FINAL
REMEDIAL INVESTIGATION REPORT

Site:
Crystal Cleaners (Site No. 851022)
343 West Pulteney Street
City of Corning, New York 14830

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APPENDICES

1 INTRODUCTION

The scope of work is to conduct a remedial investigation and feasibility study at Crystal Cleaners, City of Corning, Steuben County (NYSDEC registry numbers 851022). The site location is shown on Figure 1-1, and the site layout is shown on Figure 1-2.

NYSDEC and AECOM developed a scope of work in November 2008. These plans formed the basis of the initial phase of the remedial investigation (indoor air sampling, membrane interface probe [MIP], Hydropunch groundwater sampling, and subsurface soil sampling). Additional soil sampling locations were identified by NYSDEC on Crystal Cleaner property, which were collected in June 2009. Permanent well locations and screening depths were proposed in May 2009. The permanent well locations were finalized in July 2009 based on NYSDEC review and installed in October 2009. Direct push sampling locations to provide soil classification in the subsurface proposed by AECOM were implemented in August 2009.

The scope of work is divided into four principal tasks:

1.1	File Review and Site Visit
1.2	Project Budget (Schedule 2.11) and Project Schedule
2.1	Membrane Interface Probe, Soil and Groundwater Sampling Activities
2.2	Soil Vapor Intrusion Sampling of Residences
3	Remedial Investigation (RI) Report
4.1	Feasibility Study
4.2	Public Participation

This Task 3 RI report presents the findings of the Task 2.1 and Task 2.2 field investigation plus additional field activities not included in the November 2008 scope of work.

The Task 4.1 Feasibility Study and Task 4.2 Public Participation will be conducted after the RI is completed and submitted to NYSDEC.

1.1 Report Organization

This RI Report consists of ten sections with associated tables, figures and appendices. This introduction chapter (**Section 1.0 – Introduction**) presents the organization of the report, background information (such as the location and description of Crystal Cleaners, site history, and previous investigations), and the physical characteristics of surrounding area (overviews of local topography, land use, geology, and hydrogeology).

The remainder of the report is structured as follows:

- **Section 2.0 - Remedial Investigation**: summarizes the scope of work implemented during the field investigations and associated activities.

- **Section 3.0 – Laboratory Analytical Results**: presents the field and analytical results of the field investigation.

- **Section 4.0 – Analytical Data and Usability**: presents a data usability assessment of the laboratory analytical data.

- **Section 5.0 – Geology/Hydrogeology**: describes the regional and site geology and hydrogeology.

- **Section 6.0 – Contamination – Nature and Extent:** presents an analysis of the nature and extent of contamination at the Crystal Cleaners site.

- **Section 7.0 – Contaminant Fate and Transport:** presents an analysis of the contaminant fate and transport at the Crystal Cleaners site.

- **Section 8.0 – Qualitative Human Health Risk Assessment:** presents a qualitative human health risk assessment for the Crystal Cleaners site.

- **Section 9.0 – Conclusions:** presents conclusions for the RI Report.

- **Section 10.0 – References**: presents a bibliography of documents referenced in the text of the report.

1.2 Site/Study Area Background Information

The former Crystal Cleaners is located at 343 West Pulteney Street, in the City of Corning, Steuben County, New York (Figure 1-1). The site is approximately 0.58 acres including a retail building and a large parking lot. The current site building was constructed in 1970 and included a mini-mart, a service station, a dry cleaning business and a laundromat. It is a one story building with a basement located only underneath the former dry cleaner (Figure 1-2).

The property lot was purchased from Corning Inc., in December 1969. The property has contained a gas station since at least 1974, when four 4000 gallon gasoline tanks were installed at the site. An additional 1000 gallon kerosene tank was installed in 1984. The gasoline tanks were removed in 1992 and replaced with two 8000 gallon gasoline tanks. These tanks were reportedly removed in 2008. The 1000 gallon kerosene tank was abandoned in place and a new 1000 gallon kerosene tank was installed.

The date of the first dry cleaner is not known, but Corning One Hour Martinizing at 343 West Pulteney appeared in the 1981 Corning City Guide. The 1989 Corning City Guide lists the property as One Hour Tecni Clean. The manager of the dry cleaner, who was interviewed by MACTEC in 2006 as part of the site characterization, took over lease of the property in 1994 and changed the name to Crystal Cleaner. He stated the original operation was a wet to dry system. (It is assumed that the manager is referring to a transfer system which consists of two machines:

a washer and a dryer. Clothing is transferred from the washer to the dryer resulting in a source of PCE emissions.) This was converted to a dry to dry system (materials are cleaned and dried in the same machine) in the mid 1980s. He updated the equipment and added spill protection in the mid-1990. It is assumed that Crystal Cleaners has always been serviced by public water and sewer because according to the City of Corning Department of Public Works, the water main along West Pulteney Street was installed in 1907 and the sewer line was installed around 1908.

1.2.1 Land Use

The site is located in a mixed commercial and residential area near the western boundary of the City of Corning, New York. The site consists of a single story building with parking spaces in the front. The building is oriented east-west and is separated into three sections. All sections are currently vacant, but previously were occupied by a mini mart/gas station, a dry cleaners and a laundromat.

Adjacent properties include residences to the north, northeast, and northwest, a bank to the east across Cutler Avenue, a liquor store to the southeast across West Pulteney Street, a retail business to the southwest across West Pulteney Street, and a used car lot to the west across Townsend Avenue.

1.2.2 Prior Investigations Conducted at the Site

Chlorinated solvents were first detected in the City of Corning's water supply wells # 1 and # 2 in the early 1980s (Figure 1-1). These wells are located approximately 950 feet (ft) and 1300 ft southeast of Crystal Cleaners, respectively, along the banks of Chemung River. Well SW-1 is screened from approximately 50 to 70 ft below ground surface (bgs). Well SW-2 is screened from approximately 43 to 63 ft bgs. PCE was detected at low concentrations in both wells. Concentrations typically range from non-detect to 14 micrograms per liter (µg/L), with slightly higher concentrations detected in SW-2 than SW-1 (MACTEC, 2007).

In preparation for selling the property, the owner of the plaza that includes Crystal Cleaner hired Teeter Environmental Services, Inc. to conduct a Phase II Site assessment in 2005, primarily for the purpose of determining the condition of the underground fuel tanks for the gas station (Teeter, 2005). The investigation included the completion of six soil borings (BS-1 to BS-6) to approximately 16 ft bgs and collection of groundwater grab samples. The investigation found concentrations above the NYS groundwater criteria for PCE at two borings on the site (7 µg/L and 43.1 µg/L) as shown on Figure 1-3. Naphthalene, toluene, and m,p-xylenes were also detected at concentrations above the applicable regulatory standards.

During the Final Site Characterization conducted by MACTEC Engineering and Consulting, PC (MACTEC) in March 2007, MACTEC collected 35 groundwater, four soil, and three soil vapor samples from the areas around the site. PCE was detected at concentrations above the New York State (NYS) Class GA groundwater standards in groundwater samples collected on site and downgradient. PCE concentrations in groundwater are shown on Figure 1-3. PCE detections in groundwater from borings on the Crystal Cleaners site ranged from 0.88 µg/L to 610 µg/L. Sub-slab vapor samples taken adjacent to the dry cleaner indicate that TCE and PCE are present at elevated levels. Shallow contaminated groundwater is migrating off site under a densely populated residential neighborhood and is present in a downgradient public supply well above NYS Class GWA groundwater standards. An air stripper is currently in place on the public supply wells to remove VOCs from drinking water to meet drinking water standards.

