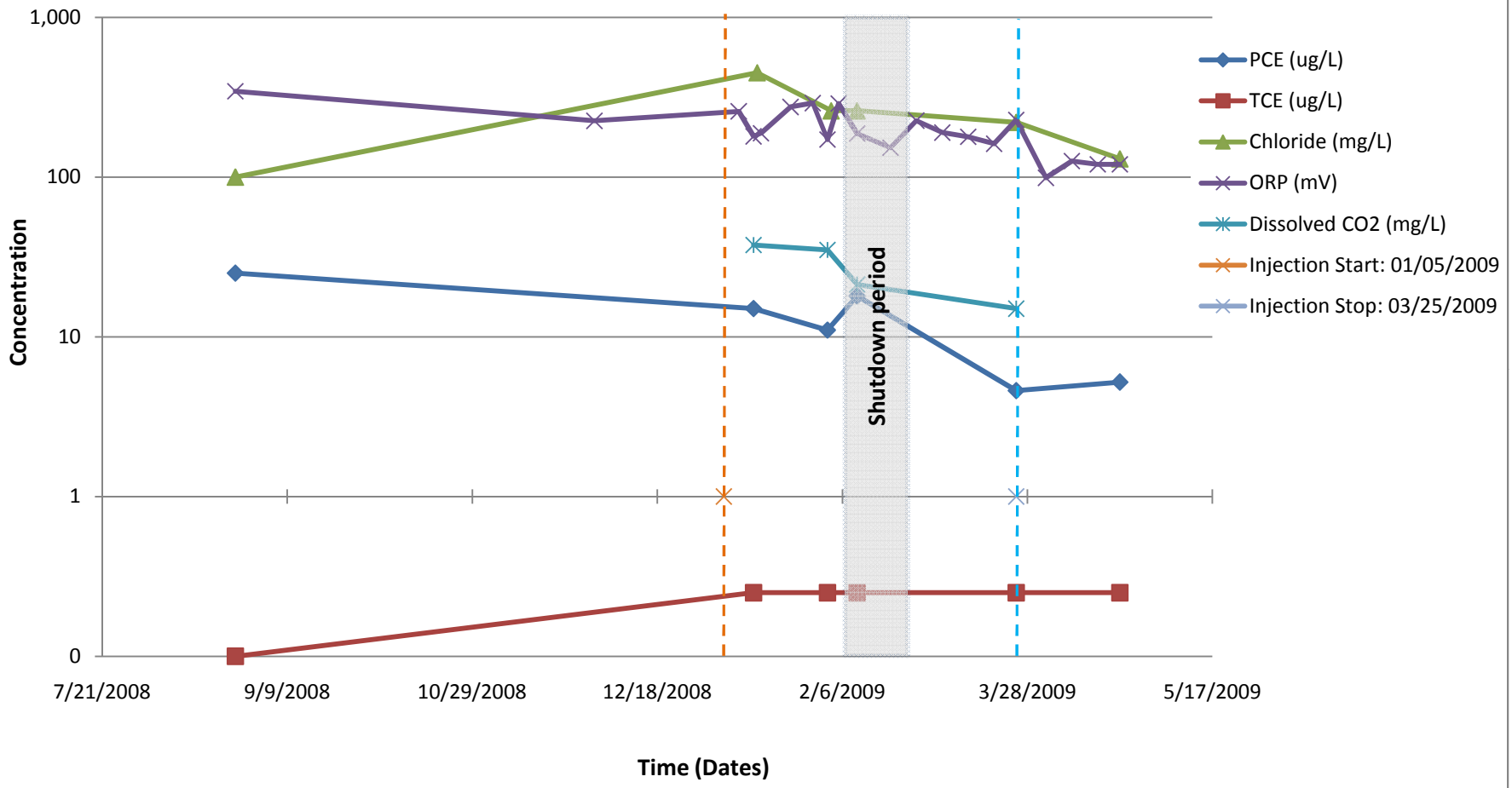
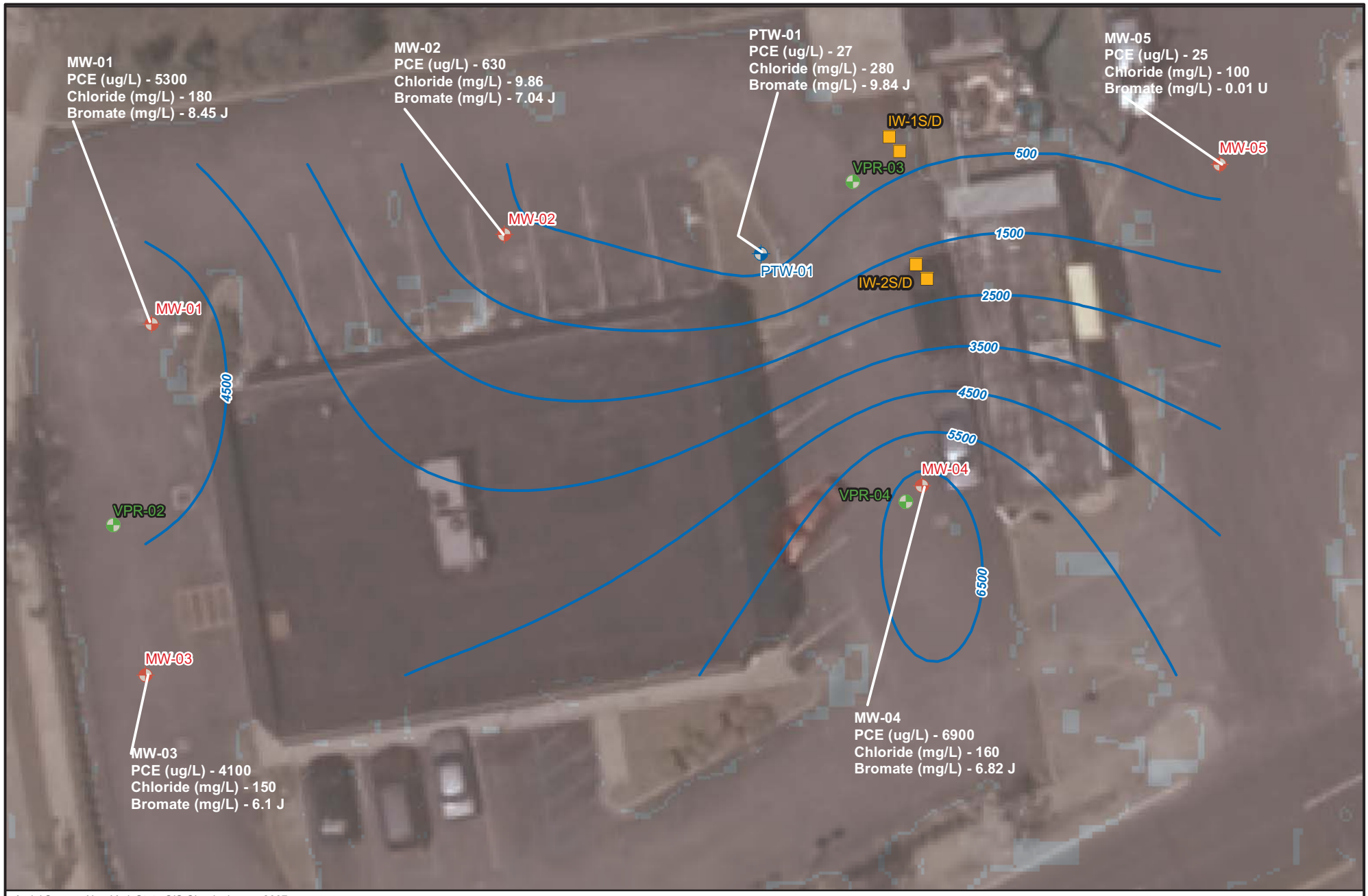


Figure 4-1F
PCE, TCE, Chloride, ORP, and Dissolved CO_2 Concentrations vs. Time
MW-5
Ronhill Cleaners
Glen Cove, NY





Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

- Monitoring Well
- Pilot Study Monitoring Well
- Vertical Profile
- Pilot Study Ozone Injection Point
- PCE Contour (ug/L)

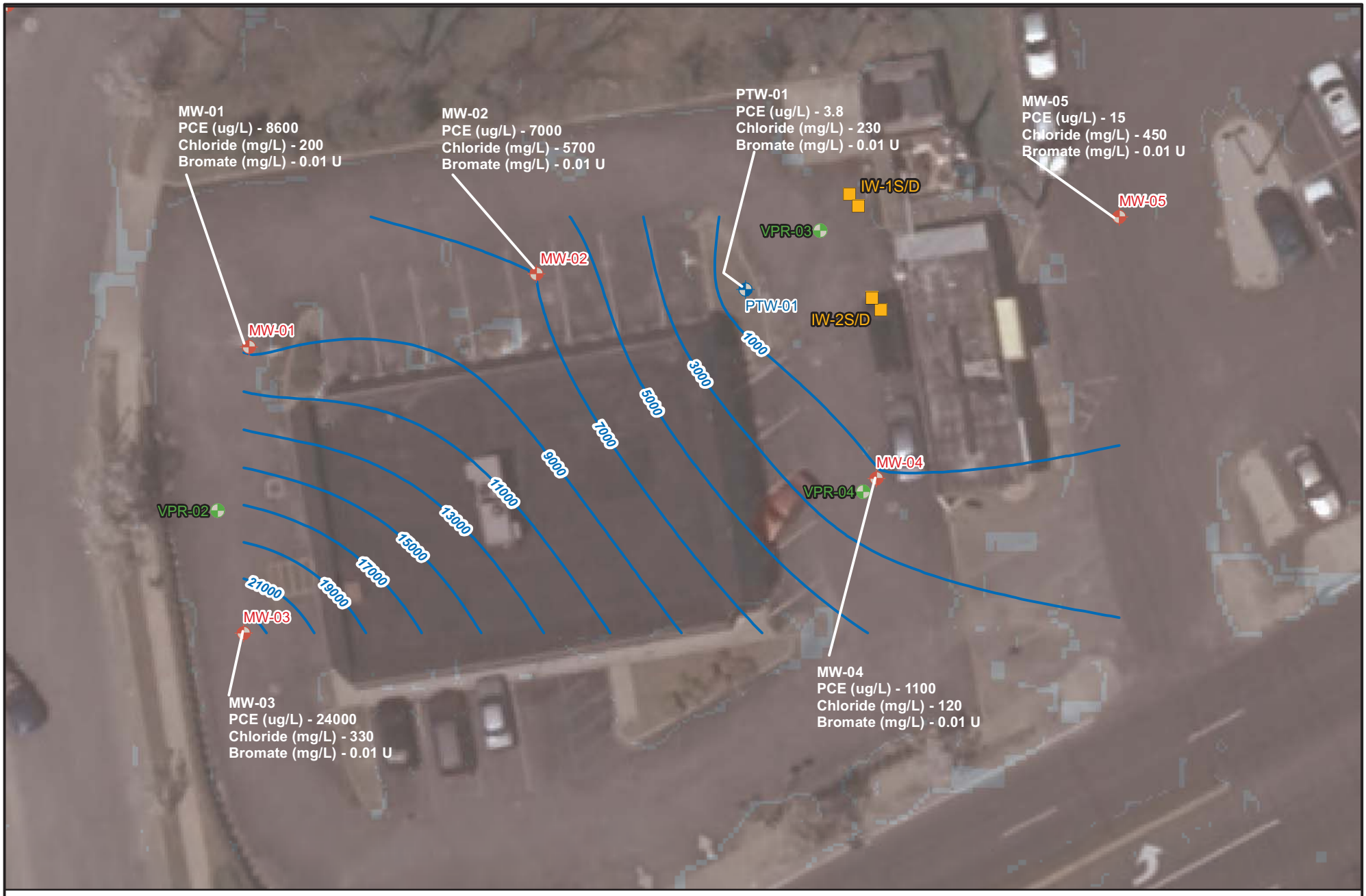
Note:
ug/L - micrograms per liter
mg/L - milligrams per liter

Bromate was identified in the Field Blank and MS/MSD recovery was outside acceptable limits (3,520%)

N

0 20 40 Feet

Figure 4-2A
Baseline Pilot Study PCE Isopleth Map
Ronhill Cleaners Site
Glen Cove, New York



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

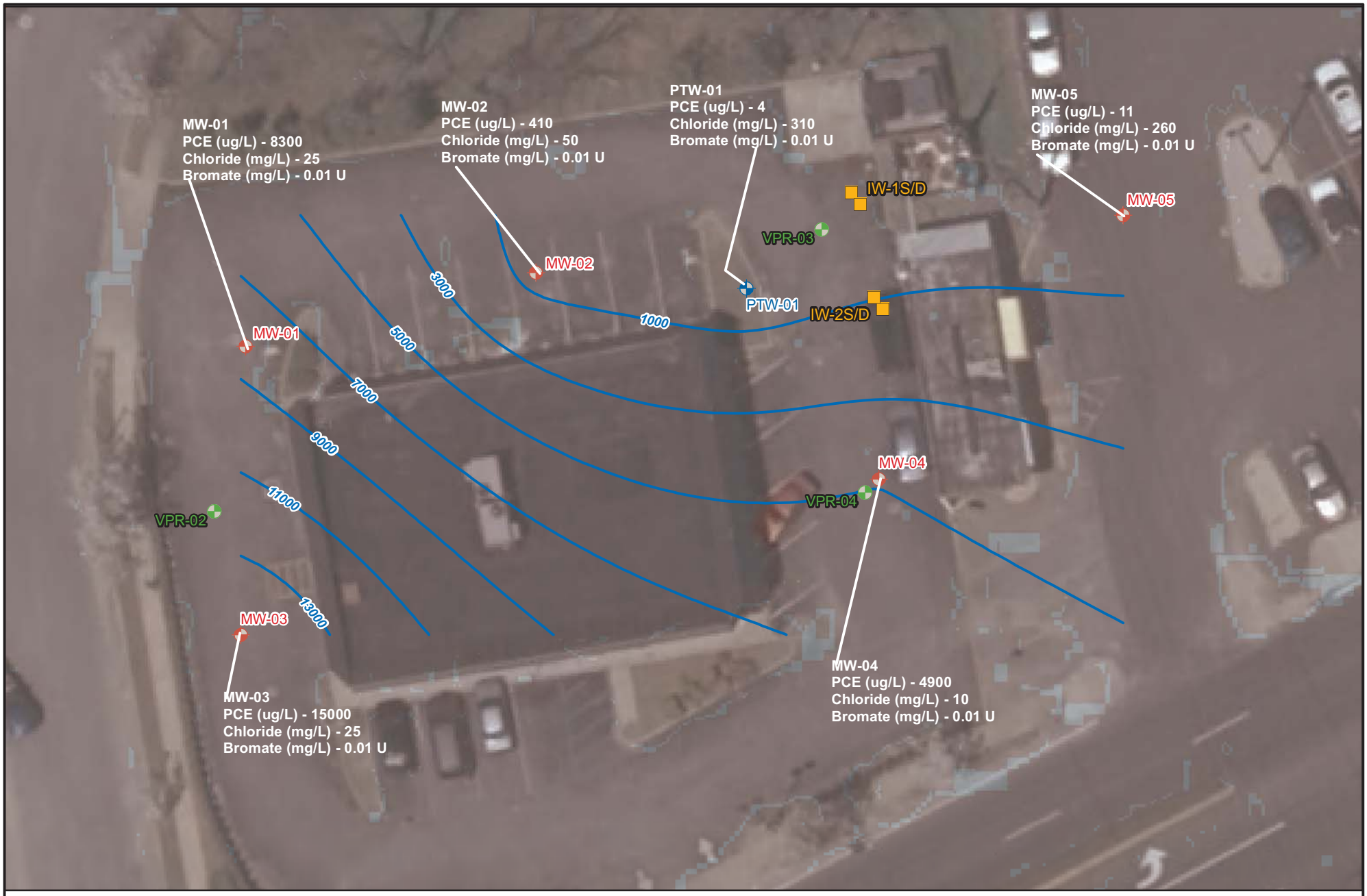
- Monitoring Well
- Pilot Study Monitoring Well
- Vertical Profile
- Pilot Study Ozone Injection Point
- PCE Contour (ug/L)

Note:
ug/L - micrograms per liter
mg/L - milligrams per liter

N

0 20 40 Feet

Figure 4-2B
Round 1 Pilot Study PCE Isopleth Map
Ronhill Cleaners Site
Glen Cove, New York



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

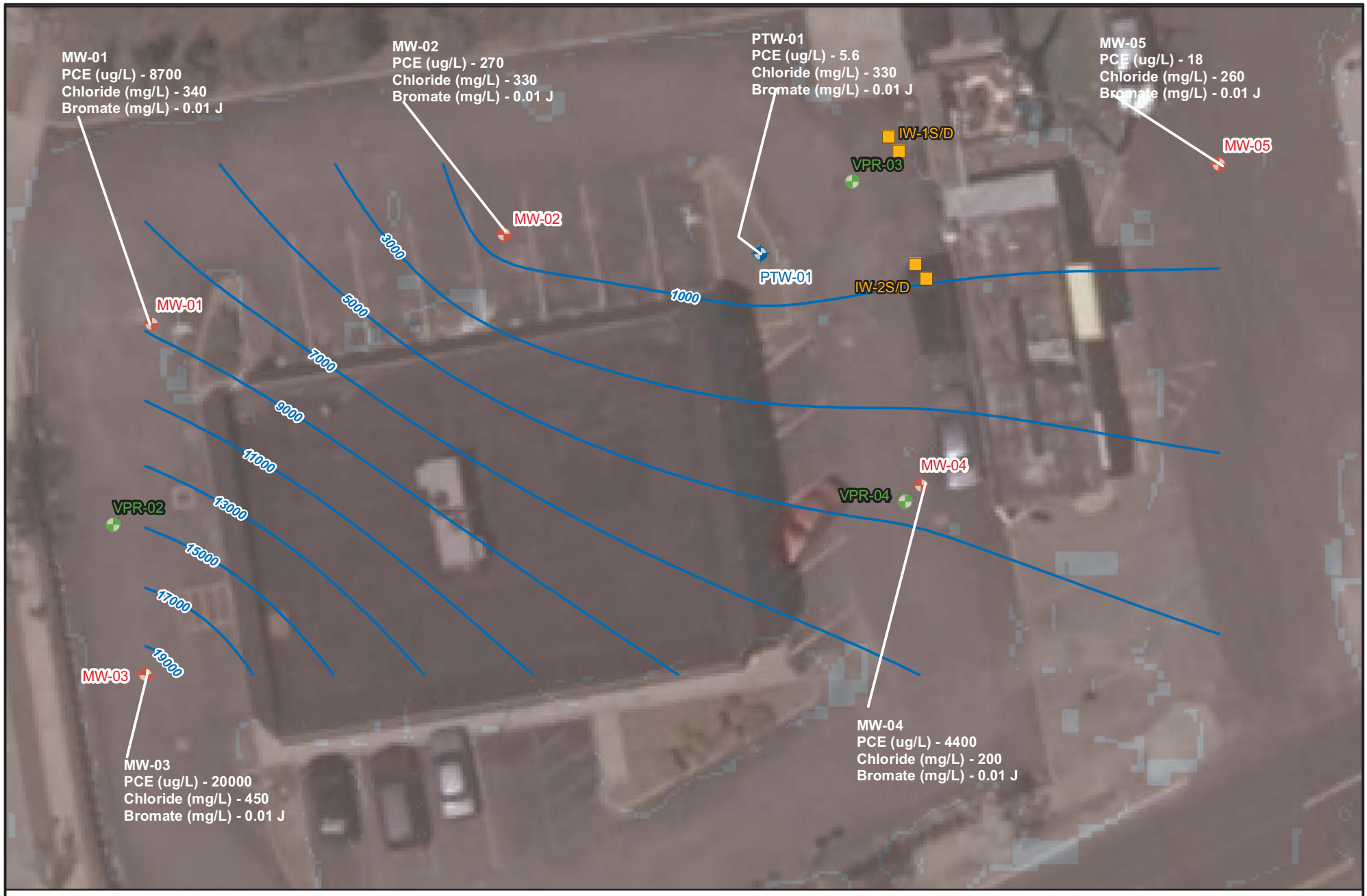
- Monitoring Well
- Pilot Study Monitoring Well
- Vertical Profile
- Pilot Study Ozone Injection Point
- PCE Contour (ug/L)

Note:
ug/L - micrograms per liter
mg/L - milligrams per liter

N

0 20 40 Feet

Figure 4-2C
Round 2 Pilot Study PCE Isopleth Map
Ronhill Cleaners Site
Glen Cove, New York



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

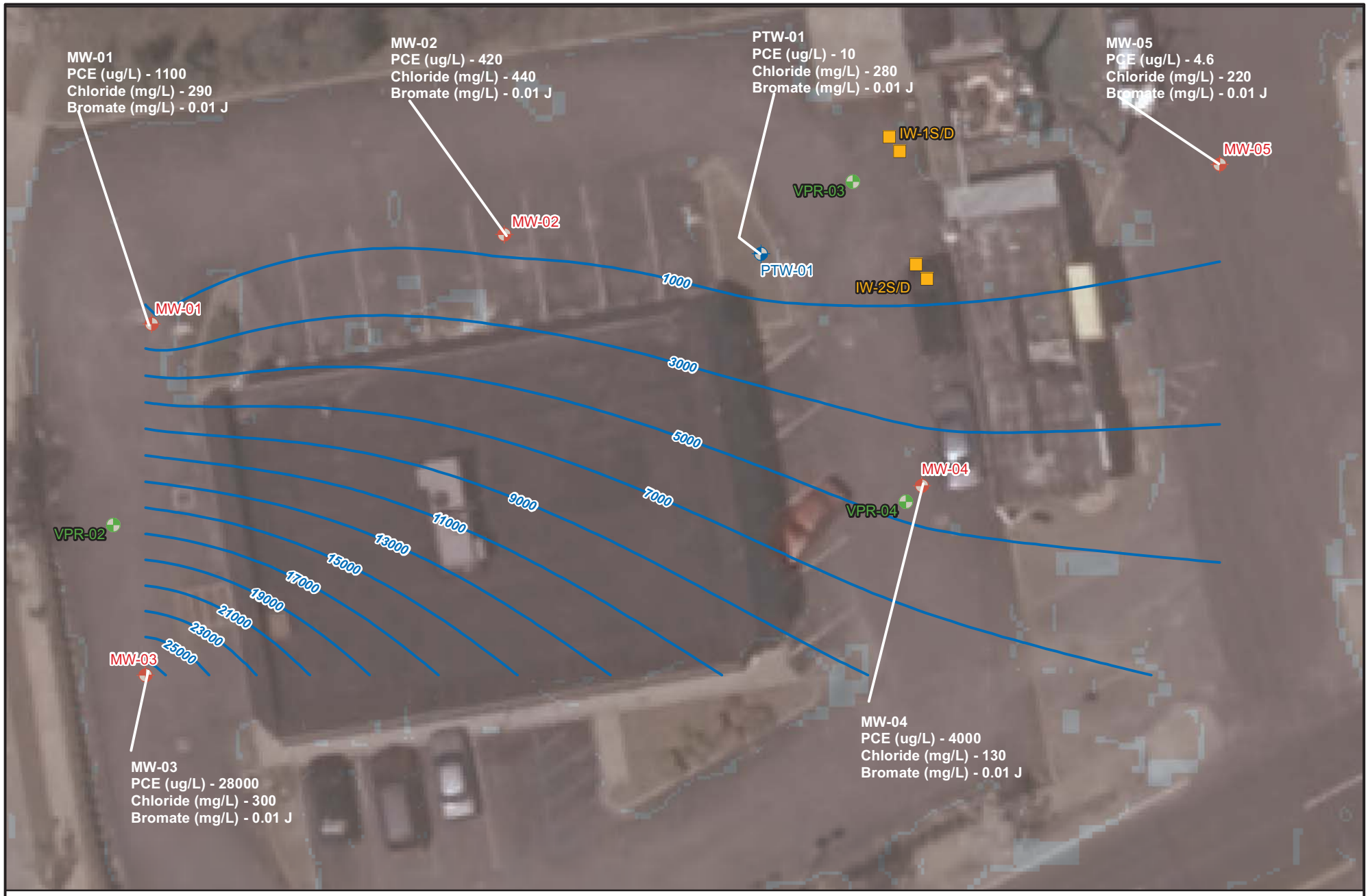
- Monitoring Well
- Pilot Study Monitoring Well
- Vertical Profile
- Pilot Study Ozone Injection Point
- PCE Contour (ug/L)

Note:
ug/L - micrograms per liter
mg/L - milligrams per liter

N

0 20 40 Feet

Figure 4-2D
Round 3 Pilot Study PCE Isopleth Map
Ronhill Cleaners Site
Glen Cove, New York



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

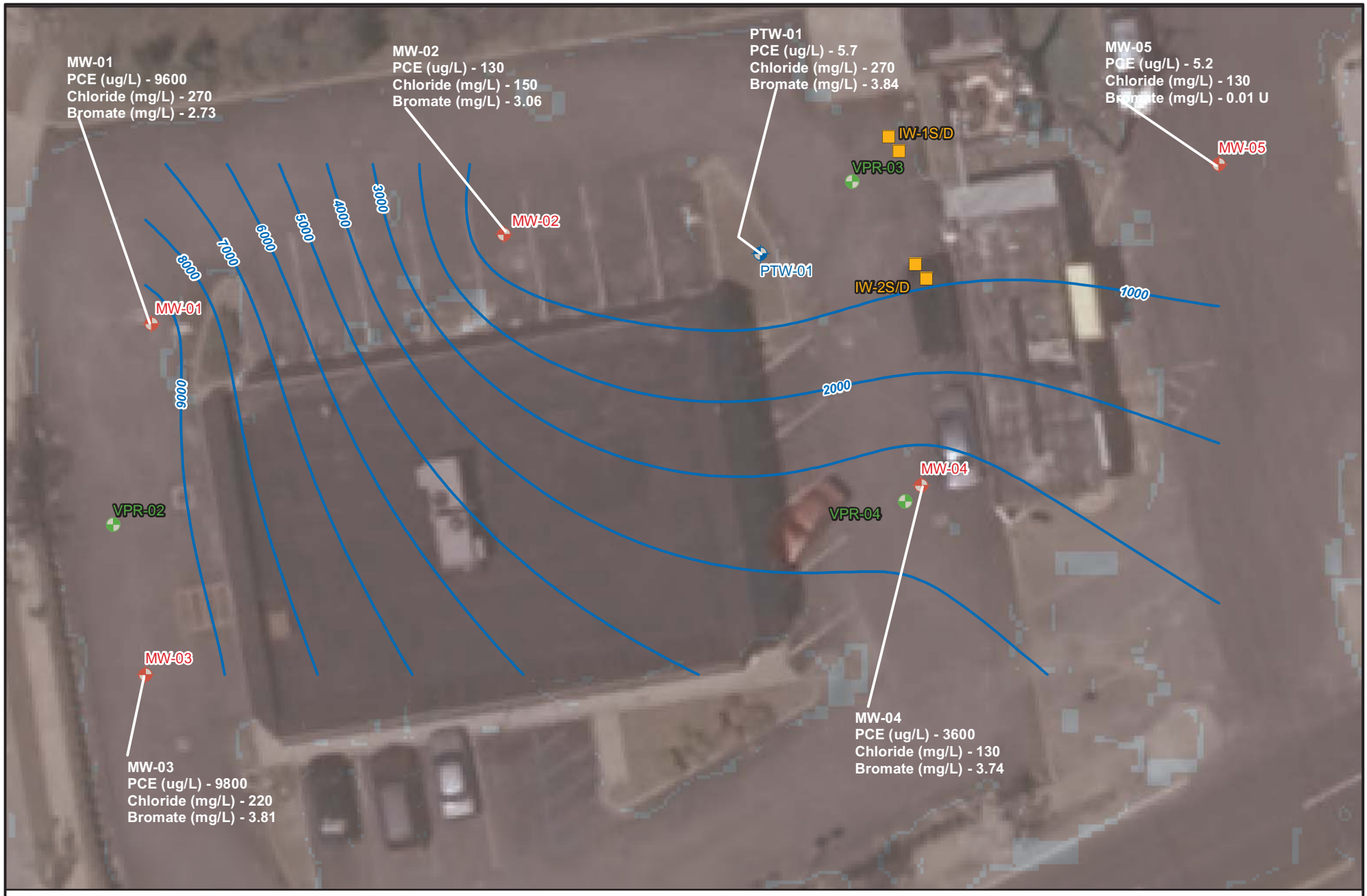
- Monitoring Well
- Pilot Study Monitoring Well
- Vertical Profile
- Pilot Study Ozone Injection Point
- PCE Contour (ug/L)

Note:
ug/L - micrograms per liter
mg/L - milligrams per liter

N

0 20 40 Feet

Figure 4-2E
Round 4 Pilot Study PCE Isopleth Map
Ronhill Cleaners Site
Glen Cove, New York



Aerial Source: New York State GIS Clearinghouse, 2007.

Legend

- Monitoring Well
- Pilot Study Monitoring Well
- Vertical Profile
- Pilot Study Ozone Injection Point
- PCE Contour (ug/L)

Note:
ug/L - micrograms per liter
mg/L - milligrams per liter

N

0 20 40 Feet

Figure 4-2F
Round 5 Pilot Study PCE Isopleth Map
Ronhill Cleaners Site
Glen Cove, New York

Tables

Table 1-1
Historic PCE and TCE Concentrations in Local Public Supply Wells
Ronhill Cleaners
Glen Cove, NY

WELL	Sample Date	PCE Concentration (ug/L)	TCE Concentration (ug/L)
N-01149	3/12/1986	7.4	2.2
N-05250	8/22/1988	32	ND
	8/31/1989	ND	ND
	4/30/1990	ND	ND
	6/19/1991	ND	ND
N-09100	8/22/1988	3,150	7.2
	7/14/1989	2,235	6
	12/5/1989	2,148	2.3
	8/30/1990	854	5.5
	5/13/1991	1,334	14.8
	5/18/1992	1,324	7
	7/7/1992	1,050	3
	6/17/1993	ND	ND
	11/16/1994	404	26.1
	2/21/1996	1,548	21.1
	12/31/1996	4,336	32.4
	4/14/1999	2,803	31.2
N-05261 (Seaman Road #2)	8/24/2005	7.1	ND
	9/12/2005	9.1	ND
	10/19/2005	8.3	ND
	11/2/2005	8	ND

Table 1-2
On-Site Well Construction Details
Ronhill Cleaners
Glen Cove, NY

Well ID	Diameter (in)	Total Depth (ft)	Screen Length (ft)	Screened Interval (ft)	Materials of Construction	Year Installed
Groundwater Monitoring Well						
MW-1	4	86.9	10	76.9 - 86.9	Sched 40 PVC	1993
MW-2	4	87.3	10	77.3 - 87.3	Sched 40 PVC	1993
MW-3	4	89.72	10	79.72 - 89.72	Sched 40 PVC	1993
MW-4	4	90.02	10	80.02 - 90.02	Sched 40 PVC	1993

Table 1-3
2005 On-Site Groundwater Data - PCE and Degradation Products
Ronhill Cleaners
Glen Cove, NY

Well	NYSDEC	MW-01	MW-02	MW-03	MW-04
Depth (ft bgs)	TOGS 1.1.1	88	85	85	85
Date	Class GA (Groundwater)	8/5/2005	8/4/2005	8/4/2005	8/5/2005
Concentration	Standards/Guidance Values	ug/L	ug/L	ug/L	ug/L
Parameter					
Tetrachloroethene	5	**37,000**	**49,000**	**110,000**	**16,000**
Trichloroethene	5	**170**	**10**	**26**	*400 U*
cis-1,2-Dichloroethene	5	**360 J**	**11**	**28**	*400 U*
trans-1,2-Dichloroethene	5	4 J	*10 U*	*10 U*	*400 U*
Vinyl Chloride	5	*10 U*	*10 U*	*10 U*	*400 U*

Vertical Profile	NYSDEC	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02	VPR-02
Depth (ft bgs)	TOGS 1.1.1	84.26	92.45	97.45	102.45	107.45	112.45	117.45	122.45	127.45	132.45	142.45	152.45	161.85	172.4	182.4	192.4	199.15	207.7	212.35
Date	Class GA (Groundwater)	8/17/2005	8/17/2005	8/17/2005	8/17/2005	8/17/2005	8/17/2005	8/18/2005	8/18/2005	8/18/2005	8/18/2005	8/18/2005	8/18/2005	8/18/2005	8/18/2005	8/23/2005	8/23/2005	8/23/2005	8/23/2005	8/24/2005
Concentration	Standards/Guidance Values	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter																				
Tetrachloroethene	5	**147,000**	**79,000**	**81,920**	**72,570**	**6,830**	**6,680**	**1,246**	**1,758**	**1,553**	**74.44**	**15.67**	**30.1**	**30.84**	5 U	5 U	5 U	**91**	5 U	5 U
Trichloroethene	5	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*250 U*	*500 U*	*500 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*250 U*	*500 U*	*500 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*250 U*	*500 U*	*500 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	5	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*200 U*	*250 U*	*500 U*	*500 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Vertical Profile	NYSDEC	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03	VPR-03
Depth (ft bgs)	TOGS 1.1.1	84.55	87.65	93.85	97.75	102.75	107.75	112.75	117.75	122.75	127.75	132.75	141.15
Date	Class GA (Groundwater)	8/29/2005	8/29/2005	8/29/2005	8/29/2005	8/30/2005	8/30/2005	8/30/2005	8/30/2005	8/30/2005	8/31/2005	8/31/2005	8/31/2005
Concentration	Standards/Guidance Values	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter													
Tetrachloroethene	5	**3,820**	**1,620**	**1,800**	**1,600**	**772**	**1,620**	**61**	**15.5**	**12.8**	**12.8**	**12.7**	**12.7**
Trichloroethene	5	*50 U*	*50 U*	*500 U*	*500 U*	*50 U*	*50 U*	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	*50 U*	*50 U*	*500 U*	*500 U*	*50 U*	*50 U*	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	*50 U*	*50 U*	*500 U*	*500 U*	*50 U*	*50 U*	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	5	*50 U*	*50 U*	*500 U*	*500 U*	*50 U*	*50 U*	5 U	5 U	5 U	5 U	5 U	5 U

Vertical Profile	NYSDEC	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04	VPR-04
Depth (ft bgs)	TOGS 1.1.1	82.55	87.44	92.44	97.44	102.44	107.44	112.44	118.97	122.4	127.4	136.35	156.83	166.68	176.11	185.55	194.64	211	220.45
Date	Class GA (Groundwater)	9/1/2005	9/2/2005	9/2/2005	9/2/2005	9/2/2005	9/6/2005	9/6/2005	9/6/2005	9/6/2005	9/7/2005	9/7/2005	9/8/2005	9/8/2005	9/8/2005	9/8/2005	9/9/2005	9/12/2005	9/13/2005
Concentration	Standards/Guidance Values	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter																			
Tetrachloroethene	5	**6,485**	**15,045**	**10,335**	**738**	**30.8**	**13.4**	**11.1**	**9.3**	**10.6**	**17.6**	**10.4**	**7.2**	**6**	**6**	**5.9**	**5.6**	**22.6**	**6.4**
Trichloroethene	5	*2500 U*	*2500 U*	*2500 U*	*250 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	*2500 U*	*2500 U*	*2500 U*	*250 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	*2500 U*	*2500 U*	*2500 U*	*250 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	5	*2500 U*	*2500 U*	*2500 U*	*250 U*	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:
BOLD - Concentration exceeds NYSDEC TOGS 1.1.1 Ambient Water Qulity Standards and Guidance Values for Class GA water
italics - Reporting limit exceeds NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values
Red - Highest concentration observed in vertical profile groundwater samples
ug/L - micrograms per liter

Table 1-4
ERM Soil Vapor Point Construction Details
Ronhill Cleaners
Glen Cove, NY

Well ID	Diameter (in)	Total Depth (ft)	Screen Length (ft)	Screened Interval (ft)	Materials of Construction	Year Installed
Soil Vapor Points						
SVP-01A	3/8	75	1.75	73.25 - 75	Stainless steel soil gas implant connected to 1/4-inch Teflon tubing	2005
SVP-01B	3/8	5	1.75	3.25 - 5	Same as above	2005
	3/8	15	1.75	13.25 - 15	Same as above	2005
	3/8	25	1.75	23.25 - 25	Same as above	2005
	3/8	35	1.75	33.25 - 35	Same as above	2005
	3/8	45	1.75	43.25 - 45	Same as above	2005
	3/8	55	1.75	53.25 - 55	Same as above	2005
	3/8	65	1.75	63.25 - 65	Same as above	2005
SVP-02	3/8	5	1.75	3.25 - 5	Same as above	2005
	3/8	15	1.75	13.25 - 15	Same as above	2005
	3/8	25	1.75	23.25 - 25	Same as above	2005
	3/8	35	1.75	33.25 - 35	Same as above	2005
	3/8	45	1.75	43.25 - 45	Same as above	2005
	3/8	55	1.75	53.25 - 55	Same as above	2005
	3/8	65	1.75	63.25 - 65	Same as above	2005
	3/8	75	1.75	73.25 - 75	Same as above	2005

Table 1-5
2005 On-Site Soil Vapor Point Data - PCE and Degradation Products
Ronhill Cleaners
Glen Cove, NY

Well	**SVP-01**	**SVP-01**	**SVP-01**	**SVP-01**	**SVP-01**	**SVP-01**	**SVP-01**	**SVP-01**
Depth (ft bgs)	5	15	25	35	45	55	65	75
Date	10/26/2005	10/26/2005	10/26/2005	10/26/2005	10/26/2005	10/26/2005	10/26/2005	10/26/2005
Concentration	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
Parameter								
Tetrachloroethene	6,200	6,600	1,300	9,000	18,000	29,000	32,000	23,000
Trichloroethene	0.6 J	0.82	1.4	29	58	9.4	4.1	3.6
cis-1,2-Dichloroethene	0.60 U	0.60 U	0.44 J	2.5	3.3	0.85	0.77	1.3
trans-1,2-Dichloroethene	0.60 U	0.60 U	0.60 U	0.89	1.00	0.60 U	0.60 U	0.60 U
Vinyl Chloride	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U

Well	**SVP-02**	**SVP-02**	**SVP-02**	**SVP-02**	**SVP-02**	**SVP-02**	**SVP-02**	**SVP-02**
Depth (ft bgs)	5	15	25	35	45	55	65	75
Date	10/27/2005	10/27/2005	10/27/2005	10/27/2005	10/27/2005	10/27/2005	10/27/2005	10/27/2005
Concentration	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
Parameter								
Tetrachloroethene	37,000	18,000	4,100	2,400	950	1,200	91,000	1,800,000
Trichloroethene	7.9	3.5	9	24	23	3.5	17	350
cis-1,2-Dichloroethene	0.60 U	0.60 U	0.81	1.6	1	0.60 U	1.9	23
trans-1,2-Dichloroethene	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U
Vinyl Chloride	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U

Table 1-6
Well Construction Details for On-Site Wells
Ronhill Cleaners Site
Glen Cove, NY

Well ID	Diameter (in)	Total Depth (ft)	Screen Length (ft)	Screened Interval (ft)	Materials of Construction	Year Installed
Vapor Observation Well						
VOW-1S	1	10.9	2	8 - 10	Sched 40 PVC	2005
VOW-1M	1	46.1	2	44 - 45	Sched 40 PVC	2005
VOW-1D	1	84	10	74 - 84	Sched 40 PVC	2005
VOW-2S	1	10	2	8 - 10	Sched 40 PVC	2005
VOW-2M	1	46.6	2	44 - 46	Sched 40 PVC	2005
VOW-2D	1	71.2	10	61 - 71	Sched 40 PVC	2005
VOW-3S	1	10	2	8 - 10	Sched 40 PVC	2005
VOW-3M	1	43.5	2	41 - 43	Sched 40 PVC	2005
VOW-3D	1	63.3	10	53 - 63	Sched 40 PVC	2005
VOW-4S	1	11.2	2	8 - 10	Sched 40 PVC	2005
VOW-4M	1	43.5	2	41 - 43	Sched 40 PVC	2005
VOW-4D	1	66	10	56 - 66	Sched 40 PVC	2005

Table 2-1
Vapor Extraction System (VES) Well Construction Details
Ronhill Cleaners
Glen Cove, NY

Well ID	Diameter (in)	Total Depth (ft)	Screen Length (ft)	Screened Interval (ft)	Materials of Construction	Year Installed	Status
Vapor Extraction Well							
VES-1	4	79.1	76.5	2.6 - 79.1	Sched 40 PVC	1996	ABANDONED
VES-1A	4	20	10	10.0 - 20.0	Sched 40 PVC	2008	
VES-2	4	67.7	60	10.7 - 67.7	Sched 40 PVC	1996	ABANDONED
VES-2A	4	65	10	55.0 - 65.0	Sched 40 PVC	2008	
VES-3	4	20.9	15.5	4.4 - 20.9	Sched 40 PVC	1996	ABANDONED
VES-3A	4	65	10	55.0 - 65.0	Sched 40 PVC	2008	
VES-4	4	12.1	7.4	4.7 - 12.1	Sched 40 PVC	1996	
VES-5	4	20	10	10.0 - 20.0	Sched 40 PVC	2008	

Table 3-1
Construction Details for Pilot Study Wells
Ronhill Cleaners
Glen Cove, NY

Well ID	Diameter (in)	Total Depth (ft)	Screen Length (ft)	Screened Interval (ft)	Materials of Construction	Year Installed
Injection Wells						
IW-1S	2	100	2	98-100	Stainless Steel casing with a stainless steel diffuser	2008
IW-1D	2	120	2	118-120	Stainless Steel casing with a stainless steel diffuser	2008
IW-2S	2	100	2	98-100	Stainless Steel casing with a stainless steel diffuser	2008
IW-2D	2	120	2	118-120	Stainless Steel casing with a stainless steel diffuser	2008
Pilot Study Groundwater Monitoring Wells						
MW-1	4	86.9	10	76.9 - 86.9	Sched 40 PVC	1993
MW-2	4	87.3	10	77.3 - 87.3	Sched 40 PVC	1993
MW-3	4	89.72	10	79.72 - 89.72	Sched 40 PVC	1993
MW-4	4	90.02	10	80.02 - 90.02	Sched 40 PVC	1993
MW-5	4	95.1	10	85.10-95.10	Sched 40 PVC	1998
PTW-01	2	115	10	105-115	Sched 40 PVC	2008

Table 3-2
Soil Vapor Point Construction Details
Ronhill Cleaners
Glen Cove, NY

Well ID	Diameter (in)	Total Depth (ft)	Screen Length (ft)	Screened Interval (ft)	Materials of Construction	Year Installed
Soil Vapor Points						
SV-01S	1	8	0.5	7.5-8.0	Stainless Steel Screen, 3/8" teflon tubing	2008
SV-01D	1	65	0.5	64.5-65.0	Stainless Steel Screen, 3/8" teflon tubing	2008
SV-02S	1	8	0.5	7.5-8.0	Stainless Steel Screen, 3/8" teflon tubing	2008
SV-02D	1	65	0.5	64.5-65.0	Stainless Steel Screen, 3/8" teflon tubing	2008
Sub-Slab Soil Vapor Points						
SITE-SS	1/4	0.5	NA	sub-slab	Stainless Steel Tubing	2008
COVE-SS	1/4	0.5	NA	sub-slab	Stainless Steel Tubing	2008

Table 3-3
Ozone System Operational Parameters
Ronhill Cleaners
Glen Cove, NY

System Status					*Air Compressor*			*Oxygen Generator*					*Ozone Generator*				
Date	Ozone Upon Arrival	Ozone Upon Departure	Alarms	Ozone Run Time (Hrs)	Delivery Pressure (psig)	Run Time (hr)	Normal Operation? (yes/no)	Feed Air Pressure Gauge (psig)	Oxygen Pressure Gauge (psig)	Run Time (Hrs)	Feed Air Regulator Set Point (psig)	Flow Rate (L/Min)	Ozone Output Potentiometer (%)	Ozone Manifold Pressure (psig)	Ozone Prodcution (g/hr)	Total Ozone Injected (lbs)	Ozone Injected (lbs/day)
1/5/2009	N	Y	System Startup w/ new ozone generator	49	145	27	Y	50	33	49	30	10	100	28	48.8	0	
1/14/2009	Y	Y	None	263	145	125	Y	45	35	263	30	15	100	35	56	24.7	2.7
1/21/2009	Y	Y	None	430	50	204	Y	50	35	430	30	15	100	35	56	45.2	2.9
1/30/2009	Y	Y	None	647	80	326	Y	50	35	647	30	13	100	32	54	71.5	2.9
2/4/2009	Y	N	Shut-down at end of visit for groundwater sampling, need to replace solenoid valves	768	80	395	Y	40	35	768	40	15	100	30	56	86.1	2.9
2/12/2009	N	Y	installed 4 new solenoid valves	769	80	395	Y	50	20	769	40	18	100	20	59	86.3	0.03
2/18/2009	Y	Y	installed 4 new solenoid valves	911	80	469	Y	60	45	911	40	15	100	40	56	104.2	3.0
2/25/2009	N	Y	4 solenoid valves remained closed upon arrival	1079	80	515	Y	70	45	1079	40	3	100	40	25	119.2	2.1
3/4/2009	Y	Y	None	1244	150	680	Y	70	60	1244	40	10	100	50	48	132.5	1.9
3/11/2009	Y	Y	None	1411	125	786	Y	80	55	1411	40	15	100	30	56	151.6	2.7
3/18/2009	Y	Y	None	1582	130	894	Y	70	63	1582	30	5	100	45	30	167.7	2.3
3/25/2009	Y	N	System shut-down at end of visit, electrical disconnected	1749	150	1003	Y	80	65	1749	30	5	100	46	30	178.8	1.6

Table 3-4
Ozone Pilot Study Activity Summary
Ronhill Cleaners
Glen Cove, NY

Date	Activity
8/28/2008	**Baseline** Groundwater Samples MW-1-4, PTW-1,
11/3/2008	**Baseline** Groundwater Samples MW-5
1/5/2009	Pilot Test Startup
1/6-1/9/09	Ozone measurements at VOW wells, Payless, One hr photo
1/9/2009	Field readings(MW-1 - MW-5, PTW-1; VOWs)
1/13/2009	Groundwater Sampling **Round 1**-MW-1 through MW-4
1/14/2009	Groundwater Sampling **Round 1**-PTW-1 and MW-5
1/14/2009	RCC weekly O&M
1/15/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
1/21/2009	RCC weekly O&M
1/23/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
1/29/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
1/30/2009	RCC weekly O&M (rescheduled from Wed due to snow) - 3 solenoid valves observed to have failed. 2 replaced. Point 2D offline.
2/2/2009	Groundwater Sampling **Round 2-**MW-1 through MW-4
2/3/2009	Groundwater Sampling **Round 2-** PTW-1 and MW-5
2/4/2009	Ozone System SHUTDOWN - RCC observed solenoid valves had failed - need to replace.point 2D did not receive ozone from 1/30/09 to 2/4/09
2/5/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
2/10/2009	Groundwater Sampling **Round 3**
2/12/2009	RCC weekly O&M - Sytem RESTART;Field readings (MW-1 - MW-5, PTW-1; VOWs); RCC installed new solenoid pressure valves - inadvertantly reduced to 20 psi (below required 35 psi)
2/18/2009	RCC weekly O&M - replaced 4 solenoid valves,
2/19/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
2/24/2009	RCC weekly O&M - when arrived onsite observed that solenoids had failed - system was down for an unknown period between the last O&M visit. Points 1S and D put back online.
2/25/2009	RCC replaced 4 solenoids with 100 psi rated valves
2/26/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
3/4/2009	RCC weekly O&M
3/5/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
3/11/2009	RCC weekly O&M
3/12/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
3/18/2009	RCC weekly O&M
3/19/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
3/25/2009	PILOT SHUTDOWN; Groundwater Sampling **Round 4**
3/26/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
4/2/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
4/9/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
4/16/2009	Field readings (MW-1 - MW-5, PTW-1; VOWs)
4/22/2009	Groundwater Sampling **Round 5**
- - - - - - -	**PILOT STUDY MONITORING COMPLETE**

Table 3-5
Ozone Pilot Study Sampling and Analysis Schedule
Ronhill Cleaners
Glen Cove, NY

		Monitoring Wells						*Vapor Observation Wells*			
	Sample Location:	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**PTW-1**	**VOW-1**	**VOW-2**	**VOW-3**	**VOW-4**
	Depth:	86.9	87.3	89.72	90.02	95.1	115	10.9, 46.1, 84	10, 46.6, 71.2	10, 43.5, 63.3	11.2, 43.5, 66
	Sample Frequency[a]:							**1/Week**	**1/Week**	**1/Week**	**1/Week**
		ALL ROUNDS	**ALL ROUNDS**	**ALL ROUNDS**	**ALL ROUNDS**	**ALL ROUNDS**	**ALL ROUNDS**				
Analyte	**Method**										
VOCs	SOM01.2-Trace	X	X	X	X	X	X				
VOCs	EPA TO-15										
Chloride	EPA 325.3	X	X	X	X	X	X				
COD	EPA 410.4	X	X	X	X	X	X				
Dissolved Iron	EPA 200.7	X	X	X	X	X	X				
Dissolved Manganese	EPA 200.7	X	X	X	X	X	X				
Bromate	EPA 300.1	X	X	X	X	X	X				
TOC	EPA 415.1	X	X	X	X	X	X				
TDS	EPA 160.1	X	X	X	X	X	X				
Alkalinity	EPA 310.1	X	X	X	X	X	X				
Gaseous Ozone*	Field Instrument	X	X	X	X	X	X	X	X	X	X
Water level	Field Instrument	X	X	X	X	X	X				
pH	Field Instrument	X	X	X	X	X	X				
Temperature	Field Instrument	X	X	X	X	X	X				
Turbidiy	Field Instrument	X	X	X	X	X	X				
Specific Conductivity	Field Instrument	X	X	X	X	X	X				
Dissolved Ozone	Field Test Kit	X	X	X	X	X	X				
Dissolved Oxygen	Field Instrument	X	X	X	X	X	X				
Dissoved CO2	Field Test Kit	X	X	X	X	X	X				
Dissoved CO2 Gas	Field Instrument	X	X	X	X	X	X				
Oxidation-Reduction Potential	Field Instrument	X	X	X	X	X	X				

* gaseous ozone checked weekly at locations

a - Sample Frequency:
Baseline: August 28, 2009
Round 1: January 13 and 14, 2009
Round 2: February 2 and 3, 2009
Round 3: February 10, 2009
Round 4: March 25, 2009
Round 5: April 22, 2009

Table 3-5
Ozone Pilot Study Sampling and Analysis Schedule
Ronhill Cleaners
Glen Cove, NY

		Soil Vapor Sample Locations				*Sub-Slab and Indoor Air Soil Vapor Locations*			
	Sample Location:	**SV-1S**	**SV-1D**	**SV-2S**	**SV-2D**	**SITE-SS**	**SITE-IA**	**COVE-SS**	**COVE-IA**
	Depth:	8	65	8	65	NA	NA	NA	NA
	Sample Frequency[a]:	**Baseline, Round 2, Round 5**	**Baseline, Round 2, Round 5**	**Baseline, Round 2, Round 5**	**Baseline, Round 2, Round 5**	**Baseline, Round 2, Round 5**	**Baseline, Round 2, Round 5**	**Baseline, Round 2, Round 5**	**Baseline, Round 2, Round 5**
Analyte	**Method**								
VOCs	SOM01.2-Trace								
VOCs	EPA TO-15	X	X	X	X	X	X	X	X
Chloride	EPA 325.3								
COD	EPA 410.4								
Dissolved Iron	EPA 200.7								
Dissolved Manganese	EPA 200.7								
Bromate	EPA 300.1								
TOC	EPA 415.1								
TDS	EPA 160.1								
Alkalinity	EPA 310.1								
Gaseous Ozone*	Field Instrument					X	X	X	X
Water level	Field Instrument								
pH	Field Instrument								
Temperature	Field Instrument								
Turbidiy	Field Instrument								
Specific Conductivity	Field Instrument								
Dissolved Ozone	Field Test Kit								
Dissolved Oxygen	Field Instrument								
Dissoved CO2	Field Test Kit								
Dissoved CO2 Gas	Field Instrument								
Oxidation-Reduction Potential	Field Instrument								

* gaseous ozone checked weekly at locations

a - Sample Frequency:
Baseline: August 28, 2009
Round 1: January 13 and 14, 2009
Round 2: February 2 and 3, 2009
Round 3: February 10, 2009
Round 4: March 25, 2009
Round 5: April 22, 2009

Table 4-1A
Basline Pilot Study Groundwater Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-BASELINE		MW-1-BASELINE		MW-2-BASELINE		MW-3-BASELINE		MW-30-BASELINE		MW-4-BASELINE		MW-5-BASELINE		FB-081103		FB082708		TRIPBLANK		TRIPBLANK	
Sample Location		**NYSDEC**	PTW-1		MW-1		MW-2		MW-3		MW-3 Duplicate		MW-4		MW-5		Field Blank		Field Blank		Trip Blank		Trip Blank	
Lab Sample Number		**TOGS 1.1.1**	Z4328-01		Z4328-06		Z4328-03		Z4328-02		Z4328-05		Z4328-07		Z5257-01		Z5257-02		Z4328-04		Z4328-08		Z5257-03	
Sampling Date		**Class GA**	8/26/2008		8/27/2008		8/27/2008		8/27/2008		8/27/2008		8/27/2008		11/3/2008		11/3/2008		8/27/2008		8/22/2008		10/29/2008	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		1		1		1		1		1		1		1		1		1		1	
Units		**ug/L**	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Volatile Organic Compounds	***CAS #***																							
Tetrachloroethene	127-18-4	5	**27**	**D**	**5300**	**JD**	**630**	**D**	**3,200**	**D**	**4,100**	**JD**	**6,900**	**JD**	**25**	**D**	0.3	U	0.5	U	0.5	U	0.3	U
Trichloroethene	79-01-6	5	0.5	U	2.1		0.29	J	0.97		1.1		2.3		0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
cis-1,2-Dichloroethene	156-59-2	5	0.5	U	1.4		0.5	U	0.82		0.83		0.33	J	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
trans-1,2-Dichloroethene	156-60-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Vinyl chloride	75-01-4	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,1,1-Trichloroethane	71-55-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.3	U	0.3	U	0.5	U	0.5	U	0.3	U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.1	U	0.1	U	0.5	U	0.5	U	0.1	U
1,1,2-Trichloroethane	79-00-5	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.1	U	0.1	U	0.5	U	0.5	U	0.1	U
1,1,2-Trichlorotrifluoroethane	76-13-1		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.3	U	0.3	U	0.5	U	0.5	U	0.3	U
1,1-Dichloroethane	75-34-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,1-Dichloroethene	75-35-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,2,3-Trichlorobenzene	87-61-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,2,4-trichlorobenzene	120-82-1	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.2*	*U*	*0.2*	*U*	*0.5*	*U*	*0.5*	*U*	*0.2*	*U*
1,2-Dibromoethane	106-93-4	0.0006	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.1*	*U*	*0.1*	*U*	*0.5*	*U*	*0.5*	*U*	*0.1*	*U*
1,2-Dichlorobenzene	95-50-1	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,2-Dichloroethane	107-06-2	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,2-Dichloropropane	78-87-5	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.1	U	0.1	U	0.5	U	0.5	U	0.1	U
1,3-Dichlorobenzene	541-73-1	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
1,4-Dichlorobenzene	106-46-7	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.1	U	0.1	U	0.5	U	0.5	U	0.1	U
2-Butanone	78-93-3	50	5	U	5	U	5	U	5	U	5	U	5	U	0.7	U	0.7	U	5	U	5	U	0.7	U
2-Hexanone	591-78-6	50	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	5	U	5	U	1	U
4-Methyl-2-pentanone	108-10-1	50	5	U	5	U	5	U	5	U	5	U	5	U	1.4	U	1.4	U	5	U	5	U	1.4	U
Acetone	67-64-1	50	5	U	5	U	5	U	5	U	5	U	5	U	2	U	2	U	5	U	5	U	2	U
Benzene	71-43-2	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Bromochloromethane	74-97-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.1	U	0.1	U	0.5	U	0.5	U	0.1	U
Bromodichloromethane	75-27-4	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Bromoform	75-25-2	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.1	U	0.1	U	0.5	U	0.5	U	0.1	U
Bromomethane	74-83-9	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Carbon disulfide	75-15-0	60	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Carbon tetrachloride	56-23-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Chlorobenzene	108-90-7	5	0.5	U	1.3		0.5	U	0.65		0.71		0.71		0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Chloroethane	75-00-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Chloroform	67-66-3	7	0.36	J	0.5	U	0.26	J	0.42	J	0.43	J	0.62		1.4		0.2	U	0.5	U	0.5	U	0.2	U
Chloromethane	74-87-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
cis-1,3-Dichloropropene	10061-01-5	0.4	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.2*	*U*	*0.2*	*U*	*0.5*	*U*	*0.5*	*U*	0.2	U
Cyclohexane	110-82-7		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Dibromochloromethane	124-48-1	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.1	U	0.1	U	0.5	U	0.5	U	0.1	U
Dichlorodifluoromethane	75-71-8	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Ethylbenzene	100-41-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Isopropylbenzene	98-82-8	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
m&p-xylenes	179601-23-1	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U

Table 4-1A
Basline Pilot Study Groundwater Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-BASELINE		MW-1-BASELINE		MW-2-BASELINE		MW-3-BASELINE		MW-30-BASELINE		MW-4-BASELINE		MW-5-BASELINE		FB-081103		FB082708		TRIPBLANK		TRIPBLANK	
Sample Location		**NYSDEC**	PTW-1		MW-1		MW-2		MW-3		MW-3 Duplicate		MW-4		MW-5		Field Blank		Field Blank		Trip Blank		Trip Blank	
Lab Sample Number		**TOGS 1.1.1**	Z4328-01		Z4328-06		Z4328-03		Z4328-02		Z4328-05		Z4328-07		Z5257-01		Z5257-02		Z4328-04		Z4328-08		Z5257-03	
Sampling Date		**Class GA**	8/26/2008		8/27/2008		8/27/2008		8/27/2008		8/27/2008		8/27/2008		11/3/2008		11/3/2008		8/27/2008		8/22/2008		10/29/2008	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		1		1		1		1		1		1		1		1		1		1	
Units		**ug/L**	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Volatile Organic Compounds	***CAS #***																							
Methyl Acetate	79-20-9		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.3	U	0.3	U	0.5	U	0.5	U	0.3	U
Methyl tert-butyl Ether	1634-04-4	10	0.5	U	0.5	U	0.5	U	0.26	J	0.26	J	0.22	J	0.32	J	0.2	U	0.5	U	0.5	U	0.2	U
Methylcyclohexane	108-87-2		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Methylene chloride	75-09-2	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	1.8		0.5	U	0.43	JB	0.2	U
o-xylene	95-47-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Styrene	100-42-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Toluene	108-88-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
trans-1,3-Dichloropropene	10061-02-6	0.4	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.1*	*U*	*0.1*	*U*	*0.5*	*U*	*0.5*	*U*	0.1	U
Trichlorofluoromethane	75-69-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.2	U	0.2	U	0.5	U	0.5	U	0.2	U
Total Confident VOC Conc.			31.36		364.8		130.55		343.12		343.33		524.18		40.72		1.8		0		0.43		0	
Total VOC TICs																								
TOC (SM5310B) (mg/L)	10-35-5		0.832		1.54		0.908		1.25		1.18		1.98		3.97		0.4	U	0.4	U	NA		NA	
TDS (SM2540C) (mg/L)	10-33-3	1000	530		450		170		380		380		670		210		10	U	10	U	NA		NA	
Iron (EPA 200.7) (ug/L)		300	200	U	**636**		261		131	J	150	J	62.7	J	200	U	200	U	200	U	NA		NA	
Manganese (EPA 200.7) (ug/L)		300	12.6	J	13	J	10.5	J	18.6	J	19.4	J	37.3		11		17.2		20	U	NA		NA	
Chloride (mg/L)	7782-50-5	250	**280**	J	180	J	9.86	J	150	J	140	J	160	J	100	J	4.64		0.5	J	NA		NA	
Bromate (mg/L)[a]		0.01*	**9.84**	**J**	**8.45**	**J**	*7.04*	*UJ*	*6.1*	*UJ*	*5.75*	*UJ*	*6.82*	*UJ*	0.01	U	**8**		**1.61**	**J**	NA		NA	
Alkalinity (SM2320 B) (mg/L)			23		16		19		20		19		17		15	J			3.6	J	NA		NA	
COD (SM5220 C) (mg/L)			21	J	24	J	20	J	20	J	23	J	21	J	5	U	5	U	19	J	NA		NA	

Notes:
BOLD - Sample concentration exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
italics - Reporting Limit exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
NA - Not analyzed
* - 0.01 mg/L is the EPA MCL for Bromate
a - Based on the presence of bromate in the field blank collected on 08/27/08, bromate results for samples collected at MW-2, MW-3, and MW-4, where the results are less than 5Xs the value detected in the blank, are considered non-detect.
- Based on the presence of bromate in the field blank and excessively high recoveries in the MS/MSD the bromate results for the samples collected at PTW-1 and MW-1 should be considered suspect.
Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

Table 4-1B
Baseline Pilot Study Sub-Slab and Indoor Air Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID					**SITE-SS**		**SITE-1A**		**COVE-SS**		**COVE-1A**		**OUTDOORAMBIENT**	
Location		**EPA 2001**	**EPA 2001**	**NYSDOH**	Payless-Subslab		Payless-Indoor Air		1-Hr Photo-Subslab		1-Hr Photo-Indoor Air		Outdoor	
Lab Sample Number		**BASE Database**	**BASE Database**	**October-06**	Z4332-04		Z4332-06		Z4332-02		Z4332-01		Z4332-03	
Sampling Date		**SUMMA canister method**	**SUMMA canister method**	**Chemical Air**	8/27/2008		8/27/2008		8/27/2008		8/27/2008		8/27/2008	
Matrix		**Indoor Air Values**	**Outdoor Air Values**	**Guide Values**	AIR		AIR		AIR		AIR		AIR	
Dilution Factor		**90th percentile**	**90th percentile**		1		1		1		1		1	
Units		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	***CAS #***													
Tetrachloroethene	127-18-4	15.9	6.5	100	21,238.67	D[a]	4.75		7.87	[c]	4		1.42	
Trichloroethene	79-01-6	4.2	1.3	5	25.15	[b]	0.54		0.21	U	0.21	U	0.21	U
cis-1,2-Dichloroethene	156-59-2	<1.9	<1.8		4.44		0.4	U	0.4	U	0.4	U	0.4	U
trans-1,2-Dichloroethene	156-60-5	NL	NL		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Vinyl Chloride	75-01-4	<1.9	<1.8		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1,1-Trichloroethane	71-55-6	20.6	2.6		0.6		0.55	U	0.55	U	0.55	U	0.55	U
1,1,2,2-Tetrachloroethane	79-34-5	NL	NL		0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
1,1,2-Trichloroethane	79-00-5	<1.6	<1.6		0.55	U	0.93		0.55	U	0.55	U	0.55	U
1,1,2-Trichlorotrifluoroethane	76-13-1	NL	NL		0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,1-Dichloroethane	75-34-3	<0.7	<0.6		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1-Dichloroethene	75-35-4	<1.4	<1.4		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,4-Trichlorobenzene	120-82-1	<6.8	<6.4		0.74	U	0.74	U	0.74	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	95-63-6	9.5	5.8		11.06		6.78		1.08		2.51		0.54	
1,2-Dibromoethane	106-93-4	<1.5	<1.6		0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,2-Dichlorobenzene	95-50-1	<1.2	<1.2		0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,2-Dichloroethane	107-06-2	<0.9	<0.8		0.4	U	9.31		0.4	U	0.4	U	0.4	U
1,2-Dichloropropane	78-87-5	<1.6	<1.6		11.79		26.34		0.46	U	0.46	U	0.46	U
1,3,5-Trimethylbenzene	108-67-8	3.7	2.7		4.77		2.06		0.49	U	0.93		0.49	U
1,3-Butadiene	106-99-0	<3.0	<3.4		0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,3-Dichlorobenzene	541-73-1	<2.4	<2.2		0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,4-Dichlorobenzene	106-46-7	5.5	1.2		1.02		0.6	U	0.84		0.6	U	0.6	U
1,4-Dioxane	123-91-1	NL	NL		0.36	U	0.94		0.36	U	0.36	U	0.36	U
2,2,4-Trimethylpentane	540-84-1	NL	NL		4.16		2.38		4.2		5.6		2.15	
2-Butanone	78-93-3	12	11.3		8.61	U	99.1	D	2.24		2.62		7.7	
2-Chlorotoluene	95-49-8	NL	NL		0.52	U	0.52	U	0.52	U	0.52	U	0.52	U
4-Ethyltoluene	622-96-8	NL	NL		1.38		1.62		0.49	U	0.49	J	0.49	U
4-Methyl-2-Pentanone	108-10-1	6	1.9		1.43		0.41	U	0.41	U	0.41	U	0.41	U
Acetone	67-64-1	98.9	43.7		19.76		154.88	DB	90.03	DB	41.57	DB	9.12	B
Allyl Chloride	107-05-1	NL	NL		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Benzene	71-43-2	9.4	6.6		20.54		28.85		8.11		7		5.69	
Bromodichloromethane	75-27-4	NL	NL		0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
Bromoethene	593-60-2	NL	NL		0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Bromoform	75-25-2	NL	NL		1.03	U	1.03	U	1.03	U	1.03	U	1.03	U
Bromomethane	74-83-9	<1.7	<1.6		0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
Carbon Disulfide	75-15-0	4.2	3.7		0.31	U	1.49		0.37		0.31	J	0.31	U
Carbon Tetrachloride	56-23-5	<1.3	0.7		0.5		0.57		0.63		0.63		0.57	
Chlorobenzene	108-90-7	<0.9	<0.8		0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
Chloroethane	75-00-3	<1.1	<1.2		0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Chloroform	67-66-3	1.1	0.6		2.73		0.49	U	0.49	U	0.49	U	0.49	U
Chloromethane	74-87-3	NL	NL		0.21	U	1.3		0.47		1.16		1.26	
cis-1,3-Dichloropropene	10061-01-5	<2.3	<2.2		0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Cyclohexane	110-82-7	NL	NL		2.27		15.63		5.75		27.71		0.34	U
Dibromochloromethane	124-48-1	NL	NL		0.85	U	0.85	U	0.85	U	0.85	U	0.85	U
Dichlorodifluoromethane	75-71-8	16.5	8.1		2.62		2.62		2.82		2.27		2.52	