1.3 Topography

The site is located in the Cohocton/Chemung River Valley, which runs east-west. The site property is located at 940 ft above mean sea level (amsl), sloping slightly to the south. A section of the USGS Quadrangle for Corning is shown in Figure 1-4. The surrounding area slopes slightly to the south, before reaching the Chemung River, located 900 ft south of the site. The Chemung River is located at an elevation of approximately 930 ft amsl, just south of the dike. The topography to the northeast of the site is relatively flat for approximately 0.7 miles, and then rises to a ridge at 1600 ft amsl approximately 1.5 miles from the site.

1.4 Surface Water Hydrology

The site is not located in an area mapped as either a 100 year or 500 year flood zone (EDR, 2006). Surface drainage from the site generally follows the topography, flowing toward the municipal storm drains located on West Pulteney Street. These storm drains flow to a treatment plant located approximately 2.4 miles east of the site (MACTEC, 2007). The treatment plant discharges to the Chemung River downstream of the site.

1.5 Groundwater Hydrology

The Chemung River is a local groundwater discharge area. Groundwater at the site was encountered at approximately 10 to 12 ft bgs, and is interpreted to flow south towards the Chemung River. Potentiometric contours for the greater Corning area prepared by the United States Geological Survey (USGS) indicate that groundwater at the site flows to the southeast (USGS, 1982).

1.6 Local and Site Geology and Hydrogeology

The site is located in Cohocton/Chemung River Valley, which runs east-west. Overburden soils at the site consisted primarily of fluvial silts, sands and gravel. Surficial geology is mapped as oxidized, non calcareous, fine sand to gravel (Muller, 1986). Teeter described site soils as varying horizontally and vertically generally consisting of brown and reddish brown gravelly silt with varying amounts of sand, sandy gravel with little silt and clayey silt with some sand and gravel. Based on regional geologic mapping (Rickard and Fisher, 1970), bedrock consists of shale and siltstones associated with the Upper Devonian West Falls Group; specifically, the Gardeau formation, consisting of shale and siltstone; and/or Toricks Glen shale (Rickard and Fisher, 1970).

2 REMEDIAL INVESTIGATION

A remedial investigation was conducted to determine the sources of contamination within the site and its threat to human health and the environment. The scope and execution of the RI is discussed below.

2.1 Membrane Interface Probe

Prior to conducting any intrusive site work, AECOM utilized the services of Advanced Geological Services, Inc. (AGS) for geophysical survey and utility clearance for the 15 proposed membrane interface probe (MIP) boring locations. AGS utilized a combination of ground penetrating radar (GPR) and electro-magnetic (EM) geophysical methods to locate buried utility lines and structures at the proposed boring locations. Several underground utility markings (possibly gas or sewer lines) were identified at some of the proposed boring locations and the borings were relocated to maintain a minimum of 3-ft clearance from the utilities. The final locations of these boring were marked out with spray paint. A photo log of field investigation activities is included in Appendix A. Figure 2-1 shows the sampling locations for the MIP borings.

AECOM, Zebra, and NYSDEC personnel mobilized to the site on January 5, 2009. A total of 15 MIP soil probes were installed between January 5, 2009 and January 8, 2009 to depths ranging from 18 ft below ground surface (bgs) to 63 ft bgs, but in some areas extending deeper into the subsurface to track the plume. The MIP was advanced to collect remote sensing data indicating the possible presence of chlorinated solvents in the soils or groundwater based on the response of the electron capture detector. The boring was continued until either, the response reduced to baseline conditions or to refusal of the probe. A summary log and graphs of individual probe point data is included in the attached summary report (Appendix B).

A solid model of the MIP results is shown on Figure 2-2. Elevated MIP readings were found at MIP-2, MIP-3, and MIP-6. The plume is located approximately 15 ft bgs to 40 ft bgs. This information was used to select the vertical location of groundwater and soil samples collected using direct push sampling in March 2009.

2.2 Direct Push Soil Sampling and Groundwater Sampling March 2009

Prior to the March 2009 field work, AECOM utilized the services of AGS for geophysical survey and utility clearance for the 14 direct push boring locations. AGS utilized a combination of GPR and EM geophysical methods to locate buried utility lines and structures at the proposed boring locations. Several underground utility markings (possibly gas or sewer lines) were identified at some of the proposed boring locations and the borings were relocated to maintain a minimum of 3-ft clearance from the utilities. The final locations of these boring were marked out with spray paint.

Aztech Technologies Incorporated (Aztech) mobilized to the site on March 16, 2009 to conduct the direct push drilling, Hydropunch groundwater collection, and soil sampling. Direct push borings were advanced at 14 locations shown on Figure 2-3. Continuous macrocore samples were collected from borings HP-11 and HP-13 for soil classification. The soil samples were screened for VOCs using a portable photoionization detector (PID). Boring logs are provided for all locations in Appendix C. The borings were advanced to approximately 55 ft bgs or refusal. At least three sample intervals were targeted for groundwater sampling at each boring: a shallow sample above the depth of the solvent plume (between 15 and 25 ft bgs), an intermediate sample within the solvent plume (between 30 and 40 ft bgs) and a deep sample below the solvent plume (between 50 and 55 ft bgs). Due to refusal from the presence of bedrock and poor recovery from the presence of clay at depths within the boring, not all targeted depths were sampled. The rig was moved within a 10-ft radius of the initial boring and the location was reattempted when refusal was encountered at relatively shallow depths (e.g., 23 ft bgs). The Hydropunch sample was moved up 5 ft and sampling attempted when poor recovery was encountered. At four sampling depths, HP-1 (55-56 ft bgs), HP-2 (55-56 ft bgs), HP-5 (40-41 ft bgs) and HP-7 (40-41 ft bgs), the Hydropunch samples contained high levels of solids and were analyzed as soil.

Twenty-seven (27) Hydropunch groundwater samples were collected from intervals ranging from 15 ft bgs to 55 ft bgs and two duplicate samples (HP-2-B-DUP and HP-14-A-DUP) were collected by AECOM. At least one groundwater sample was collected from each Hydropunch location shown in Figure 2-3 except for HP-5 where there was insufficient groundwater to collect a sample due to clogging of the screen. Table 2-1 provides a summary of the Hydropunch groundwater sampling depths.

Sampling was conducted on March 16, 2009 through March 19, 2009. The Hydropunch device was advanced to the targeted depth and retracted to expose the stainless steel screened interval. Groundwater was purged from the Hydropunch device with the goal of obtaining clear water prior to sampling. Groundwater samples from the four Hydropunch locations were collected using a pump fitted with Teflon-lined poly tubing. A water level indicator was used to measure the static water level.

Groundwater samples were collected from the two Corning supply wells (SW-1 and SW-2) located to the southeast and downgradient from the Crystal Cleaners site on March 19, 2009. The groundwater samples were collected directly into the sample containers (40 mL vials). The taps were flushed briefly to remove stagnant water. The sample containers were filled slowly to minimize volatilization. Samples were collected upstream of the volatiles treatment system.

Groundwater samples were collected in pre-preserved (HCl) bottles provided by the laboratory, cooled to 4ºC after collection, and shipped to Chemtech, a NYSDOH Environmental Laboratory Approval Program (ELAP #11376) laboratory in Mountainside, New Jersey for VOC analysis (EPA Method SW846 8260).