Table 4-1B
Baseline Pilot Study Sub-Slab and Indoor Air Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID					**SITE-SS**		**SITE-1A**		**COVE-SS**		**COVE-1A**		**OUTDOORAMBIENT**	
Location		**EPA 2001**	**EPA 2001**	**NYSDOH**	Payless-Subslab		Payless-Indoor Air		1-Hr Photo-Subslab		1-Hr Photo-Indoor Air		Outdoor	
Lab Sample Number		**BASE Database**	**BASE Database**	**October-06**	Z4332-04		Z4332-06		Z4332-02		Z4332-01		Z4332-03	
Sampling Date		**SUMMA canister method**	**SUMMA canister method**	**Chemical Air**	8/27/2008		8/27/2008		8/27/2008		8/27/2008		8/27/2008	
Matrix		**Indoor Air Values**	**Outdoor Air Values**	**Guide Values**	AIR		AIR		AIR		AIR		AIR	
Dilution Factor		**90th percentile**	**90th percentile**		1		1		1		1		1	
Units		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	***CAS #***													
Dichlorotetrafluoroethane	76-14-2	<6.8	<6.4		0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethyl Benzene	100-41-4	5.7	3.5		4.21		25.5		1.43		1.65		1.17	
Heptane	142-82-5	NL	NL		6.19		3.61		4.3		4.02		1.68	
Hexachloro-1,3-Butadiene	87-68-3	NL	NL		1.07	U	1.07	U	1.07	U	1.07	U	1.07	U
Hexane	110-54-3	NL	NL		24.35		22.56	D	23.12		22.77		16.88	
m/p-Xylene	126777-61-2	22.2	12.8		17.07		41.7	D	3.3		4.39		1.56	
Methyl Methacrylate	80-62-6	NL	NL		0.41	U	19.98		4.05		0.41	U	0.41	U
Methyl tert-Butyl Ether	1634-04-4	11.5	6.2		0.36	U	0.36	U	1.73		0.97	D	0.36	U
Methylene Chloride	75-09-2	10	6.1	60	20.84	DB	4.76	B	4.34	B	8.48	B	3.61	B
o-Xylene	95-47-6	7.9	4.6		5.56		23.5		0.87		1.22		0.48	
Styrene	100-42-5	1.9	1.3		0.72		7.66		0.51		0.98		0.43	U
t-1,3-Dichloropropene	10061-02-6	<1.3	<1.4		0.45	U	0.77		0.45	U	0.45	U	0.45	U
tert-Butyl alcohol	75-65-0	NL	NL		0.3	U	0.3	U	0.3	U	0.3	U	0.3	U
Tetrahydrofuran	109-99-9	NL	NL		0.29	U	0.29	U	0.29	U	0.29	U	6.37	
Toluene	108-88-3	43	33.7		42.21	D	1338.57	D	45.75		35.24		18.16	
Trichlorofluoromethane	75-69-4	18.5	4.3		1.63		1.69		0.56	U	1.69		1.4	
Total Confident VOC Conc.					433.81		264.95		67.65		52.34		24.43	
Total VOC TICs														

NOTE:
BOLD - Sample concentrations exceed EPA BASE Database Indoor Air concentrations
a - Per the NYSDOH Soil Vapor/Indoor Air Matrix 2 - subslab concentratios greater than 1000 ug/m^3 indicate mitigation is necessary
b- Per the NYSDOH Soil Vapor/Indoor Air Matrix 1 - subslab concentration between 5 and 50 ug/m^3 and indoor air between 0.25 and 1 ug/m^3 - Monitoring Required
c - Per the NYSDOH Soil Vapor/Indoor Air Matrix 2 - subslab concentrations less than 100 ug/m^3 and indoor air lbetwen 3 and 30 ug/m^3 - Take reasonable and practicle actions to identify source(s) and reduce exposures
NL - Not Listed in EPA 2001 BASE Database

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL.
The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
NA - Not analyzed

Table 4-1C
Baseline Pilot Study Soil Vapor Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID		**SV-1S**		**SV-1SDUP**		**SV-1D**		**SV-1S**		**SV-1D**	
Sample Location		SV-1S		SV-1S Duplicate		SV-1D		**SV-2S**		**SV-2D**	
Lab Sample Number		Z4334-02		Z4334-03		Z4334-01		Z4334-04		Z4334-05	
Sampling Date		8/26/2008		8/26/2008		8/26/2008		8/27/2008		8/27/2008	
Matrix		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		1		1		1		1		1	
Units		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	***CAS #***										
Tetrachloroethene	127-18-4	10226.03	D	37947.52	D	6048.82	D	698		606509.28	D
Trichloroethene	79-01-6	7.04		13.7		10.32		107.48	D	36.17	
cis-1,2-Dichloroethene	156-59-2	0.91		3.65		1.55		12.29		2.62	
trans-1,2-Dichloroethene	156-60-5	0.4	U	0.4	U	0.4	U	1.35		0.4	U
Vinyl Chloride	75-01-4	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
1,1,1-Trichloroethane	71-55-6	0.55	U	0.98		0.55	U	0.55	U	1.15	
1,1,2,2-Tetrachloroethane	79-34-5	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
1,1,2-Trichloroethane	79-00-5	0.55	U	0.55	U	0.55	U	0.55	U	0.65	
1,1,2-Trichlorotrifluoroethane	76-13-1	0.84		1.15		1.15		0.77	U	0.77	U
1,1-Dichloroethane	75-34-3	0.4	U	0.4	U	0.4	U	0.4	UJ	0.4	UJ
1,1-Dichloroethene	75-35-4	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,4-Trichlorobenzene	120-82-1	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	95-63-6	15.78		3.93		4.67		4.92		6.93	
1,2-Dibromoethane	106-93-4	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,2-Dichlorobenzene	95-50-1	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,2-Dichloroethane	107-06-2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2-Dichloropropane	78-87-5	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
1,3,5-Trimethylbenzene	108-67-8	4.42		1.03		1.38		0.49	U	1.57	
1,3-Butadiene	106-99-0	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,3-Dichlorobenzene	541-73-1	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,4-Dichlorobenzene	106-46-7	1.86		2.04		2.47		1.32		1.2	
1,4-Dioxane	123-91-1	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
2,2,4-Trimethylpentane	540-84-1	50.91		4.53		4.39		2.62		8.27	
2-Butanone	78-93-3	3.63		3.98	J	3.48		5.78	JB	8.26	JB
2-Chlorotoluene	95-49-8	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U
4-Ethyltoluene	622-96-8	5.16		1.38		1.67		0.79		2.51	
4-Methyl-2-Pentanone	108-10-1	0.41	U	0.41	U	2.29		0.41	U	0.41	U
Acetone	67-64-1	20.55		230.66	JD	34.56		11.12	JD	81	JDB
Allyl Chloride	107-05-1	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Benzene	71-43-2	34.73		34.53		20.29		13.19		22.81	
Bromodichloromethane	75-27-4	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
Bromoethene	593-60-2	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Bromoform	75-25-2	1.03	U	1.03	U	1.03	U	1.03	U	1.03	J
Bromomethane	74-83-9	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
Carbon Disulfide	75-15-0	0.31	U	5.45		0.31	U	4.3		6.45	
Carbon Tetrachloride	56-23-5	0.44		0.63		0.57		0.25	U	1.38	
Chlorobenzene	108-90-7	0.46	U	1.47		0.46	J	0.46	U	2.76	
Chloroethane	75-00-3	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Chloroform	67-66-3	8.74		7.81		6.45		3.13		0.49	U
Chloromethane	74-87-3	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
cis-1,3-Dichloropropene	10061-01-5	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Cyclohexane	110-82-7	18.52		9.02		6.88		19.24		6.37	
Dibromochloromethane	124-48-1	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U
Dichlorodifluoromethane	75-71-8	29.12		25.07		39.36		1.04		0.49	U
Dichlorotetrafluoroethane	76-14-2	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethyl Benzene	100-41-4	15.81		2.82		3.91		1.78		8.56	
Heptane	142-82-5	35		8.16	J	8.81		2.21	J	12.38	J
Hexachloro-1,3-Butadiene	87-68-3	1.07	U	1.07	U	1.07	U	1.07	U	1.07	U

Table 4-1C
Baseline Pilot Study Soil Vapor Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID		**SV-1S**		**SV-1SDUP**		**SV-1D**		**SV-1S**		**SV-1D**	
Sample Location		SV-1S		SV-1S Duplicate		SV-1D		**SV-2S**		**SV-2D**	
Lab Sample Number		Z4334-02		Z4334-03		Z4334-01		Z4334-04		Z4334-05	
Sampling Date		8/26/2008		8/26/2008		8/26/2008		8/27/2008		8/27/2008	
Matrix		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		1		1		1		1		1	
Units		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	***CAS #***										
Hexane	110-54-3	79.65	D	42.15		46.35		23.26		61.32	D
m/p-Xylene	26777-61-	59.46		9.64		13.99		9.21		28.58	
Methyl Methacrylate	80-62-6	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Methyl tert-Butyl Ether	1634-04-4	0.36	U	0.47		0.36	U	0.36	U	0.36	U
Methylene Chloride	75-09-2	2.61		4.52		5.56		4.13		0.35	U
o-Xylene	95-47-6	20.2		2.91		4.34		2.3		6.86	
Styrene	100-42-5	0.51		0.43	U	0.43	U	0.43	UJ	0.51	J
t-1,3-Dichloropropene	10061-02-6	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
tert-Butyl alcohol	75-65-0	0.3	U	0.3	U	0.3	U	0.3	UJ	0.3	UJ
Tetrahydrofuran	109-99-9	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Toluene	108-88-3	202.75	D	39.27		49.9		31.39		66.33	D
Trichlorofluoromethane	75-69-4	2.36		3.09		3.15		2.08		0.56	U
Total Confident Conc.				728.92		489.37		187.36		438.78	
Total TICs											

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample.
This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
NR - Not analyzed

Table 4-2
Round 1 Pilot Study Groundwater Sample Data
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND1		MW-1-ROUND-1		MW-2-ROUND-1		MW-3-ROUND-1		MW-3DUP-ROUND-1		MW-4-ROUND-1		MW-5-ROUND1		TRIPBLANK		FB-011409		TB	
Sample Location		**NYSDEC**	PTW-1		MW-1		MW-2		MW-3		MW-3 Duplicate		MW-4		MW-5		TRIPBLANK		Field Blank		Trip Blank	
Lab Sample Number		**TOGS 1.1.1**	A1138-01		A1121-03		A1121-05		A1121-01		A1121-02		A1121-04		A1138-02		A1121-06		A1138-03		A1138-04	
Sampling Date		**Class GA**	1/14/2009		1/13/2009		1/13/2009		1/13/2009		1/13/2009		1/13/2009		1/14/2009		12/19/2008		1/14/2009		1/13/2009	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		1		1		1		1		1		1		1		1		1	
Units		ug/l	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Volatile Organic Compounds	**CAS #**																					
Tetrachloroethene	127-18-4	5	3.8		**8,600**	**D**	**7,000**	**D**	**24,000**	**D**	**17,000**	**D**	**1,100**	**D**	**15**		0.5	U	0.5	U	0.5	U
Trichloroethene	79-01-6	5	0.5	U	2.8		1.4	J	2.5	J	4.3	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	156-59-2	5	0.5	U	1.6		0.67	J	1.1		1.8	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	156-60-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	75-01-4	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	5	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	1	0.5	U	0.5	U	0.28	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichlorotrifluoroethane	76-13-1		0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	75-34-3	5	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	75-35-4	5	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	87-61-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-trichlorobenzene	120-82-1	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dibromoethane	106-93-4	0.0006	*0.5*	*U*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*U*	*0.5*	*U*	*0.5*	*UJ*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dichlorobenzene	95-50-1	3	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	107-06-2	0.6	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	78-87-5	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	541-73-1	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	3	0.5	U	0.5	U	0.5	U	0.3	J	0.48	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2-Butanone	78-93-3	50	2.7	J	5	U	5	U	5	U	5	U	2.3	J	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	50	5	U	5	U	5	U	5	R	5	R	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	108-10-1	50	5	U	5	UJ	5	U	5	R	5	R	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	71-43-2	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	74-97-5	5	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	75-27-4	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	75-25-2	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	74-83-9	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	75-15-0	60	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	56-23-5	5	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	5	0.5	U	1.4	J	0.44	J	2.7	J	4	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	75-00-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	67-66-3	7	0.6		0.5	U	0.5	J	0.39	J	0.55	J	0.28	J	0.79		0.5	U	0.5	U	0.5	U
Chloromethane	74-87-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	10061-01-5	0.4	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Cyclohexane	110-82-7		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	124-48-1	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	75-71-8	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	100-41-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	98-82-8	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m&p-xylenes	179601-23-1	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Acetate	79-20-9		0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl Ether	1634-04-4	10	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.31	J	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
Methylcyclohexane	108-87-2		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	75-09-2	5	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	1.4		0.5	U
o-xylene	95-47-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	100-42-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	108-88-3	5	0.5	U	0.3	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	10061-02-6	0.4	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Trichlorofluoromethane	75-69-4	5	0.5	U	0.5	UJ	0.5	UJ	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U
Total Confident Conc.			7.1		506.1		433.29		786.99		1211.44		222.58		15.79		0		1.4		0	
Total TICs					2.4				4.7		8				3.6				2.9			

Table 4-2
Round 1 Pilot Study Groundwater Sample Data
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND1	MW-1-ROUND-1	MW-2-ROUND-1	MW-3-ROUND-1	MW-3DUP-ROUND-1	MW-4-ROUND-1	MW-5-ROUND1	TRIPBLANK	FB-011409	TB
Sample Location		**NYSDEC**	PTW-1	MW-1	MW-2	MW-3	MW-3 Duplicate	MW-4	MW-5	TRIPBLANK	Field Blank	Trip Blank
Lab Sample Number		**TOGS 1.1.1**	A1138-01	A1121-03	A1121-05	A1121-01	A1121-02	A1121-04	A1138-02	A1121-06	A1138-03	A1138-04
Sampling Date		**Class GA**	1/14/2009	1/13/2009	1/13/2009	1/13/2009	1/13/2009	1/13/2009	1/14/2009	12/19/2008	1/14/2009	1/13/2009
Matrix		**Guidance/Standards**	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor			1	1	1	1	1	1	1	1	1	1
Units		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
TOC (SM5310B) (mg/L)	10-35-5		0.4 U	0.4 U	0.452	0.4 U	0.4 U	0.519	0.508	NA	0.4 U	NA
TDS (SM2540C) (mg/L)	10-33-3	1000	450	390	**10000**	670	720	400	900	NA	10 U	NA
Iron (EPA 200.7) (ug/L)		300	100	281	138	103	104	**327**	**440**	NA	50 U	NA
Manganese (EPA 200.7) (ug/L)		300	51	13	28.5	21.3	22.1	102	53.2	NA	10 U	NA
Chloride (mg/L)	7782-50-5	250	230 J	200 J	**5700 J**	**330 J**	**330 J**	120 J	**450 J**	NA	0.5 U	NA
Bromate (mg/L)		0.01*	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.01 U	NA
Alkalinity (SM2320 B) (mg/L)			20 J	12	18	14	14	13	20 J	NA	15	NA
COD (SM5220 C) (mg/L)			5 U	9.88	180	5 U	5 U	6.83	6.13	NA	5 U	NA

NOTES:
BOLD - Sample concentration exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA water (Groundwater) 250
italics - Reporting Limit exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA water (Groundwater)
* - 0.01 mg/L is the EPA MCL for Bromate
Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
NA - Not analyzed

Table 4-3A
Round 2 Pilot Study Groundwater Sampling Data
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND2		MW-1-ROUND2		MW-2-ROUND2		MW-3-ROUND2		MW-4-ROUND2		MW-103-ROUND2		MW5-ROUND2		TRIPBLANK		FB-020209		TRIPBLANK	
Sample Location		**NYSDEC**	PTW-1		MW-1		MW-2		MW-3		MW-4		MW-3 Duplicate		MW-5		Trip Blank		Field Blank		TRIPBLANK	
Lab Sample Number		**TOGS 1.1.1**	A1368-02		A1343-01		A1343-03		A1343-02		A1343-04		A1343-07		A1368-01		A1368-03		A1343-05		A1343-06	
Sampling Date		**Class GA**	2/3/2009		2/2/2009		2/2/2009		2/2/2009		2/2/2009		2/2/2009		2/3/2009		2/3/2009		2/2/2009		1/28/2009	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		10		1		10		10		10		1		1		1		1	
Units		ug/l	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Volatile Organic Compounds	**CAS #**																					
Tetrachloroethene	127-18-4	5	4		**8,300**	**D**	**410**	**D**	**15,000**	**D**	**4,900**	**D**	**15,000**	**D**	**11**		0.5	U	0.5	U	0.5	U
Trichloroethene	79-01-6	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	156-59-2	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	156-60-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	75-01-4	2	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	1	0.5	U	5	U	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichlorotrifluoroethane	76-13-1		0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	75-34-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	75-35-4	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	87-61-6	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-trichlorobenzene	120-82-1	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dibromoethane	106-93-4	0.0006	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dichlorobenzene	95-50-1	3	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	107-06-2	0.6	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	78-87-5	1	0.5	U	*5*	*U*	0.5	UJ	*5*	*UJ*	*5*	*UJ*	*5*	*U*	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	541-73-1	3	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	3	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U	0.5	U
2-Butanone	78-93-3	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	108-10-1	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	5	U	5	U	5	U
Benzene	71-43-2	1	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	74-97-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	75-27-4	50	0.5	U	5	U	0.5	UJ	5	UJ	5	UJ	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	75-25-2	50	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	74-83-9	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	75-15-0	60	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	56-23-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	75-00-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	67-66-3	7	0.52		5	U	0.5	U	5	U	5	U	5	U	0.62		0.5	U	0.5	U	0.5	U
Chloromethane	74-87-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	10061-01-5	0.4	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Cyclohexane	110-82-7		0.5	U	5	U	0.5	UJ	5	UJ	5	UJ	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	124-48-1	50	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	75-71-8	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	100-41-4	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	98-82-8	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
m&p-xylenes	179601-23-1	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Acetate	79-20-9		0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl Ether	1634-04-4	10	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylcyclohexane	108-87-2		0.5	U	5	U	0.5	UJ	5	UJ	5	UJ	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	75-09-2	5	0.5	U	4	J	0.5	U	2.5	J	3.3	J	3.3	J	0.5	U	0.79	J	1.5		0.83	
o-xylene	95-47-6	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	100-42-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	108-88-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	10061-02-6	0.4	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*

Table 4-3A
Round 2 Pilot Study Groundwater Sampling Data
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND2		MW-1-ROUND2		MW-2-ROUND2		MW-3-ROUND2		MW-4-ROUND2		MW-103-ROUND2		MW5-ROUND2		TRIPBLANK		FB-020209		TRIPBLANK	
Sample Location		**NYSDEC**	PTW-1		MW-1		MW-2		MW-3		MW-4		MW-3 Duplicate		MW-5		Trip Blank		Field Blank		TRIPBLANK	
Lab Sample Number		**TOGS 1.1.1**	A1368-02		A1343-01		A1343-03		A1343-02		A1343-04		A1343-07		A1368-01		A1368-03		A1343-05		A1343-06	
Sampling Date		**Class GA**	2/3/2009		2/2/2009		2/2/2009		2/2/2009		2/2/2009		2/2/2009		2/3/2009		2/3/2009		2/2/2009		1/28/2009	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		10		1		10		10		10		1		1		1		1	
Units		ug/l	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Volatile Organic Compounds	**CAS #**																					
Trichlorofluoromethane	75-69-4	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Total Confident Conc.			4.52		2604		180		2502.5		1903.3		2503.3		11.62		0.79		1.5		0.83	
Total TICs																						
TOC (SM5310B) (mg/L)	10-35-5		0.705		0.956		1.11		1.23		1.64		1.07		1.15		NA		0.4		NA	
TDS (SM2540C) (mg/L)	10-33-3	1000	450		440		990		610		430		600		440		NA		10	U	NA	
Iron (EPA 200.7) (ug/L)		300	289		185		**423**		84.1		180		80.8		207		NA		50	U	NA	
Manganese (EPA 200.7) (ug/L)		300	35.9		10	U	18.6		24.4		70.4		23.2		22.9		NA		10	U	NA	
Chloride (mg/L)	7782-50-5	250	**310**	**J**	25	D	50	D	25	D	10	D	25	D	260	J	NA		5	U	NA	
Bromate (mg/L)		0.01*	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	NA		0.01	U	NA	
Alkalinity (SM2320 B) (mg/L)			21		13	J	20	J	14		14	J	14	J	27		NA		12		NA	
COD (SM5220 C) (mg/L)			5	U	5	J	14	J	5.11		5	J	11	J	6.11		NA		6.11		NA	

NOTES:

BOLD - Sample concentration exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA water (Groundwater)

italics - Reporting Limit exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA water (Groundwater)

NA - Not analyzed

* - 0.01 mg/L is the EPA MCL for Bromate

Qualifiers

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.

P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

E (Inorganics) - The reported value is estimated because of the presence of interference.

D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

Table 4-3B
Round 2 Pilot Study Sub-Slab and Indoor Air Sample Data
Ronhill Cleaners
Glen Cove, NY

Sample ID					**SSI-ROUND-2**		**IA-1-ROUND-2**		**SS-2-ROUND-2**		**SS**		**IA**		**OA-ROUND-2**	
Sample Location		**EPA 2001**	**EPA 2001**	**NYSDOH**	Payless Shoes-Subslab		Payless Shoes-Indoor Air		Payless Shoes Sub-Slab Duplicate		Cove Photo Sub-Slab		Cove Photo Indoor Air		Outdoor Ambient Air	
Lab Sample Number		**BASE Database**	**BASE Database**	**October-06**	A1401-02		A1401-01		A1401-06		A1401-04		A1401-03		A1401-05	
Sampling Date		**SUMMA canister method**	**SUMMA canister method**	**Chemical Air**	2/3/2009		2/3/2009		2/3/2009		2/3/2009		2/3/2009		2/3/2009	
Matrix		**Indoor Air Values**	**Outdoor Air Values**	**Guide Values**	AIR		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		**90th percentile**	**90th percentile**		1		1		1		1		1		1	
Units		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	**CAS #**															
Tetrachloroethene	127-18-4	15.9	6.5	100	141.73	D[a]	2.17		160.38	D[a]	7.53		2.24		0.47	
Trichloroethene	79-01-6	4.2	1.3	5	0.54		0.21	U	0.54		0.21	J	0.21	U	0.21	U
cis-1,2-Dichloroethene	156-59-2	<1.9	<1.8		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
trans-1,2-Dichloroethene	156-60-5	NL	NL		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Vinyl Chloride	75-01-4	<1.9	<1.8		0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,1,1-Trichloroethane	71-55-6	20.6	2.6		0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	79-34-5	NL	NL		0.69	U	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
1,1,2-Trichloroethane	79-00-5	<1.6	<1.6		0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U
1,1,2-Trichlorotrifluoroethane (Freon-113)	76-13-1	NL	NL		0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,1-Dichloroethane	75-34-3	<0.7	<0.6		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1-Dichloroethene	75-35-4	<1.4	<1.4		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,4-Trichlorobenzene	120-82-1	<6.8	<6.4		0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	95-63-6	9.5	5.8		1.08		3.15		2.11		0.49	U	1.33		0.49	U
1,2-Dibromoethane	106-93-4	<1.5	<1.6		0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,2-Dichlorobenzene	95-50-1	<1.2	<1.2		0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,2-Dichloroethane	107-06-2	<0.9	<0.8		5.22		**14.25**		5.54		0.4		0.4		0.4	U
1,2-Dichloropropane	78-87-5	<1.6	<1.6		5.27		**6.75**		5.31		0.46		0.46		0.46	U
1,3,5-Trimethylbenzene	108-67-8	3.7	2.7		0.49	U	1.18		0.49	J	0.49	U	0.49	J	0.49	U
1,3-Butadiene	106-99-0	<3.0	<3.4		0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,3-Dichlorobenzene	541-73-1	<2.4	<2.2		0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,4-Dichlorobenzene	106-46-7	5.5	1.2		1.38		0.6	U	0.6	J	0.6	U	0.6	U	0.6	U
1,4-Dioxane	123-91-1	NL	NL		0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
2,2,4-Trimethylpentane	540-84-1	NL	NL		0.47	U	0.65		0.47	U	0.47	U	1.4		0.47	U
2-Butanone	78-93-3	12	11.3		5.93		**52.94**	E	8.02		0.29	U	0.29	U	0.29	U
2-Chlorotoluene	95-49-8	NL	NL		0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U
4-Ethyltoluene	622-96-8	NL	NL		0.49	U	0.88		0.49	U	0.49	U	0.49	U	0.49	U
4-Methyl-2-Pentanone	108-10-1	6	1.9		0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Acetone	67-64-1	98.9	43.7		8.24		16.49		15.96		8.03		13.59		8.1	
Allyl Chloride	107-05-1	NL	NL		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Benzene	71-43-2	9.4	6.6		3.45		**11.31**		3.61		2.08		4.5		1.79	
Bromodichloromethane	75-27-4	NL	NL		0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
Bromoethene	593-60-2	NL	NL		0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Bromoform	75-25-2	NL	NL		1.03	U	1.03	U	1.03	U	1.03	U	1.03	U	1.03	U
Bromomethane	74-83-9	<1.7	<1.6		0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
Carbon Disulfide	75-15-0	4.2	3.7		0.31	U	0.69		0.31	U	0.31	U	0.31	U	0.31	U
Carbon Tetrachloride	56-23-5	<1.3	0.7		0.69	[b]	0.69		0.69		0.69		0.63		0.63	
Chlorobenzene	108-90-7	<0.9	<0.8		0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
Chloroethane	75-00-3	<1.1	<1.2		0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Chloroform	67-66-3	1.1	0.6		0.49	U	0.49	U	0.49	U	0.49	U	0.68		0.49	U
Chloromethane	74-87-3	NL	NL		0.29		1.16		0.21	U	0.5		0.89		1.26	
cis-1,3-Dichloropropene	10061-01-5	<2.3	<2.2		0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Cyclohexane	110-82-7	NL	NL		2.34	JD	7.43		1.96		1		7.13		0.34	U
Dibromochloromethane	124-48-1	NL	NL		0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U

Table 4-3B
Round 2 Pilot Study Sub-Slab and Indoor Air Sample Data
Ronhill Cleaners
Glen Cove, NY

Sample ID					**SSI-ROUND-2**		**IA-1-ROUND-2**		**SS-2-ROUND-2**		**SS**		**IA**		**OA-ROUND-2**	
Sample Location		**EPA 2001**	**EPA 2001**	**NYSDOH**	Payless Shoes-Subslab		Payless Shoes-Indoor Air		Payless Shoes Sub-Slab Duplicate		Cove Photo Sub-Slab		Cove Photo Indoor Air		Outdoor Ambient Air	
Lab Sample Number		**BASE Database**	**BASE Database**	**October-06**	A1401-02		A1401-01		A1401-06		A1401-04		A1401-03		A1401-05	
Sampling Date		**SUMMA canister method**	**SUMMA canister method**	**Chemical Air**	2/3/2009		2/3/2009		2/3/2009		2/3/2009		2/3/2009		2/3/2009	
Matrix		**Indoor Air Values**	**Outdoor Air Values**	**Guide Values**	AIR		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		**90th percentile**	**90th percentile**		1		1		1		1		1		1	
Units		(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	**CAS #**															
Dichlorodifluoromethane (Freon-12)	75-71-8	16.5	8.1		3.46	B	3.56	B	3.51	B	3.51	B	3.41	B	3.61	B
Dichlorotetrafluoroethane (Freon-114)	76-14-2	<6.8	<6.4		0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethyl Benzene	100-41-4	5.7	3.5		0.48		4.82		0.43	J	0.43	U	0.69		0.43	U
Heptane	142-82-5	NL	NL		0.45		1.89		0.74		0.49		1.6		0.41	U
Hexachloro-1,3-Butadiene	87-68-3	NL	NL		1.07	U	1.07	U	1.07	U	1.07	U	1.07	U	1.07	U
Hexane	110-54-3	NL	NL		16.99	D	15.4		17.52		11.1		19.31		5.71	
m/p-Xylene	179601-23-1	22.2	12.8		2.04		17.59		1.35		0.91		1.87		0.43	U
Methyl Methacrylate	80-62-6	NL	NL		0.41	U	6.67		0.41	U	0.41	U	0.41	U	0.41	U
Methyl tert-Butyl Ether	1634-04-4	11.5	6.2		0.36	U	0.36	U	0.36	U	2.13		2.88		0.36	U
Methylene Chloride	75-09-2	10	6.1	60	6.53		**31.23**		46.14		12.85		5.49		3.51	
o-Xylene	95-47-6	7.9	4.6		0.56	D	4.82		0.43	U	0.43	U	0.56		0.43	U
Styrene	100-42-5	1.9	1.3		0.43	U	2.9		0.43	U	0.43	U	0.43	U	0.43	U
t-1,3-Dichloropropene	10061-02-6	<1.3	<1.4		0.45	U	0.59		0.45	U	0.45	U	0.45	U	0.45	U
tert-Butyl alcohol	75-65-0	NL	NL		0.3	U	0.3	U	0.39		0.3	U	0.3	U	0.3	U
Tetrahydrofuran	109-99-9	NL	NL		0.29	U	0.29	U	0.29	U	0.29	U	3.04		0.29	U
Toluene	108-88-3	43	33.7		23.29	D	**290.18**	**D**	33.05		5.54		15.9		2.19	
Trichlorofluoromethane (Freon-11)	75-69-4	18.5	4.3		1.57		1.52		1.69		2.53		1.52		1.4	
Total Confident Conc.					50.75		130.25		71.57		16.22		26.05		8.94	
Total TICs																

NOTE:
BOLD - Sample concentrations exceed EPA BASE Database Indoor Air concentrations

a - Per the NYSDOH Soil Vapor/Indoor Air Matrix 2 - subslab concentrations between 100 and 1000 ug/m^3 and indoor air less than 3 ug/m^3 - Monitoring Required

NL - Not Listed in EPA 2001 BASE Database

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
NA - Not analyzed

Table 4-3C
Round 2 Pilot Study Soil Vapor Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID		**SV1-S**		**SV1-SD**		**SV1-D**		**SV2-S**		**SV2-D**	
Sample Location		SV-01S		SV-01S Duplicate		SV-01D		SV-02S		SV-02D	
Lab Sample Number		A1401-11		A1401-09		A1401-10		A1401-08		A1401-07	
Sampling Date		2/3/2009		2/3/2009		2/3/2009		2/3/2009		2/3/2009	
Matrix		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		1		1		1		1		1	
Units		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	**CAS #**										
Tetrachloroethene	127-18-4	20.89		18.66	E	91.21	D	990.05	D	19.6	
Trichloroethene	79-01-6	8.22		0.21	U	0.21	U	0.48		0.48	
cis-1,2-Dichloroethene	156-59-2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
trans-1,2-Dichloroethene	156-60-5	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Vinyl Chloride	75-01-4	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,1,1-Trichloroethane	71-55-6	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	79-34-5	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
1,1,2-Trichloroethane	79-00-5	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U
1,1,2-Trichlorotrifluoroethane	76-13-1	0.92		7.66	U	0.77	J	0.77	U	0.77	U
1,1-Dichloroethane	75-34-3	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1-Dichloroethene	75-35-4	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,4-Trichlorobenzene	120-82-1	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	95-63-6	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
1,2-Dibromoethane	106-93-4	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,2-Dichlorobenzene	95-50-1	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,2-Dichloroethane	107-06-2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2-Dichloropropane	78-87-5	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
1,3,5-Trimethylbenzene	108-67-8	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
1,3-Butadiene	106-99-0	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,3-Dichlorobenzene	541-73-1	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,4-Dichlorobenzene	106-46-7	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,4-Dioxane	123-91-1	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
2,2,4-Trimethylpentane	540-84-1	1.12		0.47	U	0.47	U	0.47	U	0.47	U
2-Butanone	78-93-3	1.92		1.47		1.65		1.39		5.63	
2-Chlorotoluene	95-49-8	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U
4-Ethyltoluene	622-96-8	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
4-Methyl-2-Pentanone	108-10-1	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Acetone	67-64-1	12.09		10.1		10.45		8.77		18.1	
Allyl Chloride	107-05-1	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Benzene	71-43-2	5.94		3		3.13		1.25		1.63	
Bromodichloromethane	75-27-4	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
Bromoethene	593-60-2	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Bromoform	75-25-2	1.03	U	1.03	U	1.03	U	1.03	U	1.03	U
Bromomethane	74-83-9	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
Carbon Disulfide	75-15-0	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Carbon Tetrachloride	56-23-5	0.88		0.5		0.69		0.5		0.5	
Chlorobenzene	108-90-7	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
Chloroethane	75-00-3	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Chloroform	67-66-3	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Chloromethane	74-87-3	1.12		0.47		0.58		0.89		0.62	
cis-1,3-Dichloropropene	10061-01-5	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Cyclohexane	110-82-7	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Dibromochloromethane	124-48-1	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U
Dichlorodifluoromethane	75-71-8	2.42	B	2.42	B	2.32	B	2.37	B	2.13	B
Dichlorotetrafluoroethane	76-14-2	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethyl Benzene	100-41-4	1		1.09		0.83		0.43	U	0.48	
Heptane	142-82-5	0.9		0.7		0.53		0.45		0.53	

Table 4-3C
Round 2 Pilot Study Soil Vapor Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID		**SV1-S**		**SV1-SD**		**SV1-D**		**SV2-S**		**SV2-D**	
Sample Location		SV-01S		SV-01S Duplicate		SV-01D		SV-02S		SV-02D	
Lab Sample Number		A1401-11		A1401-09		A1401-10		A1401-08		A1401-07	
Sampling Date		2/3/2009		2/3/2009		2/3/2009		2/3/2009		2/3/2009	
Matrix		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		1		1		1		1		1	
Units		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)		(ug/m^3)	
Volatile Organic Compounds	**CAS #**										
Hexachloro-1,3-Butadiene	87-68-3	1.07	U	1.07	U	1.07	U	1.07	U	1.07	U
Hexane	110-54-3	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
m/p-Xylene	179601-23-1	3.34		5.3		3.43		1.48		1.69	
Methyl Methacrylate	80-62-6	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Methyl tert-Butyl Ether	1634-04-4	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
Methylene Chloride	75-09-2	2.85		2.26		2.26		3.34		6.29	
o-Xylene	95-47-6	1.09		1.35		1.04		0.43	J	0.52	
Styrene	100-42-5	0.43	J	0.43	U	0.43	U	0.43	U	0.43	U
t-1,3-Dichloropropene	10061-02-6	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
tert-Butyl alcohol	75-65-0	0.33		0.3	U	0.3	J	0.3	U	0.3	U
Tetrahydrofuran	109-99-9	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U
Toluene	108-88-3	7.31		9.42		7.12		2.49		3.66	
Trichlorofluoromethane	75-69-4	1.46		1.24		1.4		1.24		1.07	
Total Confident Conc.		18.44		30.51		27.74		140.02		17.55	
Total TICs											

Qualifiers

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria.
The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

B - The analyte was found in the laboratory blank as well as the sample.
This indicates possible laboratory contamination of the environmental sample.

P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

E (Inorganics) - The reported value is estimated because of the presence of interference.

D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NR - Not analyzed

Table 4-4
Round 3 Pilot Study Groundwater Sampling Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND3		MW-1-ROUND3		MW-2-ROUND3		MW-3-ROUND3		MW-103-ROUND3		MW-4-ROUND3		MW-5-ROUND3		FB-21009		TRIPBLANK	
Sample Location		**NYSDEC**	PTW-1		MW-1		MW-2		MW-3		MW-3 DUPLICATE		MW-4		MW-5		Field Blank		Trip Blank	
Lab Sample Number		**TOGS 1.1.1**	A1467-06		A1467-03		A1467-04		A1467-01		A1467-02		A1467-05		A1467-07		A1467-08		A1467-09	
Sampling Date		**Class GA**	2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		10		1		10		10		10		1		1		1	
Units		**ug/l**	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Volatile Organic Compounds	***CAS #***																			
Tetrachloroethene	127-18-4	5	**5.6**		**8,700**	**D**	**270**	**D**	**19,000**	**D**	**20,000**	**D**	**4,400**	**D**	**18**		0.5	U	0.5	U
Trichloroethene	79-01-6	5	0.5	U	2.7	J	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	156-59-2	5	0.5	U	5	U	0.5	U	5	U	5	U	4.9	J	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	156-60-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	75-01-4	2	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	1	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U
1,1,2-Trichlorotrifluoroethane	76-13-1		0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	75-34-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	75-35-4	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	87-61-6	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,2,4-trichlorobenzene	120-82-1	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dibromoethane	106-93-4	0.0006	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dichlorobenzene	95-50-1	3	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	107-06-2	0.6	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	78-87-5	1	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	541-73-1	3	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	3	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U
2-Butanone	78-93-3	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	5	U	5	U
2-Hexanone	591-78-6	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	5	U	5	U
4-Methyl-2-pentanone	108-10-1	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	5	U	5	U
Acetone	67-64-1	50	5	U	50	U	5	U	50	U	50	U	50	U	5	U	4	J	5	U
Benzene	71-43-2	1	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	*5*	*U*	0.5	U	0.5	U	0.5	U
Bromochloromethane	74-97-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	75-27-4	50	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Bromoform	75-25-2	50	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Bromomethane	74-83-9	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	75-15-0	60	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	56-23-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	5	0.5	U	5	U	0.5	U	2.4	J	2.6	J	5	U	0.5	U	0.5	U	0.5	U
Chloroethane	75-00-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Chloroform	67-66-3	7	0.63		5	U	0.5	U	5	U	5	U	5	U	0.73		0.5	U	0.5	U
Chloromethane	74-87-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	10061-01-5	0.4	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Cyclohexane	110-82-7		0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	124-48-1	50	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	75-71-8	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	100-41-4	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	98-82-8	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
m&p-xylenes	179601-23-1	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Methyl Acetate	79-20-9		0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl Ether	1634-04-4	10	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Methylcyclohexane	108-87-2		0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U

Table 4-4
Round 3 Pilot Study Groundwater Sampling Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND3		MW-1-ROUND3		MW-2-ROUND3		MW-3-ROUND3		MW-103-ROUND3		MW-4-ROUND3		MW-5-ROUND3		FB-21009		TRIPBLANK	
Sample Location		**NYSDEC**	PTW-1		MW-1		MW-2		MW-3		MW-3 DUPLICATE		MW-4		MW-5		Field Blank		Trip Blank	
Lab Sample Number		**TOGS 1.1.1**	A1467-06		A1467-03		A1467-04		A1467-01		A1467-02		A1467-05		A1467-07		A1467-08		A1467-09	
Sampling Date		**Class GA**	2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009		2/10/2009	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		10		1		10		10		10		1		1		1	
Units		**ug/l**	ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
Volatile Organic Compounds	***CAS #***																			
Methylene chloride	75-09-2	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	1.5		0.5	U
o-xylene	95-47-6	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Styrene	100-42-5	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Toluene	108-88-3	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	10061-02-6	0.4	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Trichlorofluoromethane	75-69-4	5	0.5	U	5	U	0.5	U	5	U	5	U	5	U	0.5	U	0.5	U	0.5	U
Total Confident Conc.			6.23		3102.7		212.1		3602.4		3702.6		2504.9		18.73		5.5		0	
Total TICs																				
TOC (SM5310B) (mg/L)	10-35-5		0.505		0.874		0.686		1.03		1		1.48		0.875		0.4	U		
TDS (SM2540C) (mg/L)	10-33-3	1000	470		410		450		530		500		380		480		10	U		
Iron (EPA 200.7) (ug/L)		300	130		158		297		176		181		197		125		50	U		
Manganese (EPA 200.7) (ug/L)		300	34.7	J	10	U	12.6	J	24.7	J	24.6	J	49.1	J	33.1	J	10			
Chloride (mg/L)	7782-50-5	250	**330**	**J**	**340**	**J**	**330**	**J**	240	J	**450**	**J**	200	J	**260**	**J**	0.5	J		
Bromate (mg/L)		0.01*	0.01	J	0.01	J	0.01	J	0.01	J	0.01	J	0.01	J	0.01	J	0.01	J		
Alkalinity (SM2320 B) (mg/L)			23	J	13		18	J	13	J	14		15		18		9.2			
COD (SM5220 C) (mg/L)			5	U	6.39	J	5	U	5	U	5	U	5	U	5	U	5	U		

Notes:
BOLD - Sample concentration exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
italics - Reporting Limit exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
NA - Not analyzed
* - 0.01 mg/L is the EPA MCL for Bromate
Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

Table 4-5
Round 4 Pilot Study Groundwater Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND4		MW-1-ROUND4		MW-2-ROUND4		MW-3-ROUND4		MW-4-ROUND4		MW-5-ROUND4		FB032509		TRIPBLANK	
Sample Location		**NYSDEC**	**PTW-1**		**MW-1**		**MW-2**		**MW-3**		**MW-4**		**MW-5**		**Field Blank**		**Trip Blank**	
Lab Sample Number		**TOGS 1.1.1**	**A2020-04**		**A2020-01**		**A2020-03**		**A2020-02**		**A2020-06**		**A2020-07**		**A2020-08**		**A2020-09**	
Sampling Date		**Class GA**	**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**	
Matrix		**Guidance/Standards**	**WATER**		**WATER**		**WATER**		**WATER**		**WATER**		**WATER**		**WATER**		**WATER**	
Dilution Factor			**1**		**1**		**1**		**1**		**1**		**1**		**1**		**1**	
Units		**ug/l**	**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**	
Volatile Organic Compounds	***CAS #***																	
Tetrachloroethene	127-18-4	5	**10**	**J**	**11,000**	**JD**	**420**	**JD**	**28,000**	**JD**	**4,000**	**JD**	4.6		0.5	U	0.5	U
Trichloroethene	79-01-6	5	0.5	U	3.1		0.5	U	4.3		0.96		0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	156-59-2	5	0.5	UJ	1.8	J	0.5	UJ	1.4	UJ	0.45	UJ	0.5	UJ	0.5	U	0.5	U
trans-1,2-Dichloroethene	156-60-5	5	0.5	UJ	0.5	J	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
Vinyl chloride	75-01-4	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichlorotrifluoroethane	76-13-1		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	75-34-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	75-35-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	87-61-6	5	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
1,2,4-trichlorobenzene	120-82-1	5	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*UJ*	*0.5*	*U*	*0.5*	*U*
1,2-Dibromoethane	106-93-4	0.0006	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dichlorobenzene	95-50-1	3	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
1,2-Dichloroethane	107-06-2	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	78-87-5	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	541-73-1	3	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	3	0.5	UJ	0.5	UJ	0.5	UJ	0.3	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
2-Butanone	78-93-3	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	108-10-1	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	50	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	71-43-2	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromochloromethane	74-97-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	75-27-4	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	75-25-2	50	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	0.5	U
Bromomethane	74-83-9	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon disulfide	75-15-0	60	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	56-23-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	5	0.5	U	1.5		0.5	U	3.4		0.25	J	0.5	U	0.5	U	0.5	U
Chloroethane	75-00-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	67-66-3	7	0.7		0.5	U	0.5	U	0.5	U	0.42	J	0.35	J	0.5	U	0.5	U
Chloromethane	74-87-3	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	10061-01-5	0.4	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Cyclohexane	110-82-7		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	124-48-1	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	75-71-8	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	100-41-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	98-82-8	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m&p-xylenes	179601-23-1	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl Acetate	79-20-9		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl Ether	1634-04-4	10	0.5	U	0.5	U	0.5	U	0.24	J	0.64		0.5	U	0.5	U	0.5	U
Methylcyclohexane	108-87-2		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene chloride	75-09-2	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.72		0.52	
o-xylene	95-47-6	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 4-5
Round 4 Pilot Study Groundwater Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-ROUND4		MW-1-ROUND4		MW-2-ROUND4		MW-3-ROUND4		MW-4-ROUND4		MW-5-ROUND4		FB032509		TRIPBLANK	
Sample Location		**NYSDEC**	**PTW-1**		**MW-1**		**MW-2**		**MW-3**		**MW-4**		**MW-5**		**Field Blank**		**Trip Blank**	
Lab Sample Number		**TOGS 1.1.1**	**A2020-04**		**A2020-01**		**A2020-03**		**A2020-02**		**A2020-06**		**A2020-07**		**A2020-08**		**A2020-09**	
Sampling Date		**Class GA**	**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**		**3/25/2009**	
Matrix		**Guidance/Standards**	**WATER**		**WATER**		**WATER**		**WATER**		**WATER**		**WATER**		**WATER**		**WATER**	
Dilution Factor			**1**		**1**		**1**		**1**		**1**		**1**		**1**		**1**	
Units		**ug/l**	**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**		**ug/l**	
Volatile Organic Compounds	***CAS #***																	
Styrene	100-42-5	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	108-88-3	5	0.5	U	0.5	U	0.5	U	0.27	J	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	10061-02-6	0.4	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Trichlorofluoromethane	75-69-4	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Total Confident Conc.			10.7		536.4		170		839.91		362.72		4.95		0.72		0.52	
Total TICs																		
TOC (SM5310B) (mg/L)	10-35-5		0.4	U	0.664		0.496		0.857		1.09		0.827		0.4	U	NA	
TDS (SM2540C) (mg/L)	10-33-3	1000	590		490		710		580		400		460		10	U	NA	
Iron (EPA 200.7) (ug/L)	7439-89-6	300	23.6	J	107		82		62.6		79.4		51		28.1	J	NA	
Manganese (EPA 200.7) (ug/L)	7439-96-5	300	6.49	J	13.3		12.1		21.1		41.6		9.21	J	10.3		NA	
Chloride (mg/L)	7782-50-5	250	**280**		**290**		**440**		**300**		130		220		0.5	U	NA	
Bromate (mg/L)		0.01*	0.01	J	0.01	J	0.01	J	0.01	J	0.01	J	0.01	J	0.01	J	NA	
Alkalinity (SM2320 B) (mg/L)			21		14		19		15		14		19		3.2		NA	
COD (SM5220 C) (mg/L)			11		14	U	15		14		15		12		5	U	NA	

Notes:
BOLD - Sample concentration exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
italics - Reporting Limit exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
NA - Not analyzed
* - 0.01 mg/L is the EPA MCL for Bromate

Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL.
The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
NA - Not analyzed

Table 4-6A
Post ISCO (Round 5) Pilot Study Groundwater Sampling Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-R5		MW-1-R5		MW-2-R5		MW-3-R5		MW-4-R5		MW-5-R5		MW-11-R5		FIELDBLANKR5		TRIPBLANKR5	
Sample Location		**NYSDEC**	PTW-1ROUND5		MW-1ROUND5		MW-2ROUND5		MW-3ROUND5		MW-4ROUND5		MW-5ROUND5		MW-1ROUND5 DUPLICATE		Field Blank		Trip Blank	
Lab Sample Number		**TOGS 1.1.1**	A2435-06		A2435-02		A2435-04		A2435-01		A2435-05		A2435-07		A2435-03		A2435-08		A2435-09	
Sampling Date		**Class GA**	4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		10		1		10		10		1		10		1		1	
Units		**ug/L**	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Volatile Organic Compounds	***CAS #***																			
Tetrachloroethene	127-18-4	5	**5.7**	**D**	**9,400**	**D**	**130**	**D**	**9,800**	**D**	**3,600**	**D**	**5.2**	**D**	**9,600**	**D**	0.5	U	0.5	U
Trichloroethene	79-01-6	5	0.5	U	3.7	J	0.5	U	2.7	J	5	U	0.25	J	2.8	J	0.5	U	0.5	U
cis-1,2-Dichloroethene	156-59-2	5	5	U	*50*	*U*	5	U	*50*	*U*	*50*	*U*	5	U	*50*	*U*	5	U	5	U
trans-1,2-Dichloroethene	156-60-5	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Vinyl chloride	75-01-4	2	0.5	U	**1000**	**J**	**20**		**1000**		**200**		**2.5**	**J**	0.5	J	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	79-34-5	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	1	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	0.5	U	*5*	*U*	0.5	U	0.5	U
1,1,2-Trichlorotrifluoroethane	76-13-1		0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,1-Dichloroethane	75-34-3	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,1-Dichloroethene	75-35-4	5	0.5	U	5	U	0.5	U	**5**	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	87-61-6	5	0.5	U	2.4	J	0.5	U	5	U	5	U	0.5	U	2.5	J	0.5	U	0.5	U
1,2,4-trichlorobenzene	120-82-1	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	*0.5*	*U*	*5*	*U*	*0.5*	*U*	*0.5*	*U*
1,2-Dibromoethane	106-93-4	0.0006	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,2-Dichlorobenzene	95-50-1	3	0.5	U	*5*	*U*	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,2-Dichloroethane	107-06-2	0.6	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,2-Dichloropropane	78-87-5	1	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	0.5	U	*5*	*U*	0.5	U	0.5	U
1,3-Dichlorobenzene	541-73-1	3	0.19	J	*5*	*U*	0.35	J	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	3	0.5	U	*5*	*U*	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
2-Butanone	78-93-3	50	5	U	50	U	5	U	50	U	50	U	5	U	50	U	5	U	5	U
2-Hexanone	591-78-6	50	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
4-Methyl-2-pentanone	108-10-1	50	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Acetone	67-64-1	50	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Benzene	71-43-2	1	0.5	U	*5*	*U*	0.5	U	*5*	*U*	*5*	*U*	0.5	U	*5*	*U*	0.5	U	0.5	U
Bromochloromethane	74-97-5	5	5	U	*50*	*U*	5	U	50	U	50	U	5	U	50	U	5	U	5	U
Bromodichloromethane	75-27-4	50	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Bromoform	75-25-2	50	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Bromomethane	74-83-9	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Carbon disulfide	75-15-0	60	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Carbon tetrachloride	56-23-5	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Chloroethane	75-00-3	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Chloroform	67-66-3	7	5	U	*50*	*U*	5	U	50	U	50	U	5	U	50	U	5	U	5	U
Chloromethane	74-87-3	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	10061-01-5	0.4	**0.7**		*5*	*U*	*0.5*	*U*	*5*	*U*	*5*	*U*	**0.62**		*5*	*U*	*0.5*	*U*	*0.5*	*U*
Cyclohexane	110-82-7		0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Dibromochloromethane	124-48-1	50	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Dichlorodifluoromethane	75-71-8	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Ethylbenzene	100-41-4	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Isopropylbenzene	98-82-8	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
m&p-xylenes	179601-23-	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Methyl Acetate	79-20-9		0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U

Table 4-6A
Post ISCO (Round 5) Pilot Study Groundwater Sampling Results
Ronhill Cleaners
Glen Cove, NY

Sample ID			PTW-1-R5		MW-1-R5		MW-2-R5		MW-3-R5		MW-4-R5		MW-5-R5		MW-11-R5		FIELDBLANKR5		TRIPBLANKR5	
Sample Location		**NYSDEC**	PTW-1ROUND5		MW-1ROUND5		MW-2ROUND5		MW-3ROUND5		MW-4ROUND5		MW-5ROUND5		MW-1ROUND5 DUPLICATE		Field Blank		Trip Blank	
Lab Sample Number		**TOGS 1.1.1**	A2435-06		A2435-02		A2435-04		A2435-01		A2435-05		A2435-07		A2435-03		A2435-08		A2435-09	
Sampling Date		**Class GA**	4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009		4/22/2009	
Matrix		**Guidance/Standards**	WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER		WATER	
Dilution Factor			1		10		1		10		10		1		10		1		1	
Units		**ug/L**	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Volatile Organic Compounds	***CAS #***																			
Methyl tert-butyl Ether	1634-04-4	10	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Methylcyclohexane	108-87-2		0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Methylene chloride	75-09-2	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
o-xylene	95-47-6	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Styrene	100-42-5	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.32	J	0.5	U
Toluene	108-88-3	5	0.5	U	**8.7**		0.5	J	5	U	5	U	0.5	U	**8.7**		0.5	U	0.5	U
trans-1,3-Dichloropropene	10061-02-6	0.4	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Trichlorofluoromethane	75-69-4	5	0.5	U	5	U	0.5	U	5	U	5	U	0.5	U	5	U	0.5	U	0.5	U
Total Confident Conc.			6.59		1614.8		100.35		1602.7		1200		6.07		1714		0.32		0	
Total TICs							2												1.8	
TOC (SM5310B) (mg/L)	10-35-5		1.28		1.01		1.17		0.84		1.27		1.85		1.28		0.4			
TDS (SM2540C) (mg/L)	10-33-3	1000	600		560		310		480		440		310		540		10			
Iron (EPA 200.7) (ug/L)		300	109		86.60		175		77.20		80.20		258		111		50			
Manganese (EPA 200.7) (ug/L)		300	87.8		12.9		10	U	17.7		38		64.5		12		10			
Chloride (mg/L)	7782-50-5	250	**270**	**D**	**270**	**D**	150	D	220	D	130	D	130	D	**260D**		0.5	U		
Bromate (mg/L)		0.01*	**3.84**		**2.73**		**3.06**		**3.81**		**3.74**		0.01	U	**3.34**		0.01	U		
Alkalinity (SM2320 B) (mg/L)			22		14		20		14		13		20		14		3.6			
COD (SM5220 C) (mg/L)			6.93		5	U	7.94		5	U	5	U	5	U	5	U	5	U		

Notes:
BOLD - Sample concentration exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
italics - Reporting Limit exceeds NYSDEC TOGS 1.1.1 Guidance/Standards for Class GA waters (Groundwater)
NA - Not analyzed
* - 0.01 mg/L is the EPA MCL for Bromate
Qualifiers
U - The compound was not detected at the indicated concentration.
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL.
The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.
E (Inorganics) - The reported value is estimated because of the presence of interference.
D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.
NA - Not analyzed

Table 4-6B
Post ISCO (Round 5) Pilot Study Sub-Slab and Indoor Air Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID					71FOREST		71FOREST-AMB		75FOREST		750FOREST		75FOREST-AMB		24HR-AMB	
Sample Location		EPA 2001	EPA 2001	NYSDOH	PAYLESS SUBSLAB		PAYLESS INDOOR		COVE 1HRPHOTO SUBSLAB		COVE 1HR PHOTO SUBSLAB DUPLICATE		COVE 1HRPHOTO INDOOR		OUTDOOR	
Lab Sample Number		BASE Database	BASE Database	October-06	A2466-08		A2466-06		A2466-12		A2466-10		A2466-09		A2466-11	
Sampling Date		SUMMA canister method	SUMMA canister method	Chemical Air	4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009	
Matrix		Indoor Air Values	Outdoor Air Values	Guide Values	AIR		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		90th percentile	90th percentile		1		1		1		1		1		1	
Units		(ug/m^3)	(ug/m^3)	(ug/m^3)	Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3	
Volatile Organic Compounds	***CAS #***															
Tetrachloroethene	127-18-4	15.9	6.5	100	119.35	D[a]	2.03		1.42		1.36		1.42		0.54	
Trichloroethene	79-01-6	4.2	1.3	5	0.43		0.27	[b]	0.32		0.32	[b]	0.27		0.32	
cis-1,2-Dichloroethene	156-59-2	<1.9	<1.8		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
trans-1,2-Dichloroethene	156-60-5	NL	NL		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Vinyl Chloride	75-01-4	<1.9	<1.8		0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,1,1-Trichloroethane	71-55-6	20.6	2.6		0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	79-34-5	NL	NL		0.69	U	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
1,1,2-Trichloroethane	79-00-5	<1.6	<1.6		0.55	U	0.55	U	0.55	U	0.55	U	0.55	U	0.55	U
1,1,2-Trichlorotrifluoroethane	76-13-1	NL	NL		0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,1-Dichloroethane	75-34-3	<0.7	<0.6		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1-Dichloroethene	75-35-4	<1.4	<1.4		0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,4-Trichlorobenzene	120-82-1	<6.8	<6.4		0.74	U	0.74	U	0.67	J	0.74	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	95-63-6	9.5	5.8		1.28		0.49	U	12.14		0.49	U	0.49	U	0.49	U
1,2-Dibromoethane	106-93-4	<1.5	<1.6		0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,2-Dichlorobenzene	95-50-1	<1.2	<1.2		0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,2-Dichloroethane	107-06-2	<0.9	<0.8		7.89		**37.64**	**J**	0.4	U	0.4	U	0.4	U	0.4	U
1,2-Dichloropropane	78-87-5	<1.6	<1.6		24.54		**52.32**	**J**	0.46	U	0.46	U	0.46	U	0.46	U
1,3,5-Trimethylbenzene	108-67-8	3.7	2.7		0.49	U	1.67		2.95		0.49	U	0.54		0.49	U
1,3-Butadiene	106-99-0	<3.0	<3.4		0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,3-Dichlorobenzene	541-73-1	<2.4	<2.2		0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,4-Dichlorobenzene	106-46-7	5.5	1.2		0.6	U	0.6	U	1.44		1.08		0.6	U	0.6	U
1,4-Dioxane	123-91-1	NL	NL		0.36	U	0.36	U	3.6		0.36	U	0.36	U	1.51	
2,2,4-Trimethylpentane	540-84-1	NL	NL		4.39		4.67		2.06		2.76		3.6		3.41	
2-Butanone	78-93-3	12	11.3		34.36		**179**	**D**	3.16		1.71		2.89		2.33	
2-Chlorotoluene	95-49-8	NL	NL		0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U
4-Ethyltoluene	622-96-8	NL	NL		0.49	U	1.43		0.49	U	0.49	U	0.49	U	0.49	U
4-Methyl-2-Pentanone	108-10-1	6	1.9		0.45		5.33		0.41	U	0.41	U	0.41	J	0.41	U
Acetone	67-64-1	98.9	43.7		34.61		**130.18**	**D**	15.58		18.74		26.56		25.18	
Allyl Chloride	107-05-1	NL	NL		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Benzene	71-43-2	9.4	6.6		5.75		24.92	J	3.77		3.32		5.53		3.9	
Bromodichloromethane	75-27-4	NL	NL		0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
Bromoethene	593-60-2	NL	NL		0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Bromoform	75-25-2	NL	NL		1.03	U	1.03	U	1.03	U	1.03	U	1.03	U	1.03	U
Bromomethane	74-83-9	<1.7	<1.6		0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
Carbon Disulfide	75-15-0	4.2	3.7		0.31	U	1.49		0.31	U	0.31	U	0.31	U	0.31	U
Carbon Tetrachloride	56-23-5	<1.3	0.7		0.63		0.57		0.57		0.63		0.57		0.5	
Chlorobenzene	108-90-7	<0.9	<0.8		0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
Chloroethane	75-00-3	<1.1	<1.2		0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Chloroform	67-66-3	1.1	0.6		0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
Chloromethane	74-87-3	NL	NL		2.35		1.4		0.21	U	2.11		0.91		1.45	
cis-1,3-Dichloropropene	10061-01-5	<2.3	<2.2		0.45	U	1.36		0.45	U	0.45	U	0.45	U	0.45	U

Table 4-6B
Post ISCO (Round 5) Pilot Study Sub-Slab and Indoor Air Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID					**71FOREST**		**71FOREST-AMB**		**75FOREST**		**750FOREST**		**75FOREST-AMB**		**24HR-AMB**	
Sample Location		**EPA 2001**	**EPA 2001**	**NYSDOH**	PAYLESS SUBSLAB		PAYLESS INDOOR		COVE 1HRPHOTO SUBSLAB		COVE 1HR PHOTO SUBSLAB DUPLICATE		COVE 1HRPHOTO INDOOR		OUTDOOR	
Lab Sample Number		**BASE Database**	**BASE Database**	**October-06**	A2466-08		A2466-06		A2466-12		A2466-10		A2466-09		A2466-11	
Sampling Date		**SUMMA canister method**	**SUMMA canister method**	**Chemical Air**	4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009	
Matrix		**Indoor Air Values**	**Outdoor Air Values**	**Guide Values**	AIR		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		**90th percentile**	**90th percentile**		1		1		1		1		1		1	
Units		(ug/m^3)	(ug/m^3)	(ug/m^3)	Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3	
Volatile Organic Compounds	***CAS #***															
Cyclohexane	110-82-7	NL	NL		4.75		14.18		0.34	U	2.82		9.6		1.82	
Dibromochloromethane	124-48-1	NL	NL		0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U
Dichlorodifluoromethane	75-71-8	16.5	8.1		3.26		3.26		2.72		2.67		2.72		2.67	
Dichlorotetrafluoroethane	76-14-2	<6.8	<6.4		0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethyl Benzene	100-41-4	5.7	3.5		1.3		**19.42**		0.48		0.43	U	0.74		0.61	
Heptane	142-82-5	NL	NL		3.4		35.53	J	0.94		0.98		1.84		1.27	
Hexachloro-1,3-Butadiene	87-68-3	NL	NL		1.07	U	1.07	U	1.07	U	1.07	U	1.07	U	1.07	U
Hexane	110-54-3	NL	NL		13.82		13.53	J	11.88		11.52		15.58		11.14	
m/p-Xylene	179601-23-1	22.2	12.8		3.3		**36.75**		1.91		1.17		2.35		2.26	
Methyl Methacrylate	80-62-6	NL	NL		4.5		60.23		0.41	U	0.41	U	0.41	U	0.41	U
Methyl tert-Butyl Ether	1634-04-4	11.5	6.2		0.36	U	0.36	U	3.64		4.4		4.18		0.36	U
Methylene Chloride	75-09-2	10	6.1	60	10.01		3.37	J	10.14		8.65		**17.51**		2.78	
o-Xylene	95-47-6	7.9	4.6		1.09		**13.29**		0.74		0.43	U	0.78		0.78	
Styrene	100-42-5	1.9	1.3		0.51		**10.05**		0.43	U	0.43	U	0.51		0.43	U
t-1,3-Dichloropropene	10061-02-6	<1.3	<1.4		0.45	U	**1.95**		0.45	U	0.45	U	0.45	U	0.45	U
tert-Butyl alcohol	75-65-0	NL	NL		0.42		2.33		0.45		0.3	U	0.3	U	0.36	
Tetrahydrofuran	109-99-9	NL	NL		0.29	U	0.29	U	0.29	U	0.62		0.29	U	0.29	U
Toluene	108-88-3	43	33.7		84.04	D	**1833**	**D**	4.33		4.56		8.37		6.9	
Trichlorofluoromethane	75-69-4	18.5	4.3		1.8		1.69		1.8		2.08		1.91		1.35	
Total Confident Conc.					371.91		1692.07		86.71		71.5		108.79		71.08	
Total TICs																

Notes:

BOLD - Sample concentrations exceed EPA BASE Database Indoor Air concentrations

a - Per the NYSDOH Soil Vapor/Indoor Air Matrix 2 - subslab concentrations between 100 and 1000 ug/m^3 and indoor air less than 3 ug/m^3 - Monitoring Required

b - Per the NYSDOH Soil Vapor/Indoor Air Matrix 1 - subslab concentrations less than 5 ug/m3 and indoor air between 0.25 and 1 ug/m3 - Take reasonable and practical actions to identify source(s) and reduce exposures.