Soil sample locations are shown on Figure 2-4. AECOM collected four direct push groundwater samples with low moisture content which were analyzed as soil samples from the following Hydropunch locations HP-1 (55-56 ft bgs), HP-2 (55-56 ft bgs), HP-5 (40-41 ft bgs) and HP-7 (40-41 ft bgs). A single soil sample was collected from each of the six locations (SS-1 through SS-6). The sample was collected at 20 ft bgs at SS-1; 15 ft bgs at SS-2, SS-3, SS-5, and SS-6; and at 10 ft bgs at SS-4. These soil samples were collected to determine whether there is a source on the Crystal Cleaners site. Locations SS-1, SS-3 and SS-6 showed the highest responses during the MIP investigation. Locations SS-1, SS-5 and SS-6 where collected in the vicinity of the kerosene tank and trenches along that side of the building to determine whether these site features are a source of contamination. SS-2 was collected to determine the horizontal extent of contamination. SS-4 was collected to determine background levels.

The soil samples were collected in unpreserved jars provided by the laboratory. The samples were kept cooled at 4ºC and sent to AECOM's subcontract laboratory (Chemtech; Mountainside, NJ). Samples were analyzed for VOCs (EPA Method SW846 8260), SVOCs (EPA Method SW846 8270), pesticides (EPA Method SW846 8081), PCBs (EPA Method SW846 8082) and metals (EPA Method SW846 6010, 7470/7471).

YEC, Inc. (YEC) conducted a land survey of the Hydropunch (HP) locations on December 14, 2009. The coordinates are provided in Appendix D.

2.3 Soil Sampling June 2009

Soil samples were collected from within the Crystal Cleaners facility on June 22, 2009 at the direction of NYSDEC. AECOM, Aztech, and NYSDEC were present. Aztech drilled through the concrete slab. Sample locations are shown on Figure 2-5. Samples were collected with a hand auger at a depth of 4-5 ft bgs. A tank-like structure was previously identified during the utility clearance activities outside of the building in the rear of the property. During the sampling inside, this was found to be the ceiling over stairs (a vault), not a tank. A PID reading was collected from the boring at each sampling location.

The soil samples were collected in unpreserved jars provided by the laboratory. The samples were kept cooled at 4ºC and sent to AECOM's subcontract laboratory (Chemtech; Mountainside, NJ). Samples were analyzed for VOCs (EPA Method SW846 8260).

2.4 Direct Push Soil Classification August 2009

AECOM, Aztech, and NYSDEC mobilized to the site on August 13, 2009 to identify the depth of the clay later at up to five locations. The boring locations are shown on Figure 2-6. Soil samples were collected in macrocores using a direct push rig. The Unified Soil Classification System (USCS) was used to describe the soil. Boring logs are provided in Appendix C. Clay was encountered at 27 ft bgs at boring GEO-1. Refusal was hit at 47 ft bgs within the clay layer. A gravel/clay mixture was identified at 20 ft bgs at GEO-2 with predominantly clay at 22 ft bgs. Glacial till found was found at GEO-2 from 22 ft bgs to 30 ft bgs. Refusal was hit at 30 ft bgs within the clay layer. There was poor recovery from boring GEO-3. Extreme resistance was encountered from 20 ft bgs to 30 ft bgs indicating the presence of clay.

2.5 Well Installation and Groundwater Sampling

2.5.1 Rationale for Monitoring Well Locations

Six monitoring well locations were installed by AECOM as shown on Figure 2-7. MW-2 is located near the Crystal Cleaners site in the right-of-way. The 20-30 ft bgs screening interval corresponds to the depth where the highest contaminant concentration (HP-1) measured during groundwater sampling in March 2009 was observed. MW-1 is located upgradient from the Crystal Cleaners site, and is screened at the same interval as MW-2. Wells MW-3 and MW-5 are located downgradient of the site along the interpreted groundwater flow direction according to MACTEC (2007). The screened intervals are deeper than MW-2 for MW-3 (25-35 ft bgs) and MW-5 (45-55) assuming the plume will sink as it moves downgradient. The screened interval at MW-5 overlaps the shallow end of the screening interval for the nearby Corning supply wells (SW-1 - 50-70 ft bgs and SW-2 43-63 ft bgs). MW-4 and MW-6 are located downgradient and to the southeast of the Crystal Cleaners site. The screened intervals for MW-4 (25-35 ft bgs) and MW-6 (45-55 ft bgs) correspond to the intervals for MW-3 and MW-5, respectively. Monitoring well information is summarized on Table 2-2.

2.5.2 Monitoring Well Installation

AECOM and the drilling subcontractor (Land, Air Water Environmental Services, Inc. [LAWES]) installed the six permanent monitoring wells on October 26, 2009 through October 29, 2009 at the direction of NYSDEC. AGS conducted a geophysical survey and utility clearance at each boring location on October 26, 2009. The borings were advanced using 4.25 inch hollow stem augers (HSAs). The HSAs were advanced to the target depth for well installation. No split spoon samples were collected. The monitoring wells were installed as single-cased monitoring wells. The monitoring wells were constructed of 2-inch schedule 80 PVC pipe with a 5-ft 0.010 slot screen. The filter pack material (No. 1 sand) was placed a minimum of 2 ft above the top of the screen using a tremie pipe. A bentonite seal (bentonite chips) was placed in the annular space to a minimum depth of 2 ft above the sand pack. The remaining borehole was grouted using cement-bentonite grout. A flush-mounted protective casing was installed and the wellhead for each riser was labeled distinctly and fitted with a sealing cap. Soil cuttings were collected in 55-gallon drums.

After the grout was allowed to set for at least eight hours, each new monitoring well was developed to achieve a hydraulic connection between the formation and the well screen. The wells were developed using a surge and pump method. A Waterra pump with poly tubing was used for development at each well. The well was purged until the water ran clear. No parameters were measured during development. The purge water did not have any visible contamination and was collected in 55-gallon drums.

YEC conducted a land survey of the permanent monitoring wells on December 14, 2009. The coordinates are provided in Appendix D.

2.5.3 Groundwater Sampling

Groundwater sampling activities were conducted on December 3 and December 4, 2009 by AECOM and YEC. Prior to sample collection, AECOM measured the groundwater elevation at the six wells. The groundwater samples were collected using the low-flow sampling method. Water quality parameters (pH, dissolved oxygen [DO], specific conductivity, temperature, and turbidity) were measured using a flow-through cell. A water level indicator was used to measure depth during sampling. The wells were purged at a rate of approximately 300 mL/min. A QED MP10 controller was used with the QED Sample Pro bladder pump. Water samples were collected after stabilization of the water quality parameters. Purging was considered complete when the indicator parameters stabilized over three consecutive readings. Stabilization parameters are:

- pH: ± 0.1
- conductivity: ± 3%
- DO: ± 10 mV
- ORP: ±10% and
- Turbidity: less than 50 NTU.

During sample collection, the flow through cell was disconnected and the sample tubing discharge was transferred directly into the laboratory-supplied sample containers. The dedicated Teflon lined tubing was placed back into the well after sampling for future use. The non-dedicated sampling equipment was decontaminated prior to collecting each sample. Groundwater sampling logs are provided in Appendix C.