NL - Not Listed in EPA 2001 BASE Database

Qualifiers

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.

P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

E (Inorganics) - The reported value is estimated because of the presence of interference.

D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NA - Not analyzed

Table 4-6C
Post ISCO (Round 5) Pilot Study Soil Vapor Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID		SV-1S		SV-1D		SV-2S		SV-22S		SV-2D		2HR-AMBIENT	
Sample Location		SV-01S		SV-01D		SV-02S		SV-02S DUPLICATE		SV-02D		OUTDOOR AMBIENT AIR	
Lab Sample Number		A2466-05		A2466-07		A2466-01		A2466-02		A2466-04		A2466-03	
Sampling Date		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009	
Matrix		AIR		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		1		1		1		1		1		1	
Units		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3	
COMPOUND	CAS #												
Tetrachloroethene	127-18-4	1029.38	D	8863.01	D	53.84		66.12		22181.3	ED	70.46	
Trichloroethene	79-01-6	0.86		3.6		1.93		2.69		21.87		0.21	U
cis-1,2-Dichloroethene	156-59-2	0.4	U	1.7		0.44		0.63		1.67		0.4	U
trans-1,2-Dichloroethene	156-60-5	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Vinyl Chloride	75-01-4	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
1,1,1-Trichloroethane	71-55-6	0.22	U	0.22	U	0.22	U	0.22	U	0.65		0.22	U
1,1,2,2-Tetrachloroethane	79-34-5	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U	0.69	U
1,1,2-Trichloroethane	79-00-5	0.55	U	0.55	U	0.55	U	0.55	J	0.55	U	0.55	U
1,1,2-Trichlorotrifluoroethane	76-13-1	0.54	J	2.15		0.54	J	0.46	J	0.77	U	0.77	U
1,1-Dichloroethane	75-34-3	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,1-Dichloroethene	75-35-4	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2,4-Trichlorobenzene	120-82-1	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U	0.74	U
1,2,4-Trimethylbenzene	95-63-6	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U	0.49	U
1,2-Dibromoethane	106-93-4	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U	0.77	U
1,2-Dichlorobenzene	95-50-1	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,2-Dichloroethane	107-06-2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
1,2-Dichloropropane	78-87-5	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U	0.46	U
1,3,5-Trimethylbenzene	108-67-8	0.49	U	0.64	J	1.67		0.64	J	1.13	J	0.49	U
1,3-Butadiene	106-99-0	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,3-Dichlorobenzene	541-73-1	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
1,4-Dichlorobenzene	106-46-7	0.6	U	0.96	J	0.78		0.6	J	0.66	J	0.6	U
1,4-Dioxane	123-91-1	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
2,2,4-Trimethylpentane	540-84-1	4.86		5.32		38.58		10.56		144.33	J	4.16	
2-Butanone	78-93-3	2.51		6.34		3.63		4.6		3.57		1.53	
2-Chlorotoluene	95-49-8	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U
4-Ethyltoluene	622-96-8	0.49	U	0.49	J	1.62		0.69	J	1.67	J	0.49	U
4-Methyl-2-Pentanone	108-10-1	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Acetone	67-64-1	5.44	J	753.02	D	9.57		24.75		0.24	U	0.24	U
Allyl Chloride	107-05-1	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U

Table 4-6C
Post ISCO (Round 5) Pilot Study Soil Vapor Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID		SV-1S		SV-1D		SV-2S		SV-22S		SV-2D		2HR-AMBIENT	
Sample Location		SV-01S		SV-01D		SV-02S		SV-02S DUPLICATE		SV-02D		OUTDOOR AMBIENT AIR	
Lab Sample Number		A2466-05		A2466-07		A2466-01		A2466-02		A2466-04		A2466-03	
Sampling Date		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009	
Matrix		AIR		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		1		1		1		1		1		1	
Units		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3	
COMPOUND	CAS #												
Benzene	71-43-2	5.3		46.58		10.13		5.34		9.55		4.92	
Bromodichloromethane	75-27-4	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U	0.67	U
Bromoethene	593-60-2	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U	0.44	U
Bromoform	75-25-2	1.03	U	1.03	U	1.03	U	1.03	U	1.03	U	1.03	U
Bromomethane	74-83-9	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
Carbon Disulfide	75-15-0	0.31	U	4.3		0.47		0.65		0.31	U	0.31	U
Carbon Tetrachloride	56-23-5	0.5		0.69		0.57		0.5		0.88		0.57	
Chlorobenzene	108-90-7	0.46	U	1.29	J	0.46	U	0.46	U	2.35	J	0.46	U
Chloroethane	75-00-3	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U	0.26	U
Chloroform	67-66-3	1.22	J	3.42		0.49	U	0.49	U	4.69		0.49	U
Chloromethane	74-87-3	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	1.32	
cis-1,3-Dichloropropene	10061-01-5	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
Cyclohexane	110-82-7	3.27		26.23		3.82		0.34	U	3.99		2.72	
Dibromochloromethane	124-48-1	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U	0.85	U
Dichlorodifluoromethane	75-71-8	4.55		0.49	U	2.18		2.37		0.49	U	1.98	
Dichlorotetrafluoroethane	76-14-2	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U	0.7	U
Ethyl Benzene	100-41-4	0.74		0.87	J	2.22		1.13	J	2.17	J	0.61	
Heptane	142-82-5	1.6	J	1.39		10.16		2.87		7.46		1.48	
Hexachloro-1,3-Butadiene	87-68-3	1.07	U	1.07	U	1.07	U	1.07	U	1.07	U	1.07	U
Hexane	110-54-3	14.27	J	15.3		40.53		14.94		41.09		12.9	
m/p-Xylene	179601-23-1	2.56	J	3.65	J	6.12		4.26	J	6.86	J	2.17	
Methyl Methacrylate	80-62-6	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Methyl tert-Butyl Ether	1634-04-4	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U	0.36	U
Methylene Chloride	75-09-2	0.69	J	0.35	U	0.63		0.73		0.35	U	0.35	U
o-Xylene	95-47-6	0.83	J	1.26	J	2.22		1.52	J	2.39	J	0.74	
Styrene	100-42-5	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U	0.43	U
t-1,3-Dichloropropene	10061-02-6	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U	0.45	U
tert-Butyl alcohol	75-65-0	1.64	J	4.09		1.09		1.64		0.3	U	0.3	U
Tetrahydrofuran	109-99-9	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U	0.29	U

Table 4-6C
Post ISCO (Round 5) Pilot Study Soil Vapor Sample Results
Ronhill Cleaners
Glen Cove, NY

Sample ID		**SV-1S**		**SV-1D**		**SV-2S**		**SV-22S**		**SV-2D**		**2HR-AMBIENT**	
Sample Location		SV-01S		SV-01D		SV-02S		SV-02S DUPLICATE		SV-02D		OUTDOOR AMBIENT AIR	
Lab Sample Number		A2466-05		A2466-07		A2466-01		A2466-02		A2466-04		A2466-03	
Sampling Date		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009		4/23/2009	
Matrix		AIR		AIR		AIR		AIR		AIR		AIR	
Dilution Factor		1		1		1		1		1		1	
Units		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3		Ug/M3	
COMPOUND	**CAS #**												
Toluene	108-88-3	9.04	D	41.45	D	33.13		12.44		22.87		7.24	
Trichlorofluoromethane	75-69-4	1.29	J	3.43		1.29		1.18		3.32		1.12	J
Total Confident Conc.		1138.68		3317.41		227.16		161.31		5233.87		113.92	
Total TICs													

Qualifiers

U - The compound was not detected at the indicated concentration.

J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.

P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

E (Organics) - Indicates the analyte ‘s concentration exceeds the calibrated range of the instrument for that specific analysis.

E (Inorganics) - The reported value is estimated because of the presence of interference.

D - The reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.

* - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.

NR - Not analyzed

Appendix A

Monthly SVE System O&M Reports During Pilot Study Period

O&M Data Sheet - January 2009
Soil Vapor Extraction System
Former Ron Hill Cleaners
71 Forest Avenue
Glen Cove, New York
NYSDEC Site # 1-30-071

Date	1/7/2009	1/8/2009	1/9/2009	1/15/2009	1/21/2009	1/23/2009	1/30/2009
Time	12:00 PM	11:00 AM	12:30 PM	9:00 AM	5:30 PM	11:30 AM	8:00 AM
Operator's Name	Phillip Dixon	Phillip Dixon	Paresh Patel	Phillip Dixon and Bill Nylic	Phillip Dixon	Phillip Dixon	Phillip Dixon
Hour meter reading at the panel	Not Measured	137	141	282	431	-	629
Water Level in Demister Drum (%)	0%	0%	0%	0%	0%	0%	0%
PID Recalibration/Reading (ppm)	Yes/98	Yes/101	Yes/98.9	Yes/101	Yes/100	Yes/100	Yes/100
Treated Demister Drum Water (gal)	360	438	438	482	603	-	920
Montly Demister Drum Leak Check Performed (Yes/No and Contents)	No	No	No	Yes	No	No	No
Discharge Pipe Freezing (Yes/No)	-	-	-	Flow Meter Frozen	Some water frozen in effluent Discharge pipe	No	No
Cleaned Strainer (Yes/No)	-	-	-	Yes	No	No	Yes
System Filter Status (Clogged, Wet, Good)	-	-	-	Good	Good	Good	Rust on Filter/Good
Heat Trace (On/Off)	-	-	-	On	On	On	On
Control Panel Check (Good/Bad)	-	-	-	Good	Good	-	Good
Effluent Temperature (°F)	-	-	-	-	-	95	92
Vacuum (in H_2O)							
VES-1A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measure	Not Measured	Not Measured
VES-2A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measure	Not Measured	Not Measured
VES-3A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measure	Not Measured	Not Measured
VES -4 (Vapor Extraction Well)	Not Measured	Not Measured	-12	-12	-12	Not Measured	-8
VES-5A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measure	Not Measured	Not Measured
Combined Vacuum from VES wells	-18	Not Measured	-14	-16	-13	-13	-13
Vacuum from Cove photo sub-slab depressurization system	-5	Not Measured	-4	-4	-3	-4	-4
Flow/Pressure							
Blower discharge flow-Calculate (CFM)	0	Not Measured	262	0	393	393	-
Blower discharge velocity (FPM)	Not Measured	Not Measured		0	4500	4500	0
Blower discharge pressure (in H_2O)	6	Not Measured	6	2	2	6	6
PID readings (PPM)							
Influent PID at blower discharge	Not Measured	Not Measured	10.3	Not Measured	10.9	Not Measured	10.2
Effluent PID after GAC unit	Not Measured	Not Measured	1.3	Not Measured	0.0	Not Measured	2
Well VOC Concs w/pump (Yes/No)	No	No	No	No	No	No	Yes
VOC Concentration in VES-1A	Not Measured	Not Measured	Not Measured	Not Measured	1.9	Not Measured	5.3
VOC Concentration in VES-2A	Not Measured	Not Measured	Not Measured	Not Measured	0.3	Not Measured	4.3
VOC Concentration in VES-3A	Not Measured	Not Measured	Not Measured	Not Measured	0.0	Not Measured	3.7
VOC Concentration in VES-4	Not Measured	Not Measured	0.9	Not Measured	0.0	Not Measured	0.6
VOC Concentration in VES-5A	Not Measured	Not Measured	Not Measured	Not Measured	0.0	Not Measured	1.7
VOC Concentration in Combined Vacuum from VES wells	Not Measured	Not Measured	4.2	Not Measured	4.5	Not Measured	3.2
VOC Concentration in Vacuum from Cove photo sub-slab depressurization system	Not Measured	Not Measured	2.2	Not Measured	0.0	Not Measured	0.1
Notes/Observations:	Raining at site, so didn't start up PID meter	System off when arrived at site	System "Off" upon arrival. GWTT on site to fix the problem.	The Frozen Demister Drum Flow Meter was wrapped in insulation as well as the end of the discharge pipe that was uninsulated	Some water was found frozen in the effluent discharge pipe, but the treatment system discharged water when it was run	Stopped by system to determine if all of the system controls were correct.	Paint chips were found in the strainer and the flow meter was not reading even after adjustments were made to it orientation
Monthly Neiboring SSDS check Performed (Yes/No)	No	No	No	No	Yes	No	No

SSDS Check	System Operating	Reading (in. H_2O)
3 Bryce Street	Yes	3.6
5 Bryce Street	Yes	4
6 Bryce Street	Yes	3.7
7 Bryce Street	Yes	3.5
74 Forest Avenue (Church)	N/A	N/A
75 Forest Avenue (1-Hour Photo)	Yes	3
77 Forest Avenue (King Kullen)	Yes	>4.0
78 Forest Avenue (Day Care)	N/A	N/A

O&M Data Sheet - February 2009
Soil Vapor Extraction System
Former Ron Hill Cleaners
71 Forest Avenue
Glen Cove, New York
NYSDEC Site # 1-30-071

Date	2/4/2009	2/11/2009	2/18/2009	2/25/2009
Time	9:00 AM	8:00 AM	7:00 AM	7:50 AM
Operator's Name	Phillip Dixon	Phillip Dixon & Bill Nylic	Paresh Patel & Bill Nylic	Bill Nylic
Hour meter reading at the panel	749	914	1079	1247
PID Recalibration/Reading (ppm)	Yes/100	Yes/101	Yes/100	Yes/99
Treated Demister Drum Water (gal)	1010	1120	1140	1520
Montly Demister Drum Leak Check Performed (Yes/No and Contents)	Yes (No Leaks)	No	Yes (No Leaks)	Yes(No Leaks)
Discharge Pipe Freezing (Yes/No)	No	No	No	No
Cleaned Strainer (Yes/No)	Yes	Yes	Yes	Yes
System Filter Status (Clogged, Wet, Good)	Good	Good	Good	Good
Heat Trace (On/Off)	On	On	On	On
Control Panel Check (Good/Bad)	Good	Good	Good	Good
Effluent Temperature (°F)	91	96	91	88
Blower Temperature (Hot/Warm/Cold)	Warm	Warm	Warm	Warm
Vacuum (in H_2O)				
VES-1A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
VES-2A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
VES-3A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
VES -4 (Vapor Extraction Well)	-8	-8	-8	-8
VES-5A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
Combined Vacuum from VES wells	-12	-13	-11	-12
Vacuum from Cove photo sub-slab depressurization system	-3	-4	-4	-4
Flow/Pressure				
Blower discharge flow-Calculate (CFM)	855	916	262	262
Blower discharge velocity (FPM)	9800	10500	3000	3000
Blower discharge pressure (in H_2O)	6	6	6	6
PID readings (PPM)				
Influent PID at blower discharge	10.4	6.9	10.5	9.0
Effluent PID after GAC unit	3.3	0.7	1.4	0.7
Well VOC Concs w/pump (Yes/No)	Yes	Yes	Yes	Yes
VOC Concentration in VES-1A	4	3.7	2.3	3.4
VOC Concentration in VES-2A	3.1	5.9	5.3	5.6
VOC Concentration in VES-3A	3.3	3.6	14.4	3.7
VOC Concentration in VES-4	0.1	0.1	0	1.3
VOC Concentration in VES-5A	1.7	1.5	1.3	1.0
VOC Concentration in Combined Vacuum from VES wells	1.8	1.7	10.5	11.4
VOC Concentration in Vacuum from Cove photo sub-slab depressurization system	0.5	0.0	0.3	0.6
Notes/Observations:	There were no paint chips in the demister drum fluid, there was a 1/4 cup of soil removed from the bottom of the drum, water in the gas flow meter was thawed from the system and removed, a small section of 1/8" pipe was used to replace a 1/8" broken valve in the system, and the Nassau County DOH stopped by the site to ask me and RCC a few questions about the system operation	CDM's PID was giving inaccurate readings and flashing "pump", used Pine's PID instead, air filter is rusted, strainer water was clear, bottom of demister drum was brushed to clean rust colored sediment from bottom.	Blower screached briefly when slowing down after being turned off as well as right when turned on.	4 Solenoid Valves failed, system ran on remaining 2 vales. Next day, both valves failed, 4 new 100 psi valves were installed. Treated approx. 230 gal. of water from 5 Drums.
Monthly Neiboring SSDS check Performed (Yes/No)	No	Yes	No	No
SSDS Check	System Operating	Reading (in. H_2O)		
3 Bryce Street	Yes	3.5		
5 Bryce Street	Yes	3.8		
6 Bryce Street	N/A	Not Home	3.6	
7 Bryce Street	N/A	Not Home	Not Home	
74 Forest Avenue (Church)	Yes	3.6		
75 Forest Avenue (1-Hour Photo)	Yes	4		
77 Forest Avenue (King Kullen)	Yes	4		
78 Forest Avenue (Day Care)	N/A	Not Home	Not Home	

O&M Data Sheet - March 2009
Soil Vapor Extraction System
Former Ron Hill Cleaners
71 Forest Avenue
Glen Cove, New York
NYSDEC Site # 1-30-071

Date	**3/4/2009**	**3/11/2009**	**3/18/2009**	**3/25/2009**
Time	8:00 AM	8:00 AM	8:45 AM	8:00 AM
Operator's Name	Bill Nylic	Bill Nylic	Bill Nylic	Bill Nylic
Hour meter reading at the panel	1411	1577	1745	1911
PID Recalibration/Reading (ppm)	98.4	102	102	102
Treated Demister Drum Water (gal)	1770	1920	1920	2010
Montly Demister Drum Leak Check Performed (Yes/No and Contents)	Yes (No Leaks)	Yes (No Leaks)	Yes (No Leaks)	Yes (No Leaks)
Discharge Pipe Freezing (Yes/No)	No	No	No	No
Cleaned Strainer (Yes/No)	Yes	No (No water in drum to flush)	Yes	Yes
System Filter Status (Clogged, Wet, Good)	Good	Good	Good	Good
Heat Trace (On/Off)	On	On	On	On
Control Panel Check (Good/Bad)	Good	Good	Good	Good
Effluent Temperature (°F)	85	95	93	
Blower Temperature (Hot/Warm/Cold)	Warm	Warm	Warm	Warm
Vacuum (in H_2O)				
VES-1A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
VES-2A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
VES-3A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
VES -4 (Vapor Extraction Well)	-8	-8	-8	-8
VES-5A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured
Combined Vacuum from VES wells	-12	-12	-12	-9
Vacuum from Cove photo sub-slab depressurization system	-4	-4	-4	-3
Flow/Pressure				
Blower discharge flow-Calculate (CFM)	175	262	262	262
Blower discharge velocity (FPM)	2000	3000	3000	3000
Blower discharge pressure (in H_2O)	6	6	6	6
PID readings (PPM)				
Influent PID at blower discharge	14.1	7.8	8.8	7.2
Effluent PID after GAC unit	6.7	0.6	0.7	0.0
Well VOC Concs w/pump (Yes/No)	Yes	Yes	Yes	Yes
VOC Concentration in VES-1A	10.1	7.2	4.7	4.9
VOC Concentration in VES-2A	12.1	9.8	14.8	4.1
VOC Concentration in VES-3A	5.8	6.7	19.3	1.6
VOC Concentration in VES-4	0.5	3.7	8.6	0.4
VOC Concentration in VES-5A	4.2	5.7	2	1.2
VOC Concentration in Combined Vacuum from VES wells	14.8	9.7	10.4	
VOC Concentration in Vacuum from Cove photo sub-slab depressurization system	8.5	2.1	4.2	
Notes/Observations:	Effluent Pump was running but no water was coming out of the discharge, there were paint chips clogging the strainer, they were removed and system ran normally.	No paint chips in drum, PID's may not be accurate b/c of rain.	Treated 10 gallons of water.	Washed grit from bottom of demister drum. Dilution may be too much, vacuums were lower than normal
Monthly Neiboring SSDS check Performed (Yes/No)	No	No	No	No
SSDS Check	**System Operating**	**Reading (in. H_2O)**		
3 Bryce Street	**Yes**	**3.4**		
5 Bryce Street	**Yes**	**3.8**		
6 Bryce Street	**Yes**	**3.7**		
7 Bryce Street	**Yes**	**Not Home**		
74 Forest Avenue (Church)	**Yes**	**3.5**		
75 Forest Avenue (1-Hour Photo)	**Yes**	**3.5**		
77 Forest Avenue (King Kullen)	**Yes**	**4**		
78 Forest Avenue (Day Care)	**Yes**	**Not Home**		

O&M Data Sheet - April 2009
Soil Vapor Extraction System
Former Ron Hill Cleaners
71 Forest Avenue
Glen Cove, New York
NYSDEC Site # 1-30-071

Date	4/1/2009	4/8/2009	4/15/2009	4/22/2009	4/29/2009
Time	8:10 AM	10:00 AM	9:00 AM	9:00 AM	8:00 AM
Operator's Name	Bill Nylic	Bill Nylic	Bill Nylic	Bill Nylic	Bill Nylic
Hour meter reading at the panel	2077	2247	2414	2583	2748
PID Recalibration/Reading (ppm)	103	103	103	102	102
Treated Demister Drum Water (gal)	2380	3400	3740	4020	4110
Montly Demister Drum Leak Check Performed (Yes/No and Contents)	Yes (No Leaks)	Yes (No Leaks)	Yes (No Leaks)	Yes (No Leaks)	Yes (No Leaks)
Discharge Pipe Freezing (Yes/No)	No	No	No	No	No
Cleaned Strainer (Yes/No)	Yes	Yes	Yes	Yes	Yes
System Filter Status (Clogged, Wet, Good)	Good	Good	Good	Good	Good
Heat Trace (On/Off)	On	On	On	On	On
Control Panel Check (Good/Bad)	Good	Good	Good	Good	Good
Effluent Temperature (°F)	93	90	92	100	103
Blower Temperature (Hot/Warm/Cold)	Warm	Warm	Warm	Warm	Warm
Vacuum (in H_2O)					
VES-1A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VES-2A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VES-3A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
VES -4 (Vapor Extraction Well)	-8	-8	-8	-8	-8
VES-5A (Vapor Extraction Well)	Not Measured	Not Measured	Not Measured	Not Measured	Not Measured
Combined Vacuum from VES wells	-10	-10	-10	-10	-10
Vacuum from Cove photo sub-slab depressurization system	-4	-3	-3	-4	-4
Flow/Pressure					
Blower discharge flow-Calculate (CFM)	262	262	218	175	175
Blower discharge velocity (FPM)	3000	3000	2500	2000	2000
Blower discharge pressure (in H_2O)	4	3	2	1	1
PID readings (PPM)					
Influent PID at blower discharge	7.2	7.0	6.8	5.4	7.0
Effluent PID after GAC unit	0.4	0.3	1.2	1.4	1.3
Well VOC Concs w/pump (Yes/No)	Yes	Yes	Yes	Yes	Yes
VOC Concentration in VES-1A	8.8	4.3	Not Measured	Not Measured	Not Measured
VOC Concentration in VES-2A	12.3	7.3	Not Measured	Not Measured	Not Measured
VOC Concentration in VES-3A	4.5	5.7	Not Measured	Not Measured	Not Measured
VOC Concentration in VES-4	1.3	0.1	0.2	0.3	0.3
VOC Concentration in VES-5A	2.1	0.8	1.3	9.2	3.4
VOC Concentration in Combined Vacuum from VES wells	10.5	9.1	8.3	9.1	10.2
VOC Concentration in Vacuum from Cove photo sub-slab depressurization system	8.1	0.0	0	3.1	1.2
Notes/Observations:	Ozone Injection trailer removed.	None	Wells 1-3 were completely full of water, unable to take PID measurements. Removed marble sized stone from drum.	Wells 1-3 were completely full of water, unable to take PID measurements. All equipment was reamoved from photo shop.	Wells 1-3 were completely full of water, unable to take PID measurements. Treated 120 gallons of water left over from sampling.
Monthly Neiboring SSDS check Performed (Yes/No)	No	No	No	No	No

SSDS Check	System Operating	Reading (in. H_2O)			
3 Bryce Street	Yes	3.2			
5 Bryce Street	Yes	3.7			
6 Bryce Street	Yes	3.6			
7 Bryce Street	Yes	3.3			
74 Forest Avenue (Church)	Yes	3.5			
75 Forest Avenue (1-Hour Photo)	Yes	3.4			
77 Forest Avenue (King Kullen)	Yes	3.9			
78 Forest Avenue (Day Care)	Yes	Not Home		Not Home	

Appendix B

Weekly Field Readings

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 8/26/2008
Recorded by: D. Grove
Weather: 80 degrees, sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas
Monitoring Wells												
MW-1	86.9	76.40	0.0	4.17	0.990	7.89	23.85	173.0	NA	41.0	0.00	NA
MW-2	87.3	76.70	0.0	5.28	0.356	7.31	22.96	175.0	NA	9.1	0.00	NA
MW-3	89.72	75.10	0.0	5.47	0.873	8.19	21.88	158.0	NA	9.5	0.00	NA
MW-4	90.02	75.40	0.0	4.08	0.920	8.36	20.93	225.0	NA	21.2	0.00	NA
MW-5*	95.1	78.56	0.0	5.82	0.777	10.94	12.54	344.0	NA	>1000	0.00	NA
PTW-1	115	76.48	0.0	4.73	0.961	10.54	19.77	200.0	NA	30.3	0.00	NA
Vapor Observation Wells												
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	NA
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	NA
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	NA
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	NA
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	NA
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	NA
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	NA
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	NA
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	NA
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	NA
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	NA
Payless Shoe		X	X	X	X	X	X	X	X	X	X	NA

*MW-5 sampled on 11/3/08

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 12.1.8
Recorded by: PJD
Weather:

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	PID (ppm)	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Temperature (C°)	ORP (mV)	CO_2 (gaseous)	Turbidity (ntu)	Dissolved Ozone	Ozone Gas
Monitoring Wells											
MW-1	86.9	0.0	5.81	0.744	10.31	14.69	174.0	0.0	35	-	-
MW-2	87.3	0.0	6.04	0.246	8.83	14.91	201.0	0.1	75	-	-
MW-3	89.72	0.0	5.77	0.968	9.88	14.71	204.8	0.0	40	-	-
MW-4	90.02	0.0	5.77	0.742	12.08	15.01	204.8	0.0	-	-	-
MW-5	95.1	0.1	5.66	0.648	12.31	15.59	224.8	0.0	-	-	-
PTW-1	115	0.0	6.04	0.871	8.59	15.05	289.8	0.0	150	-	-
Vapor Observation Wells											
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	-
Payless Shoe		X	X	X	X	X	X	X	X	X	-

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 1/9/2009
Recorded by: P. Patel
Weather: Sunny, 26 F, high 36 F

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	PID (ppm)	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Temperature (C°)	ORP (mV)	CO_2 (gasous)	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)*	Ozone Gas (subsurface/ ambient)
Monitoring Wells												
MW-1	86.9	0.0	5.92	0.802	10.48	13.39	253.6	0.0	0.02	48.8	0.00	0.0/0.0
MW-2	87.3	0.0	5.36	0.531	8.43	14.84	242.5	0.0	0.02	85.6	0.3	0.0/0.0
MW-3	89.72	0.3	5.79	1.105	9.25	13.81	261.1	0.0	0.00	18.2	0.2	0.0/0.0
MW-4	90.02	0.0	5.78	0.763	8.95	14.76	272.5	0.0	0.10	14.7	0.4	0.0/0.0
MW-5	95.1	0.0	6.30	0.690	10.40	13.91	257.9	0.0	0.00	22.7	0.0	0.0/0.0
PTW-1	115	0.0	6.76	0.087	8.35	14.25	232.7	0.0	0.00	7.0	0.5	0.0/0.0
Vapor Observation Wells												
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 1/13/2009
Recorded by: T. Horn
Weather: 32 degrees, overcast

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L) (CHEM)*	Ozone Gas
Monitoring Wells														
MW-1	86.9	77.67		5.86	0.652	10.51	15.20	89.2	37.5	NA	0.80	71.9	0.35	NA
MW-2	87.3	78.28		5.82	1.460	7.24	20.83	140.7	30.0	NA	0.56	64.4	0.02	NA
MW-3	89.72	76.39		5.53	1.322	Meter Error	19.53	192.8	45.0	NA	0.10	7.9	0.58	NA
MW-4	90.02	76.71		4.92	0.674	Meter Error	19.79	186.5	40.0	NA	0.34	18.1	0.16	NA
MW-5	95.1	78.99		5.76	1.320	10.38	18.08	179.8	37.5	NA	1.57	286.0	0.00	NA
PTW-1	115	77.86		5.72	0.765	12.87	17.71	139.2	40.0	NA	0.42	445.0	0.00	NA
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	NA
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	NA
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	NA

- Field parameters collected during groundwater sample collection
- NA - not analyzed
* - suspect that dissolved ozone field method may be causing inaccurate readings.

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 1/15/2009
Recorded by: P. Dixon and B. Nylic
Weather: Snowy/Sunny, 20 F

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Temperature (C°)	ORP (mV)	CO_2 (gasous)	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)*	Ozone Gas (subsurface/ ambient)
Monitoring Wells													
MW-1	86.9	77.52	0.0	5.92	0.652	8.56	6.21	172.0	0.0	0.09	40.0	0.60	0.0/0.0
MW-2	87.3	78.01	0.0	6.01	6.143	5.43	4.21	218.9	0.0	0.08	55.0	0.5	0.0/0.0
MW-3	89.72	76.32	0.0	5.98	1.023	7.79	6.89	187.7	0.0	0.03	55.0	0.6	0.0/0.0
MW-4	90.02	76.75	1.3	5.88	0.748	8.44	6.54	180.0	0.0	0.01	32.0	0.8	0.0/0.0
MW-5	95.1	79.00	X	5.81	0.720	6.92	7.33	187.9	0.0	0.01	110.0	0.8	0.3/0.0
PTW-1	115	77.81	0.0	6.67	1.602	4.75	5.85	181.7	0.0	0.03	29.0	0.1	0.0/0.0
Vapor Observation Wells													
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 1/23/2009
Recorded by: B. Nylic
Weather: 35 degrees, sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L) (HACH/CHEM)	Ozone Gas (subsurface /ambient)
Monitoring Wells														
MW-1	86.9	77.50	N/A	6.05	0.828	9.21	14.49	199.2	12.0	0.0	0.00	24.0	0.0/NA	0.0/0.0
MW-2	87.3	78.10	N/A	5.92	5.305	8.49	14.61	214.0	12.0	0.0	0.02	11.0	0.0/NA	0.0/0.0
MW-3	89.72	76.20	N/A	5.87	1.270	7.95	14.96	208.6	12.0	0.0	0.12	45.0	0.0/NA	0.0/0.0
MW-4	90.02	76.65	N/A	5.92	0.755	9.69	14.96	196.2	10.0	0.0	0.02	7.0	0.04/0.55	0.0/0.0
MW-5	95.1	78.83	N/A	5.82	0.773	8.78	15.60	274.7	16.0	0.0	0.00	380.0	Note 1	0.0/0.0
PTW-1	115	77.96	N/A	6.54	0.288	6.30	15.01	162.4	8.0	0.0	0.00	8.9	0.0/0.075	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

Note 1 - Sample was too turbid to give an accurate reading on spectrophotometer
NA - not analyzed. (for Dissolved ozone - comparison was done between two methods at two locations only)

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 1/29/2009
Recorded by: B. Nylic
Weather: Sunny, 35 Deg.