2.5.4 Analysis of Groundwater Samples

Water samples were collected in pre-preserved bottles provided by the laboratory, cooled to 4ºC after collection, and shipped to the subcontract laboratory (Chemtech; Mountainside, NJ) for analysis. Groundwater samples from the six monitoring wells were analyzed for VOCs (EPA SW846 Method 8260), metals (whole water and field filtered; EPA Method 200.7), ferrous iron (HACH 8146), biochemical oxygen demand (BOD; Standard Methods [SM] 5210B), chemical oxygen demand (COD; SM 5220), alkalinity (SM 2320B), ammonia (SM 4500-NH3), nitrate, chloride, and sulfate (EPA 300.0), phosphorous (EPA 365.3), sulfide (EPA 9034), total organic carbon (SM 5310B), and methane, ethane, and ethene (PM01C/AM20GAx)..

2.6 Soil Vapor Intrusion Sampling 2009

The goal of the soil vapor intrusion sampling was to determine whether actions were needed to address exposures to site-related contaminants, which may move from contaminated groundwater into the indoor air of an overlying structure through a process referred to as soil vapor intrusion. The results obtained from this soil vapor intrusion study were used to identify the structures within the area that required no further action, reduction of exposure, continued monitoring, or mitigation.

2.6.1 Pre-Sampling Building Survey

Pre-sampling building surveys were performed on February 24 and 25, 2009, March 3, 2009, and March 24, 25, and 26, 2009, in accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (SVI Guidance) (NYSDOH, 2006). A total of 14 residential and three commercial properties were surveyed during these events. The focus of the pre-sampling building survey was to select sampling locations, identify chemical usage, and to identify and minimize conditions that may interfere with the proposed testing. The survey evaluated the type of structure, floor layout, air flows and physical conditions. Based on the findings of this survey, AECOM selected the sampling locations. Information obtained during the pre-sampling building survey, including information on sources of potential indoor air contamination, was documented on the NYSDOH Indoor Air Quality Questionnaire and Building Inventory Form for each structure.

A product inventory was also conducted during the pre-sampling building survey to identify chemicals and products that may bias sampling results. In addition, the presence and description of odors and portable vapor monitoring equipment readings (e.g., photoionization detector [PID]) were recorded. In addition to readings within the buildings, PID readings were taken outdoors to establish typical, background, or ambient values. Background (outdoor) readings were typically about 0.0 ppm but ranged as high as 5.0 ppm (e.g., shortly after a truck passed the location where the reading was taken).

Residents were provided with a list of activities to avoid 24 hours prior to and during sampling. The list is provided in Appendix C.

2.6.2 Sampling Locations

Based on the observations made during the pre-sampling building survey, AECOM identified locations for the collection of the sub-slab vapor, indoor air, and outdoor air samples. Indoor air sampling locations were selected primarily in areas routinely occupied by the residents and/or employees, while sub-slab vapor sampling locations were selected to provide coverage of the presumed lateral extent of the soil vapor plume. Sub-slab vapor sampling locations were also selected based on the condition of the basement floor and presence of crawl spaces. Basement indoor air samples were collected for properties that had unfinished basements, sump, and drains with exposed soil. A summary of air samples collected in each structure is provided in Table 2-3.

The majority of the structures were sampled March 3, 2009 to March 4, 2009 (H01 to H05, H08 to H14 and H16). Structures H06, H07, H15, and H17 were sampled March 26, 2009 to March 27, 2009 because access was not available earlier in March 2009. At the direction of NYSDEC and NYSDOH, AECOM collected basement indoor air samples March 26 and 27, 2009 from Structures H09 and H10. Structures H01, H02, H03, H04, and H05 were resampled in February 2010 at the request of NYSDEC/NYSDOH to collect sub-slab vapor samples. A sub-slab vapor sample was not collected initially from structures H02 and H05 due to the presence of a drain and exposed soil.

2.6.3 Sub-Slab Vapor Sample Collection

AECOM personnel installed the temporary probes. A powered drill was utilized to make a 1-inch diameter hole through concrete slab. The drill bit was advanced approximately 6 inches into the sub-slab material at each location to create an open cavity. A teflon-lined polyethylene tube was then inserted into the hole. The annulus around the tube was sealed with a non-volatile putty to the top of the cement slab.

After installation of the probe, the tubing was connected to a SKC pump, and up to one liter (approximately three times the volume of air in the tubing and probe) of sub-slab vapor was purged at a rate less than 200 mL/min]). Once purging was completed, the sampling tube was connected to a 6-liter, stainless steel, certified clean Summa canister equipped with a pre-set regulator designed to sample for a 24-hour period. A log was completed for each sampling location (Appendix C). The log included sample identification, sampling media identification, date and time of sample collection, identity of sampling technicians, sampling methods and devices, and vacuum of canisters before and after samples were collected. After setup was complete, samples were drawn concurrently with indoor and outdoor air samples at each property. At the completion of the sampling, all holes were patched to restore the pre-sampling condition.

2.6.4 Indoor Air Sample Collection

For the indoor air sampling program, indoor air samples were collected by placing the Summa canister in the breathing zone (4 to 6 ft above the ground). The flow regulator was connected to a 6-liter, stainless steel, certified clean Summa canister equipped with a pre-set regulator designed to sample for 24 hours. A log was completed for each sampling location; the logs are included in Appendix C.

2.6.5 Outdoor Air Sample Collection

For the outdoor air sampling program, the locations of the samples were selected such that they were removed from outdoor operations that are known to generate VOCs (e.g., loading dock, parking lot). Indoor air samples were collected by placing the Summa canister in the breathing zone (4 to 6 ft above ground). The flow regulator was connected to a 6-liter, stainless steel, certified clean Summa canister equipped with a pre-set regulator designed to sample for a 24-hour period. A log was completed for the outdoor air sampling location; the logs are included in Appendix C.

2.6.6 Analytical Methodology

The Summa canisters were retrieved at the completion of the 24-hour sample time. Test America Laboratories of South Burlington, Vermont, an NYSDOH ELAP certified laboratory, analyzed the samples for VOCs using EPA Method TO-15. The quantitation limit was less than 1 $\mu g/m^3$ for all compounds in all media (sub-slab vapor, indoor air and outdoor air samples) in undiluted samples (i.e., samples with a dilution factor [DF] of 1.0); the quantitation limit for TCE was less than 0.25 $\mu g/m^3$ (typically 0.12 $\mu g/m^3$) to meet the evaluation criteria in the Soil

Vapor/Indoor Air Matrix 1 (NYSDOH, 2006). The Summa canisters were certified clean (batch certification) by the laboratory. The laboratory report and methodology comply with the NYSDEC/NYSDOH requirements.

Site-specific quality control (QC) included submission of three trip blanks (labeled Trip Blank, each associated with the shipment of a single sample type) and field duplicates (co-located samples). In addition, the laboratory performed batch QC as required by the method. Third party data review was performed and documented in a Data Usability Summary Report (Appendix E, see discussion of results in Section 4).

2.7 Soil Vapor Intrusion 2010

Structures H01 through H05 were resampled from February 13, 2010 to February 14, 2010 at NYSDEC's direction. The number of each type of indoor air sample is listed on Table 2-3 by structure. The sampling method and analytical methodology for 2010 are the same as described in Section 2.6. The samples were collected from the same locations as 2009. Sub-slab vapor samples were collected in structures H02 through H05 in 2010, but not in 2009. The sub-slab vapor samples were located away from the foundation walls and cracks in the slab to the extent possible. Sample logs were completed for the air samples and are included in Appendix C. Information obtained during the pre-sampling building survey, including information on sources of potential indoor air contamination, was documented on the NYSDOH Indoor Air Quality Questionnaire and Building Inventory Form for each structure.