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (subsurface /ambient)
Monitoring Wells														
MW-1	86.9	77.55	0.0	6.26	0.871	9.41	14.09	329.1	8.8	0.0	0.07	5.4	0.0	0.0/0.0
MW-2	87.3	79.20	0.0	6.28	5.047	7.73	14.01	338.8	10.0	0.0	0.00	45.0	0.0	0.0/0.0
MW-3	89.72	76.35	0.0	6.09	4.107	8.39	14.97	320.1	11.3	0.0	0.00	9.8	0.0	0.0/0.0
MW-4	90.02	76.80	0.0	6.12	0.783	8.37	14.99	314.6	16.3	0.0	0.01	6.1	0.0	0.0/0.0
MW-5	95.1	78.95	0.0	6.37	1.011	9.25	14.64	290.3	10.0	0.0	0.01	45.0	0.0	0.0/0.0
PTW-1	115	77.90	0.0	6.70	0.296	6.38	14.85	315.8	6.3	0.0	0.00	6.6	0.0	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 2/2/2009
Recorded by: T. Horn
Weather: Lt. Snow, 30 degrees

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.67	0.0	5.70	0.932	8.58	18.69	208.8	20.0	NA	0.13	0.9	0.13	NA
MW-2	87.3	78.23	0.0	5.78	1.655	8.63	18.06	195.5	30.0	NA	0.08	36.6	0.08	NA
MW-3	89.72	76.30	0.0	5.83	1.269	8.22	20.17	173.2	25.0	NA	0.11	3.9	0.01	NA
MW-4	90.02	76.65	0.0	5.89	0.804	9.56	19.39	178.9	27.5	NA	0.11	38.0	0.10	NA
MW-5	95.1	77.09	0.0	5.97	0.936	7.17	18.06	171.8	35.0	NA	0.36	27.0	0.01	NA
PTW-1	115	77.79	0.0	5.83	0.998	8.35	18.43	158.3	32.5	NA	0.63	55.0	0.08	NA
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	NA
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	NA
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	NA

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 2/5/2009
Recorded by: B. Nylic
Weather: 15 deg., Sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.63	0.0	6.12	0.883	9.33	14.78	249.3	12.0	0.0	0.09	13.0	0.00	0.0/0.0
MW-2	87.3	78.23	0.0	6.08	5.478	9.33	14.50	263.2	48.0	0.0	0.10	27.0	0.0	0.0/0.0
MW-3	89.72	76.42	0.0	5.97	1.377	8.18	14.82	252.9	10.0	0.0	0.00	18.0	0.0	0.0/0.0
MW-4	90.02	76.85	0.0	5.87	0.832	9.97	14.45	279.2	18.0	0.0	0.00	11.0	0.0	0.0/0.0
MW-5	95.1	78.95	0.0	5.71	0.783	9.93	13.89	288.2	24.0	0.0	0.00	55.0	0.0	0.0/0.0
PTW-1	115	77.90	0.4	6.44	0.432	7.08	14.15	242.1	10.0	0.0	0.00	15.0	0.0	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 2/10/2009
Recorded by: T. Horn
Weather: overcast, 34 degrees

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.69	0.0	5.90	0.913	10.15	19.06	152.4	23.8	NA	0.45	26.0	0.00	NA
MW-2	87.3	78.38	0.0	5.91	1.071	16.00	19.47	140.1	25.0	NA	0.54	13.0	0.00	NA
MW-3	89.72	76.31	0.0	5.79	1.100	13.22	18.41	151.2	22.5	NA	0.25	12.0	0.01	NA
MW-4	90.02	76.83	0.0	5.74	0.785	10.47	19.03	172.3	26.3	NA	0.72	90.0	0.00	NA
MW-5	95.1	78.90	0.0	5.84	1.023	8.17	18.38	187.1	21.3	NA	0.18	45.0	0.00	NA
PTW-1	115	77.81	0.0	5.71	0.972	13.93	17.31	162.1	22.5	NA	0.24	5.9	0.08	NA
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	NA
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	NA
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	NA
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	NA

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 2/19/2009
Recorded by: B. Nylic
Weather: 42 deg., Partly Sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.41	0.0	5.99	0.884	11.19	14.79	169.3	10.0	0.0	0.00	14.0	0.00	0.0/0.0
MW-2	87.3	77.91	0.0	6.17	1.139	14.04	14.78	167.2	48.0	0.0	0.00	13.0	0.00	0.0/0.0
MW-3	89.72	76.19	0.0	5.93	1.284	10.02	14.87	179.9	28.0	0.0	0.00	10.0	0.03	0.0/0.0
MW-4	90.02	76.58	0.0	5.80	0.779	11.14	15.43	164.1	12.0	0.0	0.00	160.0	0.00	0.0/0.0
MW-5	95.1	78.71	0.0	6.04	0.737	10.98	15.19	152.6	20.0	0.0	0.00	19.0	0.00	0.0/0.0
PTW-1	115	77.65	0.0	6.26	0.615	6.42	14.99	148.9	24.0	0.0	0.01	22.0	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 2/26/2009
Recorded by: B. Nylic
Weather: 40 deg., Overcast

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.59	0.0	6.51	0.890	12.30	14.45	223.7	20.0	0.0	0.00	21.0	0.00	0.0/0.0
MW-2	87.3	78.08	0.0	6.53	2.080	18.24	14.59	225.7	15.0	0.0	0.01	17.0	0.00	0.0/0.0
MW-3	89.72	76.37	0.0	6.36	0.998	11.93	14.66	230.8	15.0	0.0	0.00	160.0	0.00	0.0/0.0
MW-4	90.02	76.75	0.0	6.71	0.804	12.77	14.84	222.8	20.0	0.0	0.01	50.0	0.00	0.0/0.0
MW-5	95.1	78.89	0.0	7.20	0.721	12.53	14.59	225.6	44.0	0.0	0.00	16.0	0.00	0.0/0.0
PTW-1	115	77.84	0.0	6.79	0.638	8.61	14.83	214.3	20.0	0.0	0.01	16.0	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 3/5/2009
Recorded by: B. Nylic
Weather: 20 deg., Sunny

qaq

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.70	0.0	6.30	0.890	12.76	14.76	184.9	10.0	0.0	0.00	13.0	0.00	0.0/0.0
MW-2	87.3	78.19	0.0	6.40	0.993	17.51	14.77	175.9	15.0	0.0	0.00	9.7	0.00	0.0/0.0
MW-3	89.72	76.48	0.0	6.14	1.147	11.53	14.87	187.1	15.0	0.0	0.00	17.0	0.00	0.0/0.0
MW-4	90.02	77.88	0.0	6.40	0.776	12.75	15.46	178.7	50.0	0.0	0.00	29.0	0.00	0.0/0.0
MW-5	95.1	79.95	0.0	6.99	0.837	12.56	14.36	189.9	30.0	0.0	0.01	90.0	0.00	0.0/0.0
PTW-1	115	77.89	0.0	6.48	0.649	6.25	14.91	173.6	15.0	0.0	0.00	13.0	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 3/12/2009
Recorded by: B. Nylic
Weather: 35 deg., Sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.76	0.0	6.43	0.958	12.10	14.24	188.5	15.0	0.0	0.00	18.0	0.00	0.0/0.0
MW-2	87.3	78.15	0.0	6.73	1.623	16.55	14.56	188.3	10.0	0.0	0.00	20.0	0.00	0.0/0.0
MW-3	89.72	76.52	0.0	6.23	1.276	10.40	14.75	188.9	40.0	0.0	0.00	13.0	0.00	0.0/0.0
MW-4	90.02	76.90	0.0	6.80	0.793	9.40	14.75	177.3	20.0	0.0	0.00	31.0	0.00	0.0/0.0
MW-5	95.1	78.98	0.0	7.25	0.721	12.44	14.64	178.4	15.0	0.0	0.01	95.0	0.00	0.0/0.0
PTW-1	115	77.97	0.0	7.63	0.077	11.53	14.83	142.3	5.0	0.0	0.00	16.0	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 3/19/2009
Recorded by: B. Nylic
Weather: 50 deg., Overcast
Rainy

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.68	0.0	6.39	0.926	11.40	14.81	164.8	20.0	0.0	0.00	19.0	0.00	0.0/0.0
MW-2	87.3	78.10	0.0	6.59	1.025	14.26	14.85	159.3	15.0	0.0	0.00	41.0	0.00	0.0/0.0
MW-3	89.72	76.43	0.0	6.24	1.227	10.54	14.99	168.9	15.0	0.0	0.00	30.0	0.00	0.0/0.0
MW-4	90.02	76.81	0.0	6.74	0.788	20.79	15.41	160.8	20.0	0.0	0.07	12.0	0.00	0.0/0.0
MW-5	95.1	78.98	0.0	7.41	0.730	11.40	15.02	161.7	15.0	0.0	0.00	40.0	0.00	0.0/0.0
PTW-1	115	77.89	0.0	7.46	0.070	9.17	15.14	118.2	10.0	0.0	0.00	16.0	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 3/25/2009
Recorded by: D. Grove
Weather: 35-50 Sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
PTW-1	115	78.12	0.0	5.50	0.995	4.22	18.64	270.0	10.0	0.0	0.04	4.2	0.00	0.0/0.0
MW-1	86.9	78.16	0.0	5.72	0.935	2.56	17.09	226.0	25.0	0.0	0.02	5.1	0.00	0.0/0.0
MW-2	87.3	78.71	0.0	5.80	1.600	15.31	19.16	188.0	16.3	0.0	0.01	11.0	0.06	0.0/0.0
MW-3	89.72	76.50	0.0	5.65	0.988	6.09	13.43	179.0	15.0	0.0	0.02	4.8	0.00	0.0/0.0
MW-4	90.02	76.98	0.0	5.63	0.702	5.21	20.95	259.0	20.0	0.0	0.01	24.1	0.00	0.0/0.0
MW-5	95.1	79.09	0.0	5.80	7.550	6.52	18.30	228.0	15.0	0.0		5.1	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 3/26/2009
Recorded by: B. Nylic
Weather: 45 deg., Overcast

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.73	0.0	6.59	0.949	11.03	14.60	145.2	10.0	0.0	0.00	37.6	0.00	0.0/0.0
MW-2	87.3	78.10	0.0	6.65	2.226	15.86	14.76	146.1	20.0	0.0	0.00	104.0	0.00	0.0/0.0
MW-3	89.72	76.48	0.0	6.48	1.185	10.26	14.90	149.1	15.0	0.0	0.10	28.4	0.00	0.0/0.0
MW-4	90.02	76.88	0.0	7.14	0.815	12.58	15.46	138.5	10.0	0.0	0.00	74.7	0.00	0.0/0.0
MW-5	95.1	78.98	0.0	7.46	0.722	10.66	15.09	112.1	15.0	0.0	0.02	28.3	0.00	0.0/0.0
PTW-1	115	77.93	0.0	7.26	0.167	9.16	14.99		10.0	0.0	0.00	26.3	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 4/2/2009
Recorded by: B. Nylic
Weather: 45 deg., Foggy/Rain

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.72	0.0	6.56	0.953	10.07	14.75	122.9	10.0	0.0	0.13	25.9	0.00	0.0/0.0
MW-2	87.3	78.15	0.0	6.75	0.604	13.42	14.88	109.7	15.0	0.0	0.17	72.8	0.00	0.0/0.0
MW-3	89.72	76.51	0.0	6.44	1.219	9.61	14.99	128.7	15.0	0.0	0.00	14.5	0.00	0.0/0.0
MW-4	90.02	76.89	0.0	6.81	0.766	9.05	15.20	99.2	20.0	0.0	0.00	108.5	0.00	0.0/0.0
MW-5	95.1	79.01	0.0	7.24	0.065	8.08	15.38	98.9	10.0	0.0	0.00	926.0	0.00	0.0/0.0
PTW-1	115	77.88	0.0	7.61	0.045	7.57	15.06	63.9	5.0	0.0	0.00	22.0	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 4/9/2009
Recorded by: B. Nylic
Weather: 60 deg., Sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.82	0.0	6.79	0.963	7.27	14.71	148.9	15.0	0.0	0.00	24.3	0.00	0.0/0.0
MW-2	87.3	78.18	0.0	6.92	1.248	8.83	14.79	141.1	20.0	0.0	0.00	63.1	0.00	0.0/0.0
MW-3	89.72	76.53	0.0	6.54	1.196	7.18	14.93	148.9	20.0	0.0	0.00	9.4	0.00	0.0/0.0
MW-4	90.02	76.93	0.0	6.93	0.757	6.91	15.27	139.5	20.0	0.0	0.00	16.0	0.00	0.0/0.0
MW-5	95.1	79.02	0.0	7.40	0.417	4.39	15.42	125.9	15.0	0.0	0.00	46.2	0.00	0.0/0.0
PTW-1	115	77.98	0.0	7.66	0.047	5.19	15.10	97.6	10.0	0.0	0.00	19.4	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 4/16/2009
Recorded by: B. Nylic
Weather: 50 deg., Sunny

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
MW-1	86.9	77.83	0.0	6.64	0.981	5.51	14.71	143.3	15.0	0.0	0.00	20.4	0.00	0.0/0.0
MW-2	87.3	78.24	0.0	6.95	1.299	6.89	14.63	135.1	15.0	0.0	0.00	30.3	0.00	0.0/0.0
MW-3	89.72	76.61	0.0	6.55	1.185	5.23	14.79	145.5	10.0	0.0	0.09	13.2	0.00	0.0/0.0
MW-4	90.02	76.98	0.0	6.99	0.744	3.68	15.01	134.4	15.0	0.0	0.01	401.0	0.00	0.0/0.0
MW-5	95.1	79.02	0.0	7.86	0.157	2.95	15.50	120.1	10.0	0.0	0.02	65.0	0.00	0.0/0.0
PTW-1	115	78.07	0.0	7.83	0.043	3.75	14.81	91.7	10.0	0.0	0.00	81.3	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

NYSDEC Contract #D-004437-9
Ronhill Cleaners
71 Forest Avenue
Glen Cove, NY

Date: 4/22/2009
Recorded by: EK/SO
Weather: 50 degrees -Rain

Field Parameters
Ozone Pilot Test
Site No. 1-30-071

Well I.D.	Well Depth (ft bgs)	Depth to Water (ft)	PID (ppm)	pH	Cond. (mS/cm)	DO (mg/L)	Temp (C°)	ORP (mV)	Dissolv. CO_2 (mg/L)	CO_2 Gas	Dissolved Iron (mg/L)	Turbidity (ntu)	Dissolved Ozone (mg/L)	Ozone Gas (Subsurface /Ambient)
Monitoring Wells														
PTW-1	115	77.98	0.0	5.86	0.862	19.99	18.48	172.0	10.0	NA	0.10	200.0	0.00	0.0/0.0
MW-1	86.9	77.76	0.0	5.89	0.697	9.74	17.66	160.0	20.0	NA	0.24	300.0	0.00	0.0/0.0
MW-2	87.3	78.17	0.0	5.93	0.523	18.39	17.23	172.0	15.0	NA	0.43	102.0	0.00	0.0/0.0
MW-3	89.72	76.53	0.0	5.87	0.839	6.66	19.83	181.0	15.0	NA	0.11	32.7	0.00	0.0/0.0
MW-4	90.02	76.87	0.0	5.77	0.505	13.75	19.17	191.0	20.0	NA	0.23	65.5	0.00	0.0/0.0
MW-5	95.1	79.05	0.0	6.04	0.404	4.03	18.80	120.0	15.0	NA	0.45	56.1	0.00	0.0/0.0
Vapor Observation Wells														
VOW-1S	10.9	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1M	46.1	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-1D	84	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2M	46.6	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-2D	71.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3S	X	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-3D	63.3	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4S	11.2	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4M	43.5	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
VOW-4D	66	X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
1-Hour Photo		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0
Payless Shoe		X	X	X	X	X	X	X	X	X	X	X	X	0.0/0.0

Appendix C

Data Usability Summary Report (DUSR)

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected August 26th – 27th, 2008
Samples Received August 28, 2008
Sample Delivery Group: Z4334 – Chemtech
Laboratory Reference Numbers:

Z4334-01	SV-1D
Z4334-01 DL	SV-1D DL
Z4334-02	SV-1S
Z4334-02 DL	SV-1S DL
Z4334-02 DL2	SV-1S DL2
Z4334-03	SV-1SDUP
Z4334-03 DL	SV-1SDUP DL
Z4334-03 DL2	SV-1SDUP DL2
Z4334-04	SV-1S
Z4334-04 DL	SV-1S DL
Z4334-04 DL2	SV-1S DL2
Z4334-04 DL3	SV-1S DL3
Z4334-05	SV-1D
Z4334-05 DL	SV-1D DL
Z4334-05 DL2	SV-1D DL2

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
- Laboratory Blanks
- Trip Blanks
- Field Blanks
- Storage Blank
* - Surrogate Compound Recoveries
- Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
* - Laboratory Control Sample / Blank Spike
- Compound Identification
- Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

There were some severe discrepancies between the original sample Z4334-02 / SV-1S, its field duplicate (Z4334-03) and the 10X dilution of the field duplicate. These are described in detail below. All of the data for this sample delivery group are highly qualified.

Two internal standard low recoveries are due to laboratory error. There should not be a problem with internal standard recoveries in a dilution when all internal standard recoveries were within the required limits in the undiluted analysis.

The problems with the calibrations, laboratory blanks and laboratory control samples should also be noted.

These are described in detail below.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

The percent RSDs of tert-butyl alcohol (31%) and styrene (34%) were above the 30% quality control limit in the initial calibration associated with samples -04, -05, -05DL, -05DL2, -03DL and -04DL.

The percent difference of tert-butyl alcohol (35%), acetone (37%), 1,1-dichloroetehane (31%) and 2-butanone were above 30% in the continuing calibration associated with the analyses of samples -04, -05, -05DL, -05DL2, -03DL and -04DL.

All of the percent differences in the 9/2 continuing calibration associated with the analyses of samples -03DL2 and -02DL were less than 30% with the following exceptions:

Compound	%D
Methyl Methacrylate	36%
Heptane	40%
Tetrahydrofuran	46%
1,2-Dichloropropane	39%
4-Methyl-2-Pentanone	44%
cis-1,3-Dichloropropene	32%
1,1,2,2-Tetrachloroethane	33%
Hexachloro-1,3-Butadiene	36%

No other problems were detected with any of the calibrations.

All RRF's were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Sample / Blank Spike

The recoveries of 2-butanone (140%), heptane (131%), and styrene (132%) were above the 130% quality control limit in LCS BSL0904A associated with samples -04, -05, -05DL, -05DL2, -03DL and -04DL.

All of the recoveries in the laboratory control sample associated with samples -03DL2 and -02DL were within the 70% - 130% quality control limits with the following exceptions:

Compound	% Rec.
Heptane	141%
Tetrahydrofuran	142%
1,2-Dichloropropane	139%
4-Methyl-2-Pentanone	145%
1,1,2,2-Tetrachloroethane	135%
Hexachloro-1,3-Butadiene	59%

All of the compounds with high recoveries were qualified when they were detected in a sample. Non detects were not qualified since high recoveries do not affect undetected data.

The data for hexachloro-1,3 butadiene were flagged with the "J" qualifier and are estimated values.

All other blank spike recoveries were within the required limits.

Method Blanks

A low concentration of acetone (0.38 ppbv) was detected in the method blank associated with samples-03DL2 and -02DL.

Low concentrations of 2-butanone (0.13 ppbv) and acetone (0.31 ppbv) were detected in the method blank associated with samples -04, -05, -05DL, -05DL2, -03DL and -04DL.

A low concentration of methylene chloride was detected in the 9/18 method blank associated with sample -04DL3.

When one of these compounds were detected in these samples, concentrations in the samples less than 5X the concentration in the blank were flagged with the "U" qualifier.

Concentrations in the samples more than 5X the concentration in the blank were too high to be affected by the blank contamination.

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%) with the following exceptions:

The recovery of the first internal standard (58%) in sample Z4334-01DL / SV-1DDL was less than the 60% quality control limit.

The recovery of the third internal standard (58%) in sample Z4334-02 DL2 / SV-1S DL2 was less than the 60% quality control limit.

Both of these low recoveries are due to laboratory error. There should not be a problem with internal standard recoveries in a dilution when all internal standard recoveries were within the required limits in the undiluted analysis.

None of the compounds quantitated against these internal standards were detected in the samples and the low recoveries do not affect the use of the data.

Sample Results

Samples Z4334-02 / SV-1S and its field duplicate Z4334-03 / SV-1SDUP

There were some severe discrepancies between the original sample. Its duplicate and the 10X dilution of the duplicate:

	SV-1S Z4334-02		SV-1SDUP Z4334-03		SV-1SDUP Z4334-03	
	1X ppbv		1X ppbv		10X ppbv	
1,1,2-Trichlorotrifluoroethane	0.11		0.15		7.9	D
Heptane	8.54		1.99		1.8	D
Acetone	8.65		19	E	97.1	D
Carbon Disulfide	0.015	U	1.75		2.5	D
Methylene Chloride	0.75		1.3		12.4	D
1,1-Dichloroethane	0.024	U	0.024	U	7.7	D
Cyclohexane	5.38		2.62		1.4	D
2-Butanone	1.23		1.35		35.8	D
cis-1,2-Dichloroethene	0.23		0.92		2.5	D
Chloroform	1.79		1.6		7.1	D
1,1,1-Trichloroethane	0.022	U	0.18		21.2	D
2,2,4-Trimethylpentane	10.9		0.97		0.25	U
Trichloroethene	1.31		2.55		239	ED
4-Methyl-2-Pentanone	0.05	U	0.05	U	11.1	D
Toluene	27	E	10.4		215	ED
Tetrachloroethene	318	E	650	E	1100	ED
Chlorobenzene	0.026	U	0.32		3.1	D
Ethyl Benzene	3.64		0.65		16.1	D
m/p-Xylene	13.7		2.22		72.7	D
o-Xylene	4.65		0.67		12.8	D
1,3,5-Trimethylbenzene	0.9		0.21		0.35	U
1,2,4-Trimethylbenzene	3.21		0.8		2	D

The laboratory was contacted and this response was received in 12/2008:

Upon complete review of the data in question, it seems that Sample Z4334-03 shows variation in the concentrations of mostly the chlorinated compounds among the straight and dilution runs. This could be due to matrix effect. The chlorinated compounds may be showing better recovery in the diluted run (10XDF) due to the alleviation of the matrix effect. However, Trichloroethene and Toluene seem to have been diluted out in the 400X dilution and are therefore not detected. The very high concentration of Tetrachloroethene in the sample may also have an effect on the recoveries of the other compounds in the straight run and 10X dilution run.

These extreme discrepancies between both the field duplicities and dilutions of sample SV-1SDUP due not seem likely to be due to matrix affect.

All of the data for this sample delivery group are highly qualified.

Sample Z4334-04 / SV-1S

The concentration of acetone in the original analysis was 4.68B ppbv, but 371 ppbv was reported from the 10X analysis. The laboratory was contacted and this response was received in 12/2008:

Sample Z4334-04 seems to have presence of Acetone as a potential lab contaminant. The Blank associated with the straight run did show presence of

Acetone and hence, it is flagged B. However, the Blank associated with the diluted run did not show the presence of Acetone and hence, it is not flagged B. The concentration of Acetone detected in the diluted run on the quantitation report is at 3.71ppbv and may have been detected due to lab contamination.

Sample Z4334-04 / SV-1S

This sample was analyzed at 200X (DL2) and 400X (DL3) dilutions due to a high concentration of tetrachloroethene.

In the 200X dilution tetrachloroethene was detected at a concentration of 3.49 ppbv which is less than the linear range of 15 ppbv. The concentration when corrected for the dilution is 698 ppbv.

It is not known why a 400X dilution was analyzed. The concentration in the 400X dilution was 6.11 ppbv for a final concentration of 2,444 ppbv.

There should not be this kind of discrepancy between 200X and 400X dilutions when only tetrachloroethene is detected.

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected August 26th – 27th, 2008
Samples Received August 28, 2008
Sample Delivery Group: Z4332 – Chemtech
Laboratory Reference Numbers:

COVE-1A	Z4332-01
COVE-1A DL	Z4332-01 DL
COVE-SS	Z4332-02
COVE-SS DL	Z4332-02 DL
OUTDOORAMBIENT	Z4332-03
SITE-SS	Z4332-04
SITE-SS DL	Z4332-04 DL
SITE-SS DL2	Z4332-04 DL2
SITE-1A	Z4332-06
SITE-1A DL	Z4332-06 DL

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

* * - Data Completeness
* * - GC/MS Tuning
* * - Holding Times
* * - Calibrations
  - Laboratory Blanks
  - Trip Blanks
  - Field Blanks
  - Storage Blank
* * - Surrogate Compound Recoveries
* * - Internal Standard Recoveries
  - Matrix Spike / Matrix Spike Duplicate
* * - Laboratory Control Sample / Blank Spike
* * - Compound Identification
* * - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

No problems were found that would affect the use of the data.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

No problems were detected with any of the calibrations.

All RRF's were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Sample / Blank Spike

All blank spike recoveries were within the required limits.

Method Blanks

Low concentrations of methylene chloride (0.15 ppbv) and acetone (0.15 ppbv) were detected in the method blank associated with samples -03, -01, -01DL, -06, -02DL, -04DL, -02 and -06DL.

When one of these compounds were detected in these samples, the concentrations were too high to be affected by the blank contamination.

No compounds were detected in the method blank associated with samples -04 and -04DL2.

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%).

Sample Results

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: August 27, 2008
Samples Received: August 28, 2008
Sample Delivery Group: Z4328
Laboratory Reference Numbers:

Z4328-01	PTW-1
Z4328-01 DL	PTW-1 DL
Z4328-02	MW-3
Z4328-02 DL	MW-3 DL
Z4328-03	MW-2
Z4328-03 DL	MW-2 DL
Z4328-04	FB082708
Z4328-05	MW-30
Z4328-05 DL	MW-30 DL
Z4328-06	MW-1
Z4328-06 DL	MW-1 DL
Z4328-07	MW-4
Z4328-07 DL	MW-4 DL
Z4328-08	TRIPBLANK
Z4328-09	VHBLK-01

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
- Laboratory Blanks
- Storage / Holding Blank
* - Field Blank
- Trip Blanks
- Deuterated Monitoring Compound Recoveries
* - Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
- Laboratory Control Sample Recoveries
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the calibration and surrogate recoveries should be noted. These are described in detail below.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

All of the samples had at least one deuterated monitoring compound (DMC) outside of the required limits.

The surrogates that were outside of the required limits as well as their recoveries are noted in the data validation summary table.

The problems with the surrogate recoveries may be due to laboratory problems. There should not be surrogate problems in all laboratory and trip blanks.

Undetected compounds associated with DMC's with recoveries less than 20% were flagged with the "R" qualifier and technically rejected.

Detected compounds associated with DMC's with recoveries of less than 20% were flagged with the "J" qualifier and are estimated values.

Compounds associated with DMC's with recoveries between the lower quality control limit and 20% were flagged with the "J" qualifier and are estimated values.

Compounds with high recoveries were only flagged with the “J” qualifier when they were detected in a sample since high recoveries do not affect the usability of undetected data.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs were less than 30%, or 50% for poor performing compounds, in the one initial calibration associated with the analyses of the samples.

All of the percent differences in the 9/5 continuing calibration associated with samples -04, -01DL, -03DL, -07, -06 and -02DL were less than 30%, or 50% for poor performing compounds, with the exception of 1,1,2,2-tetrachloroethane (32%).

All of the percent differences in the 9/56continuing calibration associated with samples -05DL, -06DL, -07DL and -09 were less than 30%, or 50% for poor performing compounds, with the exception of 1,1,2,2-tetrachloroethane (33%).

The data were flagged with the “J” qualifier and are estimated values.

All of the relative responses factors were above their required limits.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

Methylene chloride (0.40J ug/l) was detected in the method blank associated with the trip blank.

Methylene chloride (0.36J ug/l) was detected in the method blank associated with the analyses of samples -01, -02, -03 and -05.

This was not detected in any of the associated samples and the blank contamination does not affect the usability of the data.

Trip Blank

Methylene chloride (0.43J ug/l) was detected in the trip blank. This was not detected in any of the associated samples and the blank contamination does not affect the usability of the data.

Field Blank

No compounds were detected in the field blank.

Storage Blank

Methylene chloride (0.44J ug/l) was detected in the holding / storage blank. This was not detected in any of the associated samples and the blank contamination does not affect the usability of the data.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits.

Sample Results

Several samples were reanalyzed at a dilution due to high concentrations of tetrachloroethene. The data for this compound should be reported from the diluted analyses.

No other problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: August 27, 2008
Samples Received: August 28, 2008
Sample Delivery Group: Z4328
Laboratory Reference Numbers:

Z4328-01	PTW-1
Z4328-01 MS	PTW-1 MS
Z4328-01 MD	PTW-1 MD
Z4328-02	MW-3
Z4328-03	MW-2
Z4328-04	FB082708
Z4328-05	MW-30
Z4328-06	MW-1
Z4328-07	MW-4

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
  - Chloride
  - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The contamination problems in the field blank and the high spike recoveries of chloride (188%) and bromate (3,520%) should be noted.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

The field blank contained low levels of COD (19 mg/l), alkalinity (3.6 mg/l) and bromate (1.61 mg/l).

When these compounds were detected in a sample at a concentration less than 5X the concentration in the field blank, the data were flagged with the “J” qualifier and are estimated values.

Matrix Spike Recovery

Sample Z4328-01 (PTW-1) was used as the matrix spike for most of the analyses.

All recoveries were within the 75% - 125% quality control limits with the exceptions of chloride (188%) and bromate (3,520%). The laboratory’s case narrative states that the high recoveries were due to matrix interference. The chloride matrix spike was analyzed at a 50X dilution and the bromate matrix spike was analyzed at a 100X dilution.

The data for these compounds were flagged with the “J” qualifier and are estimated values.

Several other samples of this sample deliver group were used for matrix spikes for some parameters.

All other recoveries were within the required limits.

Duplicate Analysis

Sample Z4328-01 (PTW-1) was used as the matrix duplicate for most of the analyses.

Several other samples of this sample deliver group were used for matrix duplicates for some parameters.

All %Ds that could be accurately calculated were less than the 20% quality control limit.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Water Iron and Manganese Analyses
Samples Collected: August 27, 2008
Samples Received: August 28, 2008
Sample Delivery Group: Z4328
Laboratory Reference Numbers:

Z4328-01	PTW-1
Z4328-01 MS	PTW-1 MS
Z4328-01 MD	PTW-1 MD
Z4328-02	MW-3
Z4328-03	MW-2
Z4328-04	FB082708
Z4328-05	MW-30
Z4328-06	MW-1
Z4328-06 MS	MW-1 MS
Z4328-06 MD	MW-1 MD
Z4328-07	MW-4

Water samples were validated for inorganic analyses by the US EPA Region II data validation SOP (HW-2, Revision 13). Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - Holding Times
* - Calibration Verification
* - CRDL Standard
* - Laboratory Control Sample
* - Serial Dilutions
* - Calibration Blanks
* - Field Blank
* - Preparation Blanks
* - Matrix Spike
* - Duplicate Analyses
* - ICP Interference Check Sample
* - Detection Limit Results
* - Linear Range
* - Sample Results

* - Indicates that all criteria were met for this parameter.

Data Validation Summary

No problems were detected with the analyses.

Holding Times

All samples were analyzed within the required holding times.

CRDL Standards

No problems were detected with the CRDL standards.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Preparation Blank

No compounds were detected in the one preparation blank associated with the digestions of these samples at concentrations above the CRDL. Several analytes were found in the preparation blank at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table.

Calibration Blanks

Several analytes were found in the continuing calibration blanks at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table and do not affect the end use of the data.

Field Blank

Neither analyte was detected in the field blank.

ICP Interference Check Sample

No problems were detected with the reported ICP Interference Check Sample recoveries.

Matrix Spike Recovery

Samples Z4328-06 (MW-1) and Z4328-01 (PTW-1) were used as the matrix spike and matrix spike duplicate. All recoveries and RPDs were within the required limits.

Duplicate Analysis

Samples Z4328-06 (MW-1) and Z4328-01 (PTW-1) were used as the matrix duplicate. All RPDs were within the required limits.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Serial Dilutions

Samples Z4328-06 (MW-1) and Z4328-01 (PTW-1) were used as the serial dilutions. All percent differences that could be accurately calculated were within the required limits.

Instrument Detection Limit

No problems were found with the instrument detection limits.