2.8 Utility Clearance

The driller contacted DIGSAFE and a geophysical survey was conducted prior to the start of drilling for the MIP investigation, direct push groundwater sampling and soil collection, and permanent monitoring well installation. AGS conducted a geophysical survey and utility clearance at each boring location.

2.9 Decontamination

All sampling tools were decontaminated with a laboratory grade detergent (e.g., Alconox) and a hot water pressure washer between probe holes. All poly tubing and acetate liners were discarded after use. Decontamination water was disposed on site. Wash buckets and potable water were available on site for personnel decontamination.

2.10 IDW Disposal

Investigation derived wastes generated from installation and sampling of the permanent monitoring wells were temporarily stored at the Crystal Cleaners site in 55 gallon drums. AECOM collected composite samples from the drums on October 29, 2009 for VOCs, PCBs and RCRA metals analysis. The data are provided in Appendix D. Environmental Waste Minimization, Inc. (EWMI) labeled and transferred the drums to a disposal facility as nonhazardous waste on December 4, 2009.

2.11 Probe Hole Closure

All probe holes were backfilled with bentonite, indigenous soil and/or clean sand.

3 LABORATORY ANALYTICAL RESULTS

This section summarizes the laboratory analytical results and provides a comparison to the applicable NYS environmental criteria or guideline values.

3.1 Groundwater Sample Data March 2009

Groundwater samples were collected from 13 direct push borings and the two supply wells located southeast of the Crystal Cleaners site for VOCs analysis utilizing US EPA SW-846 Method 8260. The groundwater data are compared to the NY Class GA Groundwater Criteria and presented in Table 3-1. The analytical results for compounds with one or more exceedances of the NYS Class GA Groundwater criteria are summarized in Figure 3-1. Only PCE and incomplete dechlorination compounds TCE, cis-1,2-dichloroethene (DCE), and vinyl chloride are at levels exceeding the NYS Class GA Groundwater Criteria. PCE concentrations exceeded the NYS Class GA criterion of 5 µg/L at the two sampling locations near the Crystal Cleaners site:

- HP-1 at 16 ft bgs – 75 µg/L
- HP-1 at 25 ft bgs – 210 µg/L
- HP-3 at 31 ft bgs – 430 µg/L
- HP-3 at 40 ft bgs – 84 µg/L

PCE concentrations exceeded the NYS Class GA criterion of 5 µg/L at boring HP-2 (9.8 µg/L and 14 µg/L in the duplicate sample) located southwest of the Crystal Cleaners site.

PCE and incomplete reductive dechlorination compounds (TCE, DCE and vinyl chloride) exceeded NYS Class GA Groundwater criteria at borings HP-6, HP-7, HP-8, HP-9 and HP-11 which are located directly southeast of the Crystal Cleaners. PCE levels exceeded the criterion of 5 µg/L at HP-6, HP-7, HP-8, and HP-9 with concentrations up to 91 µg/L. TCE levels exceeded the criterion of 5 µg/L at HP-6 with concentrations up to 34 µg/L. DCE levels exceeded the criterion of 5 µg/L at HP-6 and HP-8 with concentrations up to 120 µg/L. Vinyl chloride levels exceeded the criterion of 2 µg/L at HP-6 (30 ft bgs) with a concentration of 4.5 µg/L.

There are no exceedances of the NYS Class GA Groundwater criteria at HP-4 and HP-10 located to the southwest and directly south of the Crystal Cleaners site, respectively; or at borings HP-12, HP-13, and HP-14, and supply well SW-1 located southeast of the site. The sample collected from SW-2 southeast of the site, which is the sampling location farthest from the site, exceeds the NYS Class GA Groundwater criterion of 5 µg/L for PCE at 15 µg/L.

3.2 Soil Sampling March 2009

Nine soil samples (plus a field duplicate) were collected from four of the Hydropunch boring locations and six additional direct push boring locations. The samples were submitted for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, and metals. The soil analytical results are compared to the NYS Part 375 Unrestricted Use Soil Cleanup Objective (SCO) (6 NYCRR Part 375-6.8(a)) and presented in Table 3-2 through Table 3-6.

VOC detections are summarized in Figure 3-2. Petroleum related compounds exceeded NYS Part 375 Unrestricted Use SCOs in sample SS-1 (20-21 ft bgs):

- Xylene exceeded the NYS Part 375 Unrestricted Use SCO for xylene (mixed) of 260 µg/kg at 165,000 µg/kg;
- Ethylbenzene exceeded the NYS Part 375 Unrestricted Use SCO of 1,000 µg/kg at 25,000 µg/kg; and
- Toluene exceeded the NYS Part 375 Unrestricted Use SCO of 700 µg/kg at 1,500 µg/kg.

Toluene was detected at SS-6 located on the Crystal Cleaners site near SS-1. These concentrations may result from the previous use of the site as a gasoline service station.

PCE was detected at low levels (1.5 µg/kg to 860 µg/kg) in all samples except HP-2 (55-56 ft bgs) which was nondetect. Acetone was detected in all soil samples except SS-1 and SS-3 at levels ranging from 14 µg/kg to 190 µg/kg. Four samples (HP-1-C [55-56 ft bgs], HP-2-C [55-56 ft bgs], and HP-5-A [40-41 ft bgs], and HP-7-C [40-41 ft bgs]) had acetone concentrations exceeding the NYS Part 375 Unrestricted Use SCO of 50 µg/kg.

No SVOC detections exceed the NYS Part 375 Unrestricted Residential Use SCO. No pesticides or PCBs were detected in the soil samples. One detection of lead exceeded the NYS Part 375 Unrestricted Use SCO of 63 mg/kg at 74.2 mg/kg (SS-2).

3.3 Soil Sampling June 2009

Soil samples (plus a field duplicate) were collected from five locations at 4 to 5 ft bgs at the Crystal Cleaners facility. The samples were submitted for VOC analysis. The soil analytical results are compared to the NYS Part 375 Unrestricted Use SCOs and presented in Table 3-7. VOC detections are summarized in Figure 3-3. One detection of acetone exceeded the NYS Part 375 Unrestricted Use SCO of 50 µg /kg at 98 µg /kg in SOIL-1 (4-5 ft bgs). PCE was detected at low levels (10 µg /kg to 330 µg /kg) in all samples. Styrene was detected at one location (SOIL-2, 16 µg/kg). No other VOCs were detected.

3.4 Well Installation and Groundwater Sampling December 2009

Groundwater samples were collected from six permanent well locations for analysis of VOCs, metals and wet chemistry. The groundwater data are compared to the NY Class GA Groundwater

Criteria and presented in Table 3-8 through Table 3-10. The analytical results for PCE and dechlorination compounds are summarized in Figure 3-4.

- PCE levels exceeded the NYS Class GA Groundwater criterion of 5 µg/L at MW-2 (340 µg/L) adjacent to the Crystal Cleaners site and MW-3 (34 µg/L [32 µg/L for the sample duplicate]) south of Crystal Cleaners. PCE was not detected in the other monitoring well samples.

- TCE concentrations exceeded the NYS Class Groundwater GA criterion of 5 µg /L at the MW-2 (6.2 µg/L). TCE was detected below the NYS Class GA criterion at MW-3 (0.83 µg/L) and MW-6 (0.57 µg/L).