ICP Linear Ranges

No problems were detected with the linear ranges.

Sample Results

No problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: November 3, 2008
Samples Received: November 4, 2008
Sample Delivery Group: Z5257
Laboratory Reference Numbers:

Z5257-01	MW-5
Z5257-01 DL	MW-5 DL
Z5257-02	FB-081103
Z5257-03	TRIPBLANK
Z5257-04	VHBLK

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* * - Data Completeness
* * - GC/MS Tuning
* * - Holding Times
* * - Calibrations
* * - Laboratory Blanks
* * - Storage / Holding Blank
  - Field Blank
* * - Trip Blank
* * - Deuterated Monitoring Compound Recoveries
* * - Internal Standard Recoveries
  - Matrix Spike / Matrix Spike Duplicate
  - Laboratory Control Sample Recoveries
* * - Compound Identification
* * - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

No problems were found that would affect the use of the data.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

All of the DMC recoveries were within the required limits.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs were less than 30%, or 50% for poor performing compounds, in the one initial calibration associated with the analyses of the samples.

A continuing calibration was not analyzed.

All of the relative responses factors were above their required limits.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No compounds were detected in the method blank.

Trip Blank

No compounds were detected in the trip blank.

Field Blank

Methylene chloride (1.81J ug/l) was detected in the field blank. This was not detected in any of the associated samples and the blank contamination does not affect the usability of the data.

Storage Blank

No compounds were detected in the storage / holding blank.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits.

Sample Results

The sample reanalyzed at a dilution due to a high concentration of tetrachloroethene. The data for this compound should be reported from the diluted analyses.

No other problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: November 3, 2008
Samples Received: November 4, 2008
Sample Delivery Group: Z5257
Laboratory Reference Numbers:

Z5257-01	MW-5
Z5257-01 MS	MW-5 MS
Z5257-01 MD	MW-5 MD
Z5257-02	FB-081103

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* - Total Dissolved Solids
* - Chemical Oxygen Demand
* - Alkalinity
* - Total Organic Carbon
- Chloride
* - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The contamination problems in the field blank and the low spike recovery of chloride (64%) should be noted.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

The field blank contained low levels of alkalinity (8 mg/l) and chloride (4.64 mg/l).

When these compounds were detected in a sample at a concentration above the concentration in the field blank, but less than 5X the concentration in the field blank, the data were flagged with the “J” qualifier and are estimated values.

If the concentration in the sample was less than the concentration in the field blank that data were flagged with the “U” qualifier.

Matrix Spike Recovery

Sample Z5257-01 / MW-5 was used as the matrix spike for COD, bromate, chloride and TOC.

All recoveries were within the 75% - 125% quality control limits with the exception of chloride (64%).

The data for chloride were flagged with the “J” qualifier and are estimated values.

All other recoveries were within the required limits.

The field blank was used as the matrix spike for the alkalinity analysis. A field blank should not be used as a matrix spike.

Duplicate Analysis

Sample Z5257-01 / MW-5 was used as the matrix duplicate for COD, bromate, chloride and TOC.

The field blank was used as the matrix duplicate for the alkalinity analysis. A field blank should not be used as a matrix spike.

All RPDs that could be accurately calculated were less than the 20% quality control limit.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Water Iron and Manganese Analyses
Samples Collected: November 3, 2008
Samples Received: November 4, 2008
Sample Delivery Group: Z5257
Laboratory Reference Numbers:

Z5257-01	MW-5
Z5257-02	FB-081103

Water samples were validated for inorganic analyses by the US EPA Region II data validation SOP (HW-2, Revision 13). Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - Holding Times
* - Calibration Verification
* - CRDL Standard
* - Laboratory Control Sample
* - Serial Dilutions
* - Calibration Blanks
* - Field Blank
* - Preparation Blanks
* - Matrix Spike
* - Duplicate Analyses
* - ICP Interference Check Sample
* - Detection Limit Results
* - Linear Range
* - Sample Results

* - Indicates that all criteria were met for this parameter.

Data Validation Summary

No problems were detected with the analyses.

Holding Times

All samples were analyzed within the required holding times.

CRDL Standards

No problems were detected with the CRDL standards.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Preparation Blank

No compounds were detected in the one preparation blank associated with the digestions of these samples at concentrations above the CRDL. Several analytes were found in the preparation blank at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table.

Calibration Blanks

Several analytes were found in the continuing calibration blanks at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table and do not affect the end use of the data.

Field Blank

Neither analyte was detected in the field blank.

ICP Interference Check Sample

No problems were detected with the reported ICP Interference Check Sample recoveries.

Matrix Spike Recovery

Samples Z4328-06 (MW-1) and Z4328-01 (PTW-1) were used as the matrix spike and matrix spike duplicate. All recoveries and RPDs were within the required limits.

Duplicate Analysis

Samples Z4328-06 (MW-1) and Z4328-01 (PTW-1) were used as the matrix duplicate. All RPDs were within the required limits.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Serial Dilutions

Samples Z4328-06 (MW-1) and Z4328-01 (PTW-1) were used as the serial dilutions. All percent differences that could be accurately calculated were within the required limits.

Instrument Detection Limit

No problems were found with the instrument detection limits.

ICP Linear Ranges

No problems were detected with the linear ranges.

Sample Results

No problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: April 22, 2009
Samples Received: April 23, 2009
Sample Delivery Group: A2435
Laboratory Reference Numbers:

MW-3-R5	A2435-01
MW-3-R5 DL	A2435-01 DL
MW-1-R5	A2435-02
MW-1-R5 DL	A2435-02 DL
MW-11-R5	A2435-03
MW-11-R5 DL	A2435-03 DL
MW-2-R5	A2435-04
MW-2-R5 DL	A2435-04 DL
MW-4-R5	A2435-05
MW-4-R5 DL	A2435-05 DL
PTW-1-R5	A2435-06
MW-5-R5	A2435-07
FIELD BLANK	A2435-08
TRIP BLANK	A2435-09
VHBLK01	A2435-10

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* * - Data Completeness
* * - GC/MS Tuning
* * - Holding Times
  - Calibrations
* * - Laboratory Blanks
  - Field Blank
* * - Storage / Holding Blank
* * - Trip Blank
  - Deuterated Monitoring Compound Recoveries
* * - Internal Standard Recoveries
  - Matrix Spike / Matrix Spike Duplicate
  - Laboratory Control Sample Recoveries
* * - Compound Identification
* * - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the deuterated monitoring compound recoveries should be noted. The problems are likely due to problems with the laboratory instrumentation. There should not be recovery problems in blanks.

The minor problems with the calibrations and field blank should also be noted.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

The following samples had at least one deuterated monitoring compound (DMC) outside of the required limits:

MW-3-R5	A2435-01
MW-1-R5	A2435-02
MW-2-R5 DL	A2435-04 DL
VHBLK01	A2435-10

The surrogates that were outside of the required limits as well as their recoveries are noted in the data validation summary table.

The problems with the surrogate recoveries may be due to laboratory problems. There should not be surrogate problems in a laboratory blank.

Compounds associated with DMC's with recoveries between the lower quality control limit and 20% were flagged with the "J" qualifier and are estimated values.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %Ds were less than 30%, or 50% for poor performing compounds, in the one 4/01 continuing calibration associated with samples -05DL, -04DL, -01, -01DL, -02, -02DL and -10 with the exception of bromoform (32%).

No other problems were found with the calibrations.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No target compounds were detected in the method blanks.

The non-target compound phosgene was also detected in blank VBLK01 (0.88J ug/l). This was detected in several of the samples at a similar concentration.

Trip Blank

No compounds were detected in the trip blank.

Field Blank

Methylene chloride (0.32 ug/l) was detected in the field blank.

This compound was not detected in any of the samples and the blank contamination does not affect the use of the data.

The non-target compound phosgene was also detected in the field blank (0.8J ug/l). This was detected in several of the samples at a similar concentration.

Storage Blank

No target compounds were detected in the holding blank.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits (60% - 140%) with the following exceptions:

		IS #1	IS #2	IS #3
MW-1 DL	A2020-01 DL			54%
MW-3 DL	A2020-02 DL			52%
MW-2 DL	A2020-03 DL			50%
PTW-1	A2020-04			50%
PTW-1 RE	A2020-04 RE			57%
PTW-1X	A2020-05			51%
PTW-1X RE	A2020-05 RE			56%
MW-4 DL	A2020-06 DL			58%
MW-5	A2020-07	200%	220%	
MW-5 RE	A2020-07 RE			52%
FB032509	A2020-08			51%
FB032509 RE	A2020-08 RE			55%
TRIP BLANK	A2020-09			47%
TRIP BLANK RE	A2020-09 RE			52%
VHBLK01	A2020-10			52%
VHBLK01 RE	A2020-10 RE			51%

The excessive problems with the internal standard recoveries are due to problems with the laboratory instrumentation. There should not be internal standard recovery problems in blanks and diluted samples where the recoveries were within the

required limits in the undiluted analysis. Also the recoveries in the reanalysis of sample MW-5 should not be so different.

Compounds with high recoveries were only flagged with the “J” qualifier when they were detected in a sample since high recoveries do not affect the usability of undetected data.

The compounds that were quantitated against internal standards with low recoveries were flagged with the “J” qualifier and are estimated values.

It is recommended that the data from the initial reporting be used for final reporting with the one exception of MW-5. (A2020-07). The data from the reanalysis should be used for the final reporting since most of the compounds were quantitated against the first and second internal standards.

Sample Results

No other problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: February 10, 2009
Samples Received: February 11, 2009
Sample Delivery Group: A1467
Laboratory Reference Numbers:

MW-3-ROUND3	A1467-01
MW-3-ROUND3 MS	A1467-01 MS
MW-3-ROUND3 MD	A1467-01 MD
MW103-ROUND3	A1467-02
MW-1-ROUND3	A1467-03
MW-2-ROUND3	A1467-04
MW-4-ROUND3	A1467-05
PTW-1-ROUND3	A1467-06
MW-5-ROUND3	A1467-07
FB-21009	A1467-08

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
* * - Chloride
  - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the matrix spike recoveries should be noted. These are described in detail below.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

A low concentration of alkalinity (3.6 mg/l) was detected in the field blank.

All of the alkalinity concentrations in the samples were too high to be affected by the field blank contamination.

Matrix Spike Recovery

Sample MW-3-ROUND3 (A1467-01) was used as the matrix spike for TDS, TOC, chloride and bromate.

Sample PTW-1-ROUND3 (A1467-06) was used for the matrix spike for alkalinity.

All recoveries were within the required 75% - 125% quality control limits with the exceptions of bromate (130%)

The data for bromide were only qualified when it was detected in sample since high recoveries do not affect undetected data.

A sample from another delivery group was used for the matrix spike for the COD analyses.

Duplicate Analysis

Sample MW-3-ROUND3 (A1467-01) was used as the matrix duplicate for TDS, TOC, chloride and bromate.

Sample PTW-1-ROUND3 (A1467-06) was used for the matrix duplicate for alkalinity.

A sample from another delivery group was used for the matrix duplicate for the COD analyses.

All %RSDs were within the required quality control limits.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

The bromate raw data were not found in the data package.

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Water Iron and Manganese Analyses
Samples Collected: April 22, 2009
Samples Received: April 23, 2009
Sample Delivery Group: A2435
Laboratory Reference Numbers:

MW-3-R5	A2435-01
MW-1-R5	A2435-02
MW-11-R5	A2435-03
MW-2-R5	A2435-04
MW-4-R5	A2435-05
PTW-1-R5	A2435-06
MW-5-R5	A2435-07
FIELD BLANK	A2435-08

Water samples were validated for inorganic analyses by the US EPA Region II data validation SOP (HW-2, Revision 13). Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - Holding Times
* - Calibration Verification
* - CRDL Standard
* - Laboratory Control Sample
  - Serial Dilutions
* - Calibration Blanks
* - Field Blank
* - Preparation Blanks
  - Matrix Spike
  - Duplicate Analyses
* - ICP Interference Check Sample
* - Detection Limit Results
* - Linear Range
* - Sample Results

* - Indicates that all criteria were met for this parameter.

Data Validation Summary

No problems were detected with the analyses.

Holding Times

All samples were analyzed within the required holding times.

CRDL Standards

No problems were detected with the CRDL standards.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Preparation Blank

No compounds were detected in the one preparation blank associated with the digestions of these samples at concentrations above the CRDL. Several analytes were found in the preparation blank at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table.

Calibration Blanks

Several analytes were found in the continuing calibration blanks at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table and do not affect the end use of the data.

Field Blank

No analytes were detected in the field blank.

ICP Interference Check Sample

No problems were detected with the reported ICP Interference Check Sample recoveries.

Matrix Spike Recovery

A sample from another project was used for the matrix spike. The data were not reviewed during the validation.

Duplicate Analysis

A sample from another project was used for the matrix duplicate. The data were not reviewed during the validation.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Serial Dilutions

A sample from another project was used for the serial dilution. The data were not reviewed during the validation.

Instrument Detection Limit

No problems were found with the instrument detection limits.

ICP Linear Ranges

No problems were detected with the linear ranges.

Sample Results

No problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected: April 6, 2009
Samples Received: April 8, 2009
Sample Delivery Group: A2219 – Chemtech
Laboratory Reference Numbers:

RONHILL-09-AA-05	A2219-01
RONHILL-09-SS-02	A2219-02
RONHILL-09-SS-02 DL	A2219-02 DL
RONHILL-09-IA-01	A2219-03
RONHILL-09-IA-01DL	A2219-03 DL
RONHILL-09-SS-01	A2219-04

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
* - Laboratory Blanks
- Trip Blanks
- Field Blanks
- Storage Blank
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
- Laboratory Control Sample
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The minor problem with the calibrations and laboratory control samples should be noted.

No other problems were found that would affect the use of the data.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

All of the %RSDs in the initial calibration associated with the analyses of samples all the samples were less than 30% with the exception of 1,3-dichlorobenzene (32%).

All of the percent differences in the 4/15 continuing calibration associated with the analyses of all the samples were less than 30% with the exception of 1,2,4-trichlorobenzene (43%).

The data for these compounds were flagged with the “J” qualifier and are estimated values.

All RRF’s were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Samples

All laboratory control sample recoveries were within the required limits in the LCS associated with the analyses of all of the samples with the exception of Hexachloro-1,3-butadiene (158%).

This compound was not detected in the samples and the high recovery does not affect undetected data.

Method Blanks

No compounds were detected in the method blanks

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%).

Sample Results

Several samples were analyzed at a 10X dilution due to high concentrations of target compounds. The data from the diluted analysis should be used for the final reporting.

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: March 25, 2009
Samples Received: March 26, 2009
Sample Delivery Group: A2020
Laboratory Reference Numbers:

MW-1	A2020-01
MW-1 DL	A2020-01 DL
MW-3	A2020-02
MW-3 DL	A2020-02 DL
MW-2	A2020-03
MW-2 DL	A2020-03 DL
PTW-1	A2020-04
PTW-1 RE	A2020-04 RE
PTW-1X	A2020-05
PTW-1X RE	A2020-05 RE
MW-4	A2020-06
MW-4 DL	A2020-06 DL
MW-5	A2020-07
MW-5 RE	A2020-07 RE
FB032509	A2020-08
FB032509 RE	A2020-08 RE
TRIP BLANK	A2020-09
TRIP BLANK RE	A2020-09 RE
VHBLK01	A2020-10
VHBLK01 RE	A2020-10 RE

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
* - Laboratory Blanks
- Storage / Holding Blank
0 - Field Blank
- Trip Blank
- Deuterated Monitoring Compound Recoveries
- Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
- Laboratory Control Sample Recoveries
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The excessive problems with the deuterated monitoring compound and internal standard recoveries should be noted. The excessive problems are due to problems with the laboratory instrumentation. There should not be recovery problems in blanks and diluted samples where the recoveries were within the required limits in the undiluted analysis.

The data should have been reanalyzed by the laboratory before the report was released.

The problems with the calibrations, field blank and trip blanks should also be noted.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

The following samples had at least one deuterated monitoring compound (DMC) outside of the required limits:

MW-1	A2020-01
MW-1 DL	A2020-01 DL
MW-3	A2020-02
MW-3 DL	A2020-02 DL
PTW-1	A2020-04
PTW-1 RE	A2020-04 RE
PTW-1X RE	A2020-05 RE
MW-4 DL	A2020-06 DL
MW-5	A2020-07
MW-5 RE	A2020-07 RE
FB032509 RE	A2020-08 RE
TRIP BLANK RE	A2020-09 RE
VHBLK01	A2020-10
VHBLK01 RE	A2020-10 RE

The surrogates that were outside of the required limits as well as their recoveries are noted in the data validation summary table.

The problems with the surrogate recoveries may be due to laboratory problems. There should not be surrogate problems in laboratory and trip and field blanks.

Undetected compounds associated with DMC's with recoveries less than 20% were flagged with the "R" qualifier and technically rejected.

Detected compounds associated with DMC's with recoveries of less than 20% were flagged with the "J" qualifier and are estimated values.

Compounds associated with DMC's with recoveries between the lower quality control limit and 20% were flagged with the "J" qualifier and are estimated values.

Compounds with high recoveries were only flagged with the “J” qualifier when they were detected in a sample since high recoveries do not affect the usability of undetected data.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs were less than 30%, or 50% for poor performing compounds, in the one initial calibration with the exceptions of 1,2,4-trichlorobenzene (32%) and 1,2,3-trichlorobenzene (31%).

All of the %Ds were less than 30%, or 50% for poor performing compounds, in the 4/01 continuing calibration associated with samples 01DL, -02DL, -05, -04, -03DL, -09 and -08 with the exception of tetrachloroethene (47%).

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No compounds were detected in the method blanks.

Trip Blank

Methylene chloride (0.52 ug/l) was detected in the trip blank.

This compound was not detected in any of the samples and the blank contamination does not affect the use of the data.

Field Blank

Methylene chloride (0.72 ug/l) was detected in the field blank.

This compound was not detected in any of the samples and the blank contamination does not affect the use of the data.

The non-target compound phosgene was also detected in the field blank (0.8J ug/l). This was detected in several of the samples at a similar concentration.

Storage Blank

No target compounds were detected in the holding blank.

The non-target compound phosgene was also detected in the field blank (0.68J ug/l). This was detected in several of the samples at a similar concentration.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits (60% - 140%) with the following exceptions:

		IS #1	IS #2	IS #3
MW-1 DL	A2020-01 DL			54%
MW-3 DL	A2020-02 DL			52%
MW-2 DL	A2020-03 DL			50%
PTW-1	A2020-04			50%
PTW-1 RE	A2020-04 RE			57%
PTW-1X	A2020-05			51%
PTW-1X RE	A2020-05 RE			56%
MW-4 DL	A2020-06 DL			58%
MW-5	A2020-07	200%	220%	
MW-5 RE	A2020-07 RE			52%
FB032509	A2020-08			51%
FB032509 RE	A2020-08 RE			55%
TRIP BLANK	A2020-09			47%
TRIP BLANK RE	A2020-09 RE			52%
VHBLK01	A2020-10			52%
VHBLK01 RE	A2020-10 RE			51%

The excessive problems with the internal standard recoveries are due to problems with the laboratory instrumentation. There should not be internal standard recovery problems in blanks and diluted samples where the recoveries were within the required limits in the undiluted analysis. Also the recoveries in the reanalysis of sample MW-5 should not be so different.

Compounds with high recoveries were only flagged with the “J” qualifier when they were detected in a sample since high recoveries do not affect the usability of undetected data.

The compounds that were quantitated against internal standards with low recoveries were flagged with the “J” qualifier and are estimated values.

Sample Results

No other problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: March 25, 2009
Samples Received: March 26, 2009
Sample Delivery Group: A2020
Laboratory Reference Numbers:

MW-1	A2020-01
MW-1 MS	A2020-01 MS
MW-1 MD	A2020-01 MD
MW-3	A2020-02
MW-2	A2020-03
PTW-1	A2020-04
PTW-1X	A2020-05
MW-4	A2020-06
MW-5	A2020-07
FB032509	A2020-08

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
  - Chloride
  - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the matrix spike recoveries should be noted. These are described in detail below.

The bromate raw data were not found in the data package this was received from the laboratory by email on 7/22/2009.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

A low concentration of alkalinity (3.2 mg/l) was detected in the field blank.

All of the alkalinity concentrations in the samples were too high to be affected by the field blank contamination.

Matrix Spike Recovery

Sample MW-1 (A2020-01) was used as the matrix spike for all of the parameters.

The laboratory originally reported a chloride spike recovery of 8.4% for a chloride analysis with a 50X dilution. During the validation, a recovery of 86% was calculated. The laboratory revised their summary form in the 7/22/2009 email.

The laboratory originally reported a bromide spike recovery of 140%. The recovery was recalculated as 70% in the laboratory's 7/22/2009 email.

All of the bromate data were flagged with the "J" qualifier and are estimated values.

All other recoveries were within the required 75% - 125% quality control limits.

Duplicate Analysis

Sample MW-1 (A2020-01) was used as the matrix duplicate for all of the parameters.

All %RSDs were within the required quality control limits.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

The bromate raw data were not found in the data package. They were received from the laboratory in their 7/22/2009 email.

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Water Iron and Manganese Analyses
Samples Collected: March 25, 2009
Samples Received: March 26, 2009
Sample Delivery Group: A2020
Laboratory Reference Numbers:

MW-1	A2020-01
MW-3	A2020-02
MW-2	A2020-03
PTW-1	A2020-04
PTW-1X	A2020-05
MW-4	A2020-06
MW-5	A2020-07
FB032509	A2020-08

Water samples were validated for inorganic analyses by the US EPA Region II data validation SOP (HW-2, Revision 13). Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - Holding Times
* - Calibration Verification
* - CRDL Standard
* - Laboratory Control Sample
- Serial Dilutions
* - Calibration Blanks
- Field Blank
* - Preparation Blanks
- Matrix Spike
- Duplicate Analyses
* - ICP Interference Check Sample
* - Detection Limit Results
* - Linear Range
* - Sample Results

* - Indicates that all criteria were met for this parameter.

Data Validation Summary

The problems with the field blank should be noted.

No other problems were detected with the analyses.

Holding Times

All samples were analyzed within the required holding times.

CRDL Standards

No problems were detected with the CRDL standards.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Preparation Blank

No compounds were detected in the one preparation blank associated with the digestions of these samples at concentrations above the CRDL. Several analytes were found in the preparation blank at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table.

Calibration Blanks

Several analytes were found in the continuing calibration blanks at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table and do not affect the end use of the data.

Field Blank

Both iron (28.1J ug/l) and manganese (10.3 ug/l) were detected in the field blank.

When the concentration of iron or manganese in the sample was less than 10X the concentration on the field blank, but greater than the CRDL the data were flagged with the “J” qualifier and is an estimated value.

When either analyte was present at a concentration less than the CRDL it should be reported at the CRDL and flagged with the “U” qualifier.

ICP Interference Check Sample

No problems were detected with the reported ICP Interference Check Sample recoveries.

Matrix Spike Recovery

A sample from another project was used for the matrix spike. The data were not reviewed during the validation.

Duplicate Analysis

A sample from another project was used for the matrix duplicate. The data were not reviewed during the validation.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Serial Dilutions

A sample from another project was used for the serial dilution. The data were not reviewed during the validation.

Instrument Detection Limit

No problems were found with the instrument detection limits.

ICP Linear Ranges

No problems were detected with the linear ranges.

Sample Results

No problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected: March 18th & 19th, 2009
Samples Received: March 19th & 21st, 2009
Sample Delivery Group: A1964 – Chemtech
Laboratory Reference Numbers:

Collected 3/18	
A1964-01	RONHILL-07-IA-01
A1964-02	RONHILL-07-IA-02
A1964-02DL	RONHILL-07-IA-02DL
A1964-03	RONHILL-AA-03 AIR
A1964-04	RONHILL-07-SS-01
Collected 3/19	
A1964-05	RONHILL-08-IA-02
A1964-05DL	RONHILL-08-IA-02DL
A1964-06	RONHILL-08-SS-01
A1964-07	RONHILL-08-IA-01
A1964-08	RONHILL-AA-04

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
* - Laboratory Blanks
- Trip Blanks
- Field Blanks
- Storage Blank
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
- Laboratory Control Sample
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The minor problem with the calibrations and laboratory control samples should be noted.

No problems were found that would affect the use of the data.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

All of the %RSDs in the initial calibration associated with the analyses of samples all the samples were less than 30% with the exception of 1,2,4-trichlorobenzene (32%).

All of the percent differences in the 4/1 continuing calibration associated with the analyses of samples -05DL, -06 and -07 were less than 30% with the exception of styrene (31%).

The data for these compounds were flagged with the “J” qualifier and are estimated values.

All RRF’s were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Samples

All blank spike recoveries were within the required limits in the LCS associated with the analyses of samples -05DL, -06 and -07 with the exceptions of 4-ethyltoluene (131%) and 1,2,4-trichlorobenzene (139%).

Neither of these compounds were detected in the samples and the high recoveries do not affect undetected data.

Method Blanks

No compounds were detected in the method blanks

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%).

Sample Results

Sample A1964-05 (RONHILL-08-IA-02)

Acetone was detected in the undiluted analysis at a concentration of 17.1 ppbv which is just above the 15 ppbv linear range.

This sample was analyzed at a 10X dilution and a concentration of 13.7 ppbv was obtained.

It is recommended that the data from the original analysis be used for the final reporting for this compound. The data were flagged with the “EJ” qualifier and are estimated values.

Several other samples were analyzed at a dilution due to high concentrations of target compounds. In all other cases, the data from the diluted analysis should be used for the final reporting.

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected: March 18, 2009
Samples Received: March 19, 2009
Sample Delivery Group: A1939– Chemtech
Laboratory Reference Numbers:

A1939-01	RONHILL-03-IA-01
A1939-01 DL	RONHILL-03-IA-01 DL
A1939-02	RONHILL-06-SS-01
A1939-03	RONHILL-03-IA-01
A1939-04	RONHILL-05-IA-03
A1939-05	RONHILL-04-SS-02
A1939-05 DL	RONHILL-04-SS-02 DL
A1939-06	RONHILL-05-IA-02
A1939-07	RONHILL-06-IA-01
A1939-07 DL	RONHILL-06-IA-01 DL
A1939-08	RONHILL-05-SS-01
A1939-08 DL	RONHILL-05-SS-01 DL
A1939-09	RONHILL-04-IA-01
A1939-10	RONHILL-04-SS-01
A1939-10 DL	RONHILL-04-SS-01 DL
A1939-11	RONHILL-AA-02
A1939-12	RONHILL-05-IA-01
A1939-13	RONHILL-04-IA-02

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
* - Laboratory Blanks
- Trip Blanks
- Field Blanks
- Storage Blank
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
- Laboratory Control Sample
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The minor problem with the calibrations should be noted.

No other problems were found that would affect the use of the data.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

All of the %RSDs in the initial calibration associated with the analyses of samples -01, 01DL, -05, -05DL, -07, -07DL, -08, -08DL and -10 were less than 30% with the exception of acetone (31%).

All of the %RSDs in the 3/31 initial calibration associated with the analyses of samples -01, -02, -02DL, -03, -04, -05, -08, -05DL, -06 -07 were less than 30% with the exception of 1,2,4-trichlorobenzene (32%).

All of the percent differences in the 4/1 continuing calibration associated with the analyses of samples -03, -04, -06, -09, -10DL, -11, -12 and -13 were less than 30% with the exception of styrene (31%).

The data for these compounds were flagged with the “J” qualifier and are estimated values.

All RRF’s were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Samples

All blank spike recoveries were within the required limits in the LCS associated with the analyses of samples -03, -04, -06, -09, -10DL, -11, -12 and -13 with the exceptions of 4-ethyltoluene (131%) and 1,2,4-trichlorobenzene (139%).

Neither of these compounds were detected in the samples and the high recoveries do not affect undetected data.

Method Blanks

No compounds were detected in the method blanks

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%) with the following exceptions:

Sample		IS #1	IS #2	IS #3
A1939-01	RONHILL-03-IA-01	54%	51%	37%
A1939-01 DL	RONHILL-03-IA-01 DL			49%
A1939-05	RONHILL-04-SS-02	56%	56%	44%
A1939-05 DL	RONHILL-04-SS-02 DL	55%	54%	37%
A1939-07	RONHILL-06-IA-01	53%	51%	40%
A1939-07 DL	RONHILL-06-IA-01 DL	52%	48%	35%
A1939-08	RONHILL-05-SS-01	55%	53%	40%
A1939-08 DL	RONHILL-05-SS-01 DL	52%	48%	32%
A1939-10	RONHILL-04-SS-01	48%	48%	35%

The data for the compounds quantitated against these internal standards were flagged with the “J” qualifier and are estimated values.

Sample Results

Sample A1939-10 (RONHILL-04-SS-01)

Tetrachloroethene was detected in the undiluted analysis at a concentration of 15.8 ppbv which is just above the 15 ppbv linear range.

This sample was analyzed at a 10X dilution and a concentration of 12.3 ppbv was obtained.

It is recommended that the data from the original analysis be used for the final reporting for this compound. The data were flagged with the “EJ” qualifier and are estimated values.

Several other samples were analyzed at a dilution due to high concentrations of target compounds. In all other cases, the data from the diluted analysis should be used for the final reporting.

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected: March 17, 2009
Samples Received: March 19, 2009
Sample Delivery Group: A1923– Chemtech
Laboratory Reference Numbers:

RONHILL-01-1A-01	A1923-01
RONHILL-02-SS-01	A1923-02
RONHILL-02-SS-01 DL	A1923-02 DL
RONHILL-02-1A-01	A1923-03
RONHILL-02-1A-02	A1923-04
RONHILL-02-1A-02 DL	A1923-04 DL
RONHILL-01-SS-02	A1923-05
RONHILL-01-SS-02 DL	A1923-05 DL
RONHILL-AA-01	A1923-06
RONHILL-01-SS-01	A1923-07
RONHILL-01-SS-01 DL	A1923-07 DL
RONHILL-01-1A-02	A1923-08

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
- Calibrations
* - Laboratory Blanks
- Trip Blanks
- Field Blanks
- Storage Blank
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
* - Laboratory Control Sample / Blank Spike
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The minor problem with the calibrations should be noted.

No problems were found that would affect the use of the data.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

All of the %RSDs in the initial calibration associated with the analyses of samples -02, -02DL, -05, -05DL, -07 and -07DL were less than 30% with the one exception of 1,2,4-trichlorobenzene (32%).

All RRF's were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Sample / Blank Spike

All blank spike recoveries were within the required limits.

Method Blanks

No compounds were detected in the method blanks

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%).

Sample Results

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: February 10, 2009
Samples Received: February 11, 2009
Sample Delivery Group: A1467
Laboratory Reference Numbers:

MW-3-ROUND3	A1467-01
MW-3-ROUND3 DL	A1467-01 DL
MW103-ROUND3	A1467-02
MW103-ROUND3 DL	A1467-02 DL
MW-1-ROUND3	A1467-03
MW-1-ROUND3 DL	A1467-03 DL
MW-2-ROUND3	A1467-04
MW-4-ROUND3	A1467-05
MW-4-ROUND3 DL	A1467-05 DL
PTW-1-ROUND3	A1467-06
MW-5-ROUND3	A1467-07
FB-21009	A1467-08
TRIP BLANK	A1467-09
VHBLK01	A1467-10

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* * - Data Completeness
* * - GC/MS Tuning
* * - Holding Times
* * - Calibrations
* * - Laboratory Blanks
  - Storage / Holding Blank
  - Field Blank
* * - Trip Blank
* * - Deuterated Monitoring Compound Recoveries
* * - Internal Standard Recoveries
  - Matrix Spike / Matrix Spike Duplicate
  - Laboratory Control Sample Recoveries
* * - Compound Identification
* * - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The minor problems with the field blank should be noted.

No problems were found that would affect the use of the data.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

All of the DMCs were within the required limits/

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs and %Ds were less than 30%, or 50% for poor performing compounds, in the initial and continuing calibrations associated with the analyses of the samples.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No compounds were detected in the method blanks.

Trip Blank

No compounds were detected in the trip blank.

Field Blank

Methylene chloride (1.48 ug/l) and acetone (4.01 ug/l) were detected in the field blank.

Acetone was detected in sample MW-2-Round3 (A1467-04) at a concentration of 2.1 ug/l. The acetone data were flagged with the “U” qualifier and should be reported as “5U ug/l”.