- cis-1,2-DCE was detected below the NYS Class Groundwater GA criterion of 5 µg/L at MW-2 (2.3 µg/L) and MW-3 (1.7 µg/L).

- Vinyl chloride was detected below the NYS Class Groundwater GA criterion of 2 µg/L at MW-2 (1.6 µg/L).

Metals analyses were conducted on filtered and unfiltered samples from each of the six wells (Table 3-9). Three metals have levels exceeding the NYS Class GA Groundwater criteria:

- Iron levels exceed the NYS Class GA Groundwater criterion of 300 µg/L in the MW-3 unfiltered sample (6,560 µg/L [7,053 µg/L sample duplicate]) and filtered sample (2,260 µg/L); MW-5 unfiltered sample (6,550 µg/L) and filtered sample (418 µg/L); and MW-6 unfiltered sample (11,800 µg/L). Iron was detected below the NYS Class GA Groundwater criterion in samples from MW-1 and MW-2 (67.9 µg/L [filtered MW-2] to 153 µg/L [unfiltered MW-1]). Iron was not detected in samples from MW-4 and the filtered sample from MW-6.

- Manganese levels exceed the NYS Class GA Groundwater criterion of 300 µg/L in the MW-3 unfiltered sample (532 µg/L [567 µg/L sample duplicate]); MW-5 unfiltered sample (697 µg/L) and filtered sample (554 µg/L); and MW-6 unfiltered sample (859 µg/L) and filtered sample (521 µg/L). Manganese was detected below the NYS Class GA Groundwater criterion in the remaining samples (6.33 µg/L [filtered MW-1] to 290 µg/L [filtered MW-3]).

- Sodium levels exceed the NYS Class GA Groundwater criterion of 20,000 µg/L in all samples at concentrations ranging from 40,000 µg/L (filtered MW-1) to 227,050 µg/L (unfiltered MW-3 sample duplicate).

Of the wet chemistry parameters (Table 3-10), sulfide exceeds the NYSDEC Class GA Groundwater criterion of 0.05 mg/L with all samples having a concentration of 2.4 mg/L; and alkalinity exceeds the NYSDEC Class GA Groundwater criterion of 250 mg/L for MW-6 (280 mg/L).

3.5 Air Sampling 2009

A total of 46 air samples and three duplicate samples were collected from 17 structures in 2009. The air samples include sub-slab vapor samples, indoor air samples, and outdoor air samples. All air samples were analyzed for VOCs by USEPA method TO-15. The analytical results are presented in Table 3-11 through Table 3-13. Detected VOCs included chlorinated aliphatics (e.g., 1,2-dichloroethane and PCE), and petroleum-related compounds (e.g., m/p-xylene).

- PCE was detected in seven structures. Detections ranged from 0.39 µg/m^3 to 60 µg/m^3. PCE was detected in four of the six sub-slab vapor samples.
- TCE was detected in two structures (H04 first floor 7 µg/m^3 and basement 4.6 µg/m^3; and H16 first floor 0.54 µg/m^3). TCE was detected in two of the six sub-slab vapor samples (H01 1.3 µg/m^{3}and H10 0.91 µg/m^3).
- Carbon tetrachloride was detected in all structures with detections ranging from 0.28 µg/m^3 to 0.82 µg/m^3. Carbon tetrachloride was not detected in any of the sub-slab vapor samples.
- 1,1,1-Trichloroethane was detected in three structures. Detections ranged from 0.31 µg/m^3 to 3.6 µg/m^3. 1,1,1-Trichloroethane was not detected in any of the sub-slab vapor samples.

The concentrations of TCE and PCE in the sub-slab vapor and indoor air samples with the applicable matrix from NYSDOH (2006) are listed in Table 3-14.

3.6 Air Sampling 2010

A total of 14 air samples and one duplicate sample were collected from five structures (H01 through H05) in 2010. The air samples include sub-slab vapor samples, indoor air samples, and outdoor air samples. All air samples were analyzed for VOCs by USEPA method TO-15. The analytical results are presented in Table 3-15 through Table 3-17. Detected VOCs included chlorinated aliphatics (e.g., 1,2-dichloroethane and PCE), and petroleum-related compounds (e.g., m/p-xylene).

- PCE was detected in seven of the eight indoor air samples. Detections ranged from 0.31 µg/m^3 to 6.2 µg/m3. PCE was detected in all sub-slab vapor samples at 4.7 µg/m^3 to 1,100 µg/m^3.
- TCE was detected in H04 (first floor 0.91 µg/m^3 and basement 0.46 µg/m^3). TCE was detected in three of the sub-slab vapor samples.
- Carbon tetrachloride was detected in all structures. Carbon tetrachloride was not detected in the sub-slab vapor samples.

PCE was not detected in the outdoor air samples.

The concentrations of TCE and PCE in the sub-slab vapor and indoor air samples with the applicable matrix from NYSDOH (2006) are listed in Table 3-18.

4 ANALYTICAL DATA AND USABILITY

All the groundwater, soil, and air data generated for this RI/FS were validated by an independent subcontractor, Environmental Data Services, Inc. (EDS) of Williamsburg, VA. The laboratory data packages and the data usability summary reports (DUSRs) are provided in Appendix E on CD. The tabulated data used in this report include any qualifiers applied during validation.

Data were generated and validated for five events:

- Direct Push Soil Sampling and Groundwater Sampling March 2009
- Soil Sampling June 2009
- Groundwater Sampling December 2009
- Indoor Air Sampling 2009
- Indoor Air Sampling 2010

A summary of the data quality review of each event is provided below.

4.1 Direct Push Soil Sampling and Groundwater Sampling March 2009

Groundwater data from samples collected in March 2009 were reported by Chemtech as three sample delivery groups (SDGs), A1935, A1938 and A1898, with one DUSR for each SDG. A total of 60 analyses were validated, included three trip blanks, three field blanks, three MS/MSD pairs, three field duplicates, 39 environmental samples, four dilutions and two reanalyses. Ten of the samples were soil samples. Data quality was generally acceptable.

A1938: The SDG consists of six water samples analyzed for VOCs only. There were no rejections of data. Overall, the data are acceptable for the intended purposes. Data were not qualified.

A1935: The SDG consists of two soil samples and 17 water samples analyzed for VOCs only. There were no rejections of the data. Overall, the data are acceptable for the intended purposes. Several compounds were qualified as estimated in several samples due to high continuing calibration percent difference (%D) values. The PCE result for sample HP-6-B was qualified due to a high concentration. The sample was diluted and reanalyzed. The dilution result for PCE should be used for reporting.

A1898: The SDG consists of seven soil samples and 16 water samples analyzed for VOCs, SVOCs, pesticides, PCBs, and TAL metals. There were no rejections of the data. Overall the data are acceptable for the intended purposes. Data were qualified for the following deficiencies:

- All positive VOC results were qualified as estimated in one sample due to a high surrogate recovery.
- Four VOC compounds were qualified as estimated in one sample due to low MS/MSD recoveries (acetone, 4-methyl-2-pentanone, trans-1,3-dichloropropene, and 2-hexanone).

- Two VOC compounds were qualified as estimated in one reanalysis due to low laboratory control sample (LCS) recoveries (HP-1-CRE – bromomethane and 1,2-dichlorobenzene).
- Several compounds were qualified as estimated in six samples, two dilution analyses, and two reanalyses due to high continuing calibration %D values.
- Several VOC compounds were qualified as estimated in two samples due to low internal standard recoveries.
- One SVOC compound was qualified as estimated in eight samples due to low LCS recoveries.
- One or two SVOC compounds were qualified as estimated in eight samples due to high continuing calibration %D values.
- One metal (zinc) was qualified as estimated in all soil samples due to low MS/MSD recoveries.

4.2 Soil Sampling June 2009

Soil data from samples collected in June 2009 were reported by Chemtech in one SDG, A3266. A total of 10 analyses were validated, including one trip blank, one field blank, one MS/MSD pair, one field duplicate, and five environmental samples. Data quality was generally acceptable.

A3266: There were minor rejections of the data. Acetone was rejected in five samples due to a low initial calibration relative response factor (RRF) value. Overall, the remaining data are acceptable for the intended purposes as qualified for the following deficiencies:

- Acetone was qualified as estimated in one sample due to a low initial calibration RRF value.
- PCE was qualified as estimated in the MS/MSD sample due to a high MSD recovery.

4.3 Groundwater Sampling December 2009

Groundwater data from samples collected in December 2009 from the permanent monitoring wells were reported by Chemtech as two SDGs, A5389 and A5424, with one DUSR for each SDG. Analyses were reported for VOCs, metals, and wet chemistry parameters. Data validation was conducted on 12 analyses, consisting of six environmental samples, one field duplicate, one dilution, one field blank and one trip blank.. Data quality was generally acceptable.

A5389: There were no rejections of the data. Overall the data are acceptable for the intended purposes. Data were qualified for the following deficiencies:

- Data for two VOC compounds (PCE and bromoform) were qualified as estimated in two samples due to high continuing calibration %D values.
- Lead was qualified as not detected in all samples due to method blank contamination.
- Iron was qualified as estimated in all samples due to low MS/MSD recoveries.
- Three wet chemistry parameters (nitrate, nitrate+nitrite, and sulfide) were qualified as estimated in three samples due to missed holding times.

- Total organic carbon (TOC) data were qualified as estimated in all samples due to a high MS/MSD relative percent difference (RPD) values.

A5424: There were no rejections of the data. Overall the data are acceptable for the intended purposes. Data were qualified for the following deficiencies:

- Two compounds (PCE and bromoform) were qualified as estimated in two samples due to high continuing calibration %D values.
- Two metals compounds (aluminum and iron) were qualified as not detected in several samples due to method blank contamination.
- Zinc was qualified as not detected in five samples due to field blank contamination.
- Three wet chemistry compounds (nitrate, nitrate+nitrite, and sulfide) were qualified as estimated in three samples due to missed holding times.

4.4 Indoor Air Sampling 2009

Indoor air data from samples collected in 2009 were reported by TestAmerica as three sample delivery groups (SDGs), NY130550, NY130506 and NY130944, with one DUSR for each SDG. A total of 52 analyses were validated, included two trip blanks, three field duplicates, 46 environmental samples, and one dilution. Data quality was generally acceptable.

NY130550: The SDG consists of 16 air samples. There were no rejections of the data. Overall the data are acceptable for the intended purposes. There were no qualifications of the data.

NY130506: The SDG consists of 21 air samples. There were no rejections of the data. Overall the data are acceptable for the intended purposes. Data were qualified for the following deficiencies:

- One or two compounds were qualified as estimated in 17 samples due to high and low LCS recoveries.
- One compound was qualified as non-detect in 15 samples due to method blank contamination.

NY130944: The SDG consists of 15 air samples (including one dilution analysis). There were no rejections of the data. Overall the data are acceptable for the intended purposes. There were no qualifications of the data.

4.5 Indoor Air Sampling 2010

Indoor air data from samples collected in February 2010 were reported by TestAmerica in SDG NY136001. A total of 17 analyses were validated, including 14 environmental samples, one field duplicate, and two dilutions. Data quality was generally acceptable.

NY136001: There were no rejections of data. Precision for the field duplicate pair (H02-SS-20100213 and its duplicate H52-SS-20100213) was good (RPDs for the 12 detected compounds ranted from 0 to 7 percent). Overall, the data are acceptable for the intended purposes. Data were qualified for the following deficiencies:

- 4-Ethyltoluene was qualified as estimated in one sample due to a high LCS recovery.
- 1,2-Dichlorotetrafluoroethane was qualified as estimated in five samples due to a high continuing calibration %D.

5 GEOLOGY/HYDROGEOLOGY

5.1 Regional Geology

The Corning aquifer is a valley-fill glacial aquifer. The extent of the aquifer is shown on Figure 5-1. The aquifer has an area of approximately 28 square miles located in 0.5 mile to 1 mile wide valleys. The aquifer overlies four deeply incised bedrock valleys located at the intersection of the Chemung River, Canisteo, Tioga, and Cohocton Rivers.

Two geologic sections are shown in Figure 5-2. The bedrock valleys are partially filled with sand and gravel intermixed with fine grained glacial-lake deposits. Outwash and alluvial sand and gravel cover the valley floors as a result of redeposition by the streams. Features of the land surface include terraces, eskers, and alluvial fans. The following layers are present:

- The bedrock is flat-lying shale, limestone, siltstone, and sandstone. The valleys were formed by preglacial drainage which was enhanced by glacial scour.
- Glacial till deposits overlay the valley walls. Some of the till was eroded and formed alluvial fans.
- Ice-contact and outwash deposits consisting of alluvial sand.
- Glacial lake deposits consisting of clay, silt and fine sand.

5.2 Site Geology

Soil borings were advanced in the vicinity of the Crystal Cleaners site. Three borings were advanced for the purpose of characterizing soils in the area using a direct push rig (Figure 2-6). The soil is generally coarser material (gravel and sand) overlying a thick clay later at a varying elevation. A summary of the soil observations is as follows:

- GEO-1: The soil consisted of gravel with trace amounts of fine sand and silt to 27 ft bgs; light gray clay was observed from 27 ft bgs to 46.5 ft bgs (908 ft amsl to 888.5 ft bgs). The rig could not advance beyond 46.5 ft bgs.
- GEO-2: The soil consisted of gravel with trace amounts of medium to fine sand to approximately 20 ft bgs; light gray clay with some gravel and trace amounts of silt was observed from 20 ft bgs to 30 ft bgs (921 ft amsl to 902 ft bgs). The rig could not advance beyond 30 ft bgs. The clay layer appears to be glacial till.
- GEO-3: The soil consisted of gravel with trace amounts of medium and silt to approximately 10 ft bgs, followed by a layer of medium sand with trace amounts of coarse and fine sand to approximately 20 ft bgs; light gray clay was observed from 20 ft

bgs to 30 ft bgs (913 ft amsl to 903 ft bgs). The boring was not advanced further because the rig required repair.

These findings are consistent with the soil characterization from previous investigations and USGS (1995) for the Corning aquifer.

5.3 Regional Hydrogeology

The saturated thickness of the aquifer typically ranges between 20 ft and 60 ft. In the vicinity of the site, the saturated zone is 60 ft or thicker. The groundwater surface is typically at the level of the stream traversing the area. Groundwater is found near ground level in some locations. Aquifer recharge consists of precipitation and inflow from the adjacent bedrock and by downvalley movement of water through the aquifer, stream leakage.

Groundwater flow for the aquifer is shown on Figure 5-3. The direction of groundwater flow is generally downvalley toward the principal streams. Groundwater provides base flow to the streams. In areas with losing tributary streams, groundwater flow is away from the tributary into the aquifer. Near the Crystal Cleaners site, groundwater flow is toward the southeast.