Storage Blank

No compounds were detected in the holding blank.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits (60% - 140%).

Sample Results

No problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: February 10, 2009
Samples Received: February 11, 2009
Sample Delivery Group: A1467
Laboratory Reference Numbers:

MW-3-ROUND3	A1467-01
MW-3-ROUND3 MS	A1467-01 MS
MW-3-ROUND3 MD	A1467-01 MD
MW103-ROUND3	A1467-02
MW-1-ROUND3	A1467-03
MW-2-ROUND3	A1467-04
MW-4-ROUND3	A1467-05
PTW-1-ROUND3	A1467-06
MW-5-ROUND3	A1467-07
FB-21009	A1467-08

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
  - Chloride
* * - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the matrix spike recoveries should be noted. These are described in detail below.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

A low concentration of chloride (9.2 mg/l) was detected in the field blank.

All of the chloride concentrations in the samples were too high to be affected by the field blank contamination.

Matrix Spike Recovery

Sample MW-3-ROUND3 (A1467-01) was used as the matrix spike for the TDS, TOC, chloride and bromate.

Sample MW103-ROUND3 (A1467-02) was used as the alkalinity matrix spike.

Sample MW-5-ROUND3 (A1467-07) was used as the COD matrix spike.

All recoveries were within the required 75% - 125% quality control limits with the exceptions of chloride (141%), bromate (60%) and COD (128%).

The data for bromate were flagged with the “J” qualifier and are estimated values.

The data for the other analytes were only qualified when they were detected in a sample since high recoveries do not affect undetected data.

Duplicate Analysis

Sample MW-3-ROUND3 (A1467-01) was used as the matrix duplicate for the TDS, TOC, chloride and bromate.

Sample MW103-ROUND3 (A1467-02) was used as the alkalinity matrix duplicate.

Sample MW-5-ROUND3 (A1467-07) was used as the COD matrix duplicate.

All %RSDs were within the required quality control limits.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Water Iron and Manganese Analyses
Samples Collected: February 10, 2009
Samples Received: February 11, 2009
Sample Delivery Group: A1467
Laboratory Reference Numbers:

MW-3-ROUND3	A1467-01
MW-3-ROUND3 MS	A1467-01 MS
MW-3-ROUND3 MD	A1467-01 MD
MW103-ROUND3	A1467-02
MW-1-ROUND3	A1467-03
MW-2-ROUND3	A1467-04
MW-4-ROUND3	A1467-05
PTW-1-ROUND3	A1467-06
MW-5-ROUND3	A1467-07
FB-21009	A1467-08

Water samples were validated for inorganic analyses by the US EPA Region II data validation SOP (HW-2, Revision 13). Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - Holding Times
* - Calibration Verification
* - CRDL Standard
* - Laboratory Control Sample
* - Serial Dilutions
* - Calibration Blanks
  - Field Blank
* - Preparation Blanks
* - Matrix Spike
* - Duplicate Analyses
* - ICP Interference Check Sample
* - Detection Limit Results
* - Linear Range
* - Sample Results

* - Indicates that all criteria were met for this parameter.

Data Validation Summary

The problems with the manganese field blank should be noted.

No other problems were detected with the analyses.

Holding Times

All samples were analyzed within the required holding times.

CRDL Standards

No problems were detected with the CRDL standards.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Preparation Blank

No compounds were detected in the one preparation blank associated with the digestions of these samples at concentrations above the CRDL. Several analytes were found in the preparation blank at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table.

Calibration Blanks

Several analytes were found in the continuing calibration blanks at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table and do not affect the end use of the data.

Field Blank

Manganese was detected in the field blank at the detection limit of 10 ug/l.

The concentration of manganese in all off the samples was less than 10X the concentration on the field blank. If manganese was detected in a sample it was flagged with the “J” qualifier and is an estimated value.

ICP Interference Check Sample

No problems were detected with the reported ICP Interference Check Sample recoveries.

Matrix Spike Recovery

Sample MW-3-ROUND3 (A1467-01) was used as the matrix spike and matrix spike duplicate. All recoveries and RPDs were within the required limits.

Duplicate Analysis

Sample MW-3-ROUND3 (A1467-01) was used as the matrix duplicate. All RPDs were within the required limits.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Serial Dilutions

Sample MW-3-ROUND3 (A1467-01) was used as the serial dilutions. All percent differences that could be accurately calculated were within the required limits.

Instrument Detection Limit

No problems were found with the instrument detection limits.

ICP Linear Ranges

No problems were detected with the linear ranges.

Sample Results

No problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected: February 2nd & 3rd, 2009
Samples Received: February 6, 2009
Sample Delivery Group: A1401– Chemtech
Laboratory Reference Numbers:

A1401-01	IA-1-ROUND-2
A1401-01 DL	IA-1-ROUND-2 DL
A1401-01 DL2	IA-1-ROUND-2 DL2
A1401-02	SSI-ROUND-2
A1401-03	IA AIR
A1401-04	SS
A1401-05	OA-ROUND-2
A1401-06	SS-2-ROUND-2
A1401-06 DL	SS-2-ROUND-2 DL
A1401-07	SV2-D
A1401-08	SV2-S
A1401-08 DL	SV2-S DL
A1401-09	SV1-SD
A1401-09 DL	SV1-SD DL
A1401-10	SV1-D
A1401-10 DL	SV1-D DL
A1401-11	SV1-S

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

- Data Completeness
* - GC/MS Tuning
* - Holding Times
* - Calibrations
- Laboratory Blanks
- Trip Blanks
- Field Blanks
- Storage Blank
* - Surrogate Compound Recoveries
* - Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
* - Laboratory Control Sample / Blank Spike
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The minor problems with the method blank should be noted.

No problems were found that would affect the use of the data.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

All of the %RSDs and percent differences in the initial and continuing calibrations associated with the analyses of all of the samples were less than 30%.

All RRF's were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Sample / Blank Spike

All blank spike recoveries were within the required limits.

Method Blanks

Dichlorodifluoromethane was detected in the method blanks at concentrations of 0.27 ppbv and 0.12 ppbv.

All of the dichlorodifluoromethane concentrations in the samples were less than 5X the concentration in the associated method blank. They were reported flagged with the "U" qualifier,

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%).

Sample Results

Sample A1401-01 (IA-1-ROUND-2)

2-Butanone was detected in the undiluted analysis at a concentration of 18 ppbv which is just above the 15 ppbv linear range.

This sample was analyzed at a 5X dilution and a concentration of 14.6 ppbv was obtained.

It is recommended that the data from the original analysis be used for the final reporting for this compound. The data were flagged with the “EJ” qualifier and is an estimated value.

Sample A1401-09 (SV1-SD)

Tetrachloroethene was detected in the undiluted analysis at a concentration of 18.7 ppbv which is just above the 15 ppbv linear range.

This sample was analyzed at a 5X dilution and a concentration of 14.9 ppbv was obtained.

It is recommended that the data from the original analysis be used for the final reporting for this compound. The data were flagged with the “EJ” qualifier and is an estimated value.

Sample A1401-10 (SV1-D)

Tetrachloroethene was detected in the undiluted analysis at a concentration of 16.6 ppbv which is just above the 15 ppbv linear range.

This sample was analyzed at a 5X dilution and a concentration of 13.5 ppbv was obtained.

It is recommended that the data from the original analysis be used for the final reporting for this compound. The data were flagged with the “EJ” qualifier and is an estimated value.

Samples A1401-06 (SS-2-ROUND-2) and A1401-08 (SV2-S)

Several spectra were missing in these samples. These have been requested from the laboratory.

Several other samples were analyzed at a dilution due to high concentrations of target compounds. In all other cases, the data from the diluted analysis should be used for the final reporting.

No other problems were found with the reported results of any of the samples of this delivery group.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: February 3, 2009
Samples Received: February 4, 2009
Sample Delivery Group: A1368
Laboratory Reference Numbers:

MW5-ROUND2	A1368-01
PTW-1-ROUND2	A1368-02
TRIP BLANK	A1368-03
TRIP BLANK RE	A1368-03 RE
VHBLK01	A1368-04

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
* - Calibrations
* - Laboratory Blanks
* - Storage / Holding Blank
- Field Blank
- Trip Blank
- Deuterated Monitoring Compound Recoveries
* - Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
- Laboratory Control Sample Recoveries
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the DMC recoveries in the trip blank should be noted.

No other problems were found that would affect the use of the data.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

Many of the DMCs in the trip blank and its reanalysis were above the quality control limits. There should not be problems with surrogate recoveries in a blank.

The DMCs that were outside of the required limits as well as their recoveries are noted in the data validation summary table.

Compounds quantitated against DMCs with high recoveries were only flagged with the "J" qualifier when they were detected in a sample since high recoveries do not affect the usability of undetected data.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs and %Ds were less than 30%, or 50% for poor performing compounds, in the initial and continuing calibrations associated with the analyses of the samples.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No compounds were detected in the method blanks.

Trip Blank

Methylene chloride (0.79 ug/l) was detected in the trip blank.

This compound was not detected in either of the samples and the blank contamination does not affect the use of the data.

Many of the DMCs in the trip blank and its reanalysis were above the quality control limits. There should not be problems with surrogate recoveries in a blank.

Field Blank

Methylene chloride (0.84 ug/l) was detected in the field blank.

This compound was not detected in either of the samples and the blank contamination does not affect the use of the data.

Storage Blank

Methylene chloride (0.23 ug/l) was detected in the field blank.

This compound was not detected in either of the samples and the blank contamination does not affect the use of the data.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits (60% - 140%).

Sample Results

No problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: February 3, 2009
Samples Received: February 4, 2009
Sample Delivery Group: A1368
Laboratory Reference Numbers:

MW5-ROUND2	A1368-01
PTW-1-ROUND2	A1368-02
PTW-1-ROUND2 MS	A1368-02 MS
PTW-1-ROUND2 MD	A1368-02 MD

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
  - Chloride
* * - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the matrix spike recoveries should be noted. These are described in detail below.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

A field blank was not analyzed with this sample delivery group.

Matrix Spike Recovery

Sample MW5-ROUND2 (A1368-01) was used for the chloride matrix spike.

Sample PTW-1-ROUND2 (A1368-02) was used for the matrix spike for TDS, alkalinity, COD and TOC.

All recoveries were within the required 75% - 125% quality control limits with the one exception of chloride (74%). The chloride data were flagged with the "J" qualifier and are estimated values.

A bromide matrix spike was analyzed from another sample delivery group. This was not reviewed during the validation.

Duplicate Analysis

Sample MW5-ROUND2 (A1368-01) was used for the chloride matrix duplicate.

Sample PTW-1-ROUND2 (A1368-02) was used for the matrix duplicate for TDS, alkalinity, COD and TOC.

All RPDS were within the required quality control limits.

A bromide matrix duplicate was analyzed from another sample delivery group. This was not reviewed during the validation.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: February 2, 2009
Samples Received: February 3, 2009
Sample Delivery Group: A1343
Laboratory Reference Numbers:

MW-1-ROUND 2	A1343-01
MW-1-ROUND 2 DL	A1343-01DL
MW-3-ROUND 2	A1343-02
MW-3-ROUND 2 DL	A1343-02 DL
MW-2-ROUND 2	A1343-03
MW-2-ROUND 2 DL	A1343-03DL
MW-4-ROUND 2	A1343-04
MW-4-ROUND 2 DL	A1343-04 DL
FB-020209	A1343-05
TRIP BLANK	A1343-06
MW-103-ROUND 2	A1343-07
MW-103-ROUND 2 DL	A1343-07 DL
VHBLK01	A1343-08

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
* - Calibrations
* - Laboratory Blanks
* - Storage / Holding Blank
- Field Blank
- Trip Blank
- Deuterated Monitoring Compound Recoveries
- Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
- Laboratory Control Sample Recoveries
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the internal standard recoveries should be noted.

No problems were found that would affect the use of the data.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

Several of the samples had at least one deuterated monitoring compound (DMC) outside of the required limits.

The surrogates that were outside of the required limits as well as their recoveries are noted in the data validation summary table.

Compounds associated with DMC's with recoveries between the lower quality control limit and 20% were flagged with the "J" qualifier and are estimated values.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs and %Ds were less than 30%, or 50% for poor performing compounds, in the initial and continuing calibrations associated with the analyses of the samples.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No compounds were detected in the method blanks.

Trip Blank

Methylene chloride (0.83 ug/l) was detected in the trip blank.

Low concentrations of this compound were detected in several samples. The data were flagged with the "U" qualifier when the concentration in the blank was less than 5X the concentration in field blank.

Field Blank

Methylene chloride (1.5 ug/l) was detected in the field blank.

Low concentrations of this compound were detected in several samples. The data were flagged with the “U” qualifier when the concentration in the blank was less than 5X the concentration in field blank.

Storage Blank

No compounds were detected in the holding/storage blank.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits (60% - 140%) with the following exceptions:

		IS #1	IS #2	IS #3
MW-1-ROUND 2 DL	A1343-01DL	142%		
MW-3-ROUND 2	A1343-02	166%	153%	147%
MW-103-ROUND 2	A1343-07	158%	146%	146%

None of the reported compounds were quantitated against these internal standards and the high recovery did not affect the use of the data.

Sample Results

No problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: February 2, 2009
Samples Received: February 3, 2009
Sample Delivery Group: A1343
Laboratory Reference Numbers:

MW-1-ROUND 2	A1343-01
MW-1-ROUND 2 MS	A1343-01 MS
MW-1-ROUND 2 MD	A1343-01 MD
MW-3-ROUND 2	A1343-02
MW-2-ROUND 2	A1343-03
MW-4-ROUND 2	A1343-04
FB-020209	A1343-05
MW-103-ROUND 2	A1343-07

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
  - Chloride
* * - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the matrix spike recoveries should be noted. These are described in detail below.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

Alkalinity (12 mg/l) and COD (6.11 mg/l) were detected in the field blank.
Slightly higher concentrations were found in the samples. The sample data were flagged with the "J" qualifier and are estimated values.

Matrix Spike Recovery

Sample MW-1-ROUND 2 (A1343-01) was used as the matrix spike for chloride and bromate.

All recoveries were within the 75% - 125% quality control limits.

A sample from another delivery group was used for the matrix spike for the other parameters. This as not reviewed during the validation.

Duplicate Analysis

Sample MW-1-ROUND 2 (A1343-01) was used as the matrix duplicate for chloride and bromate.

All RPDs were less than 20%.

A sample from another delivery group was used for the matrix duplicate for the other parameters. This as not reviewed during the validation.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Water Iron and Manganese Analyses
Samples Collected: February 2, 2009
Samples Received: February 3, 2009
Sample Delivery Group: A1343
Laboratory Reference Numbers:

MW-1-ROUND 2	A1343-01
MW-3-ROUND 2	A1343-02
MW-2-ROUND 2	A1343-03
MW-4-ROUND 2	A1343-04
FB-020209	A1343-05
MW-103-ROUND 2	A1343-07

Water samples were validated for inorganic analyses by the US EPA Region II data validation SOP (HW-2, Revision 13). Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - Holding Times
* - Calibration Verification
* - CRDL Standard
* - Laboratory Control Sample
- Serial Dilutions
* - Calibration Blanks
* - Field Blank
* - Preparation Blanks
- Matrix Spike
- Duplicate Analyses
* - ICP Interference Check Sample
* - Detection Limit Results
* - Linear Range
* - Sample Results

* - Indicates that all criteria were met for this parameter.

Data Validation Summary

A matrix spike, matrix duplicate and serial dilution were not analyzed.

No other problems were detected with the analyses.

Holding Times

All samples were analyzed within the required holding times.

CRDL Standards

No problems were detected with the CRDL standards.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Preparation Blank

No compounds were detected in the one preparation blank associated with the digestions of these samples at concentrations above the CRDL. Several analytes were found in the preparation blank at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table.

Calibration Blanks

Several analytes were found in the continuing calibration blanks at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table and do not affect the end use of the data.

Field Blank

No compounds were detected in the field blank.

ICP Interference Check Sample

No problems were detected with the reported ICP Interference Check Sample recoveries.

Matrix Spike Recovery

A sample from another project was used for the matrix spike. The data were not reviewed during the validation.

Duplicate Analysis

A sample from another project was used for the matrix duplicate. The data were not reviewed during the validation.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Serial Dilutions

A sample from another project was used for the serial dilution. The data were not reviewed during the validation.

Instrument Detection Limit

No problems were found with the instrument detection limits.

ICP Linear Ranges

No problems were detected with the linear ranges.

Sample Results

No problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: January 14, 2009
Samples Received: January 15, 2009
Sample Delivery Group: A1138
Laboratory Reference Numbers:

PTW-1-ROUND-1	A1138-01
MW-5-ROUND-1	A1138-02
FB-011409	A1138-03
TRIP BLANK	A1138-04
VHBLK01	A1138-05

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* - Data Completeness
* - GC/MS Tuning
* - Holding Times
  - Calibrations
* - Laboratory Blanks
  - Storage / Holding Blank
  - Field Blank
* - Trip Blank
* - Deuterated Monitoring Compound Recoveries
* - Internal Standard Recoveries
  - Matrix Spike / Matrix Spike Duplicate
  - Laboratory Control Sample Recoveries
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

No problems were found that would affect the use of the data.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

All of the DCM's were within the required limits.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs and %Ds were less than 30%, or 50% for poor performing compounds, in the initial and continuing calibrations associated with the analyses of the samples.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No compounds were detected in the method blanks.

Trip Blank

No compounds were detected in the trip blank.

Field Blank

Methylene chloride (1.39 ug/l) and the non-target 1,1-difluoroethane were detected in the field blank.

Neither of these compounds were detected in any of the samples and the blank contamination does not affect the use of the data.

Storage Blank

Methylene chloride (0.31 ug/l) was detected in the storage blank.

This compound was not detected in any of the samples and the blank contamination does not affect the use of the data.

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits (60% - 140%).

Sample Results

No problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: January 14, 2009
Samples Received: January 15, 2009
Sample Delivery Group: A1138
Laboratory Reference Numbers:

PTW-1-ROUND-1	A1138-01
PTW-1-ROUND-1 MS	A1138-01 MS
PTW-1-ROUND-1 MD	A1138-01 MD
MW-5-ROUND-1	A1138-02
FB-011409	A1138-03

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
  - Chloride
* * - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the matrix spike recoveries should be noted. These are described in detail below.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

Alkalinity (15 mg/l) was detected in the field blank at a concentration of 15 mg/l. Slightly higher concentrations were found in the samples. The sample data were flagged with the "J" qualifier and are estimated values.

Matrix Spike Recovery

Sample PTW-1-ROUND-1 (A1138-01) was used as the matrix spike for all of the parameters except for TOC.

All recoveries were within the 75% - 125% quality control limits with the exceptions of bromate (130%) and chloride (161%).

Bromate was not detected in any of the samples and the data were not required to be qualified for the high recoveries.

The data for chloride were flagged with the "J" qualifier and are estimated values.

The field blank of this sample delivery group was used as the matrix spike for the TOC analysis. The NYS DEC ASP protocols do not allow a field blank to be used for a matrix spike.

Duplicate Analysis

Sample PTW-1-ROUND-1 (A1138-01) was used as the matrix duplicate for all of the parameters except for TOC.

All RPDs for these analyses were within the required limits.

The field blank of this sample delivery group was used as the matrix duplicate for the TOC analysis. The NYS DEC ASP protocols do not allow a field blank to be used for a matrix spike.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Water Iron and Manganese Analyses
Samples Collected: January 14, 2009
Samples Received: January 15, 2009
Sample Delivery Group: A1138
Laboratory Reference Numbers:

PTW-1-ROUND-1	A1138-01
MW-5-ROUND-1	A1138-02
FB-011409	A1138-03

Water samples were validated for inorganic analyses by the US EPA Region II data validation SOP (HW-2, Revision 13). Data were reviewed for usability according to the following criteria:

* - Data Completeness
* - Holding Times
* - Calibration Verification
* - CRDL Standard
* - Laboratory Control Sample
- - Serial Dilutions
* - Calibration Blanks
* - Field Blank
* - Preparation Blanks
- - Matrix Spike
- - Duplicate Analyses
* - ICP Interference Check Sample
* - Detection Limit Results
* - Linear Range
* - Sample Results

* - Indicates that all criteria were met for this parameter.

Data Validation Summary

A matrix spike, matrix duplicate and serial dilution were not analyzed.

No other problems were detected with the analyses.

Holding Times

All samples were analyzed within the required holding times.

CRDL Standards

No problems were detected with the CRDL standards.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Preparation Blank

No compounds were detected in the one preparation blank associated with the digestions of these samples at concentrations above the CRDL. Several analytes were found in the preparation blank at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table.

Calibration Blanks

Several analytes were found in the continuing calibration blanks at concentrations between the CRDL and instrument detection limit. These very low concentrations are not required to be noted in the data validation summary table and do not affect the end use of the data.

Field Blank

No compounds were detected in the field blank.

ICP Interference Check Sample

No problems were detected with the reported ICP Interference Check Sample recoveries.

Matrix Spike Recovery

A sample from another project was used for the matrix spike. The data were not reviewed during the validation.

Duplicate Analysis

A sample from another project was used for the matrix duplicate. The data were not reviewed during the validation.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Serial Dilutions

A sample from another project was used for the serial dilution. The data were not reviewed during the validation.

Instrument Detection Limit

No problems were found with the instrument detection limits.

ICP Linear Ranges

No problems were detected with the linear ranges.

Sample Results

No problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Water Volatile Organic Analyses – Method OLC3.2
Samples Collected: January 13, 2009
Samples Received: January 14, 2009
Sample Delivery Group: A1121
Laboratory Reference Numbers:

MW-3-ROUND-1	A1121-01
MW-3-ROUND-1 DL	A1121-01 DL
MW-DUP-ROUND-1	A1121-02
MW-DUP-ROUND-1 DL	A1121-02 DL
MW-1-ROUND-1	A1121-03
MW-1-ROUND-1 DL	A1121-03 DL
MW-4-ROUND-1	A1121-04
MW-4-ROUND-1 DL	A1121-04 DL
MW-2-ROUND-1	A1121-05
MW-2-ROUND-1 DL	A1121-05 DL
TRIP BLANK	A1121-06
VHBLK01	A1121-07

Water samples were validated for analyses of the volatile organic TCL analyte list by method OLC03.2 SOP HW-13, Revision 3, 9/2006. A complete analytical validation was performed based upon the following parameters:

* * - Data Completeness
* * - GC/MS Tuning
* * - Holding Times
* * - Calibrations
* * - Laboratory Blanks
* * - Storage / Holding Blank
  - Field Blank
* * - Trip Blanks
  - Deuterated Monitoring Compound Recoveries
  - Internal Standard Recoveries
  - Matrix Spike / Matrix Spike Duplicate
  - Laboratory Control Sample Recoveries
* * - Compound Identification
* * - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the internal standards and surrogate recoveries should be noted. These are described in detail below.

Holding Times

All samples were preserved and analyzed within the 14-day technical holding time.

Deuterated Monitoring Compound Recoveries

All of the undiluted samples had at least one deuterated monitoring compound (DMC) outside of the required limits.

The surrogates that were outside of the required limits as well as their recoveries are noted in the data validation summary table.

The problems with the surrogate recoveries may be due to laboratory problems. There should not be surrogate problems in all laboratory and trip blanks.

Undetected compounds associated with DMC's with recoveries less than 20% were flagged with the "R" qualifier and technically rejected.

Detected compounds associated with DMC's with recoveries of less than 20% were flagged with the "J" qualifier and are estimated values.

Compounds associated with DMC's with recoveries between the lower quality control limit and 20% were flagged with the "J" qualifier and are estimated values.

Compounds with high recoveries were only flagged with the "J" qualifier when they were detected in a sample since high recoveries do not affect the usability of undetected data.

Tunes

No problems were detected with any of the tunes associated with the samples of this delivery group.

Calibrations

All of the %RSDs and %Ds were less than 30%, or 50% for poor performing compounds, in the initial and continuing calibrations associated with the analyses of the samples.

Matrix Spike / Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed.

Laboratory Control Samples

A laboratory control sample was not analyzed.

Method OLC3.2 does not specifically mention a laboratory control sample.

Method Blanks

No compounds were detected in the method blanks.

Trip Blank

No compounds were detected in the trip blank.

Field Blank

A field blank was not collected with this sample delivery group.

Storage Blank

No compounds were detected in the storage / holding blank

Internal Standard Areas and Retention Times

All internal standard recoveries were within the required limits (60% - 140%) with the following exceptions:

Sample		IS #1	IS #2	IS #3
MW-3-ROUND-1	A1121-01		144%	
MW-1-ROUND-1	A1121-03	150%	176%	
MW-4-ROUND-1	A1121-04	161%	169%	140% (OK)
MW-2-ROUND-1	A1121-05	161%	181%	145%

Only detected compounds associated with the internal standards were flagged with the “J” qualifier and are estimated values.

High recoveries do not affect undetected data.

Sample Results

Several samples were reanalyzed at a dilution due to high concentrations of tetrachloroethene. The data for this compound should be reported from the diluted analyses.

No other problems were detected with any of the sample data.

SUMMARY OF THE ANALYTICAL DATA VALIDATION
Ron Hill Cleaners
NYSDEC IDWA#09

Wet Chemistry Analyses
Samples Collected: January 13, 2009
Samples Received: January 14, 2009
Sample Delivery Group: A1121
Laboratory Reference Numbers:

MW-3-ROUND-1	A1121-01
MW-3-ROUND-1 MS	A1121-01 MS
MW-3-ROUND-1 MD	A1121-01 MD
MW-DUP-ROUND-1	A1121-02
MW-1-ROUND-1	A1121-03
MW-4-ROUND-1	A1121-04
MW-2-ROUND-1	A1121-05

Water samples were received for analyses of the wet chemistry analyte list by NYS DEC ASP protocols. A complete analytical validation was performed based upon the following parameters:

* * - Total Dissolved Solids
* * - Chemical Oxygen Demand
* * - Alkalinity
* * - Total Organic Carbon
  - Chloride
* * - Bromate

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the matrix spike recoveries should be noted. These are described in detail below.

No other problems were found that would affect the usability of the data.

Holding Times

All samples were analyzed within the required holding times.

Initial and Continuing Calibrations

No problems were detected with any of the calibrations associated with this sample delivery group.

Initial calibration were data were not included for the sulfate analysis.

Preparation Blank

No analytes were detected in any of the preparation blanks.

Calibration Blanks

No analytes were detected in any of the calibration blanks.

Field Blank

A field blank was not analyzed with this sample delivery group.

Matrix Spike Recovery

Sample MW-3-ROUND-1(A1121-01) was used as the matrix spike for bromate, chloride and TOC.

All recoveries were within the 75% - 125% quality control limits with the exception of chloride (63%).

The data for chloride were flagged with the “J” qualifier and are estimated values.

Other samples of this delivery group were used for the matrix spike for COD and TDS. All recoveries for these analyses were within the required limits.

A sample from another delivery group was used as the matrix spike for the TOC analysis. This was not reviewed during the validation.

Duplicate Analysis

Sample MW-3-ROUND-1(A1121-01) was used as the matrix duplicate for bromate, chloride and TOC.

Other samples of this delivery group were used for the matrix duplicate for COD and TDS.

All RPDs for these analyses were within the required limits.

A sample from another delivery group was used as the matrix duplicate for the TOC analysis. This was not reviewed during the validation.

Laboratory Control Sample

No problems were detected with the recoveries of the LCS standards.

Linear Ranges

No problems were detected with the linear ranges. The reported concentrations of all samples in this delivery group were within their linear range for each analyte.

Sample Results

No other problems were detected with any of the samples.

SUMMARY OF THE ANALYTICAL DATA USABILITY
Ron Hill Cleaners
NYSDEC IDWA#09

Air Volatile Organic Analyses
Samples Collected: April 22nd & 23rd , 2009
Samples Received: April 23, 2009
Sample Delivery Group: A2466– Chemtech
Laboratory Reference Numbers:

A2466-01	SV-2S
A2466-02	SV-22S
A2466-02 RE	SV-22S RE
A2466-03	2HR-AMBIENT
A2466-03 RE	2HR-AMBIENT RE
A2466-04	SV-2D
A2466-04 DL	SV-2D DL
A2466-04 DL2	SV-2D DL2
A2466-05	SV-1S
A2466-05 DL	SV-1S DL
A2466-06	71FOREST-AMB
A2466-06 DL	71FOREST-AMB DL
A2466-07	SV-1D
A2466-07 DL	SV-1D DL
A2466-08	71FOREST
A2466-08 DL	71FOREST DL
A2466-09	75FOREST-AMB
A2466-10	750FOREST
A2466-11	24HR-AMB
A2466-12	75FOREST

Air samples were validated for analyses of volatile organics by the US EPA Region II checklist. Data were reviewed for usability according to the following criteria:

- Data Completeness
* - GC/MS Tuning
* - Holding Times
* - Calibrations
* - Laboratory Blanks
- Trip Blanks
- Field Blanks
- Storage Blank
* - Surrogate Compound Recoveries
- Internal Standard Recoveries
- Matrix Spike / Matrix Spike Duplicate
* - Laboratory Control Sample / Blank Spike
* - Compound Identification
* - Compound Quantitation

* - Indicates that all criteria were met for this parameter.

DATA VALIDATION SUMMARY

The problems with the internal standard recoveries should be noted. These are described in detail below.

No other problems were found that would affect the use of the data.

Holding Times

All samples were analyzed within 30 days of collection.

Tunes

No problems were detected with the tunes associated with the samples of this delivery group.

Surrogate Compound Recoveries

All surrogate compound recoveries were within the 65% - 135% quality assurance limits.

1-Bromo-4-fluorobenzene was the only surrogate.

Calibrations

All of the %RSDs and percent differences in the initial and continuing calibrations associated with the analyses of all of the samples were less than 30%.

All RRF's were greater than 0.05.

Matrix Spike and Matrix Spike Duplicate

A matrix spike and matrix spike duplicate were not analyzed with this sample delivery group.

Laboratory Control Sample / Blank Spike

All blank spike recoveries were within the required limits.

Method Blanks

No compounds were detected in the method blanks.

Trip Blank

A trip blank was not analyzed with this sample delivery group.

Field Blank

A field blank was not analyzed with this sample delivery group.

Internal Standard Areas and Retention Times

The recoveries and retention times of all internal standards were within the required quality control limits (60% - 140%) with the following exceptions:

		IS#1	IS#2	IS#3
A2466-02	SV-22S			142%
A2466-02 RE	SV-22S RE	148%		143%
A2466-03	2HR-AMBIENT	146%		143%
A2466-03 RE	2HR-AMBIENT RE	(OK)	(OK)	(OK)
A2466-04	SV-2D			194%
A2466-04 DL	SV-2D DL	155%	161%	178%
A2466-05	SV-1S	140%		152%
A2466-05 DL	SV-1S DL	151%		140%
A2466-07	SV-1D			143%

Sample A2466-01 (SV-2S)

The internal standard recoveries were better in the original analysis of this sample. It is recommended that the data from the original analysis be used for the final reporting. The data in the original and reanalysis of the sample were not significantly different.

Sample A2466-03 (2HR-AMBIENT)

The recoveries of the first and third internal standards were above the quality control limit in the original analysis. All of the recoveries were within the required limits in the reanalysis. It is recommended that the data from the reanalysis be used for the final reporting.

It should be noted that the concentrations in the reanalysis were considerable lower than in the original analysis.

Sample A2466-04 (SV-2D)

The recovery of the third internal standard was above the quality control limit in the original analysis of this sample.

The recoveries of all of the internals standards were above the quality control limit in the 10X analysis. There should not be poorer recoveries in a 10X analysis than in an undiluted one.

Only 2,2,4-trimethylpentane was quantitated in the 10X analysis.

Only compounds that were detected in the sample were qualified when they were associated with an internal standard with a high recovery. Nondetects are not affected by high recoveries.

Sample Results

Sample A2466-04 (SV-2D)

This sample was reanalyzed twice with a highest dilution of 1,200X. The tetrachloroethene concentration in this dilution (28,100 ppbv) was still above the linear range of 18,000 ppbv.

Several other samples were analyzed at a dilution due to high concentrations of target compounds. In all other cases, the data from the diluted analysis should be used for the final reporting.

No other problems were found with the reported results of any of the samples of this delivery group.

Appendix D

Analytical Data

(Provided on CD)

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