Production for wells ranges from 50 to about 1,000 gallons per minute (gpm). The two public wells (SW-1 and SW-2) near the site produce 700 gpm. Yield in the vicinity of the site is expected to be high (greater than 1,000 gpm corresponding to the thick saturated layer in this portion of the aquifer (60 ft or greater). According to USGS (1995), production from the Corning aquifer was approximately 16 million gallons per day (mgd) of which 7 mgd (44 percent) was produced by the public water supply for the city of Corning, 8.3 mgd (51 percent) was produced for industrial or power uses, and 0.8 mgd (5 percent) was produced by domestic or commercial wells.

5.4 Site Hydrogeology

Groundwater level measurements were recorded on December 2 and December 3, 2010 from the monitoring wells installed in October 2009; groundwater was encountered at 12 ft bgs to 20 ft bgs (920 ft amsl to 912 ft amsl). Groundwater elevation contours and monitoring well locations are shown on Figure 5-4. The groundwater elevation measurements were interpolated using inverse distance weighting. Groundwater flow is towards the southeast, consistent with those reported previously (USGS, 1995) and shown on Figure 5-3.

6 CONTAMINATION – NATURE AND EXTENT

6.1 Nature of Contamination

Historical data collected at the site and from nearby public wells since the 1980s have identified chlorinated VOCs as the contaminants in groundwater at the Crystal Cleaners site and immediate vicinity. Data collected during this RI are consistent with previous data with regard to the nature of contamination found. As shown on Tables 3-1 and 3-8, the VOCs detected at concentrations exceeding the NYS Class GA groundwater criteria are the chlorinated aliphatics PCE, TCE, DCE, and vinyl chloride. Since dry cleaners typically use PCE-based solvents, PCE is considered a source contaminant. TCE and DCE are considered “daughter” compounds resulting from the degradation or dechlorination of PCE.

PCE was detected in 14 Hydropunch groundwater samples at concentrations above the NYS Class GA criterion at concentrations ranging from 9.8 µg/L to 430 µg/L. TCE was detected in three Hydropunch groundwater samples at concentrations above the NYS Class GA criterion at concentrations ranging from 5.7 µg/L to 34 µg/L. DCE was detected in five Hydropunch groundwater samples at concentrations above the NYS Class GA criterion at levels ranging from 5 µg/L to 120 µg/L. Vinyl chloride was detected in one Hydropunch groundwater sample at a concentration above the NYS Class GA criterion, 4.5 µg/L.

PCE was detected in three of the six monitoring wells at concentrations ranging from 32 µg/L to 340 µg/L (see Table 3-8). TCE was detected in one well at 6.2 µg/L (MW-2S). No other VOCs were detected in samples from the monitoring wells at concentrations exceeding the NYS Class GA groundwater criteria. The data from the 2010 groundwater sampling event and the 2008 Hydropunch sampling event are also consistent with data from previous investigations (see Section 1.2.2).

Iron, manganese, sodium, and sulfide concentrations (Tables 3-9 and 3-10) exceeded the NYS Class GA groundwater criteria in groundwater samples. The groundwater is a calcium magnesium bicarbonate type (USGS, 1995). Dissolved solids concentrations ranged from 146 to 282 mg/L with an average of 212 mg/L in five samples collected by USGS. Excessive iron and manganese concentrations contribute to the hardness of the water. Sulfide concentrations from samples collected from the six monitoring wells were constant at 2.4 mg/L in all samples. Iron sulfides are typical in shales where are present in the bedrock. Sodium concentrations in the five USGS groundwater samples ranged up to 30,000 µg/L which exceeds the NYS Class GA criterion of 20,000 µg/L. Sodium concentrations in samples from the Crystal Cleaners monitoring wells range from 40,000 µg/L to 227,050 µg/L. The sodium levels may be due to diffusion from glacial brines either above or beneath the aquifer. Therefore, the elevated levels of iron, manganese, sulfide, and sodium, which exceed the NYS Class GA groundwater criteria but are considered background for this aquifer, are not assessed further in this document.

6.2 Extent of Contamination (Contaminant Distribution)

This section discusses the distribution of contamination at Crystal Cleaners and vicinity. While the major discussion of contaminant migration (transport) is in the following sections of this report, the discussion of contaminant distribution in this chapter assumes that groundwater flow is generally to the southeast.

A contaminant distribution map was developed for PCE in the shallow wells (Figure 6-1). The PCE concentration contours were developed using ESRI Spatial Analyst interpolation by inverse distance weighting and are presented essentially as the output from the program. The maximum PCE concentration at each location was used to develop the contours. The 5 µg/L limit is shown on Figure 6-1, representing the horizontal extent of the groundwater plume exceeding the NYS Class GA groundwater criterion for PCE.

The extent of the PCE groundwater plume is approximated considering the PCE groundwater concentrations from the Hydropunch and monitoring well sampling, the direction of groundwater flow, and the site location. The extent of the line is extrapolated beyond public well SW-2. The highest concentrations of PCE (up to 430 µg/L) are centered at the Crystal Cleaners site. The plume is moving to the southeast in the direction of groundwater flow. PCE concentrations decrease moving downgradient towards the residential property bounded by West Pulteney Street, Goff Street, West William Street, and Dunbar Street where maximum PCE detections at each sample location ranged from 5.2 µg/L and 91 µg/L. It is assumed that the plume extends to the southeast, decreasing in concentration below the NYS Class GA groundwater criterion of 5 µg/L, beyond public well SW-2.

TCE, DCE, and vinyl chloride were detected in the residential area to the southeast of the site at concentrations above the NYS Class GA groundwater criteria within the larger PCE groundwater plume. TCE was detected in all three depths sampled at one location (HP-6) at concentrations ranging from 5.7 µg/L to 34 µg/L. cis-1,2-DCE was detected at three locations (HP-8 [15 ft bgs], HP-9 [15 and 30 ft bgs], and HP-11 [15 and 35 ft bgs]) at concentrations ranging from 4.4 µg/L to 12 µg/L. Vinyl chloride was detected in one sample at one location (HP-6 [30 ft bgs]) at a concentration of 4.5 µg/L.

6.3 Volume of PCE Contaminated Groundwater

The volume between the groundwater surface and the depth of PCE contamination was estimated. The horizontal extent is limited to the 5 µg/L contour shown on Figure 6-1. The depth of contamination (where concentrations exceed the NYS Class GA groundwater criterion of 5 µg/L for PCE) within groundwater plume is roughly estimated at 40 ft from the Hydropunch groundwater and monitoring well sample results. The depth to water is approximately 15 ft. The thickness of the contaminated groundwater plume is estimated as the difference between the depth of contamination and the depth to water, 25 ft.

The volume of groundwater within the contaminated plume was estimated at 33 million gallons (MG) as follows:

Vp = Area (acres) x (DOC – DTW) (ft) x n_e x 43,560 ft^2/acre x 7.48 gallons/ft^3 x 0.000001 MG/gal

where:

Va = volume of the aquifer within the contaminated plume
Area = area within the approximate 5 µg/L contour for PCE (16 acres)
DOC = depth of PCE contamination (approximately 40 ft bgs)
DTW = depth to water (approximately 15 ft bgs)
n_e = effective porosity (0.25; lower range for gravel and in the upper range for sand [Argonne National Laboratory, 1993])

6.4 Uncertainties in Nature and Extent of Contaminant Distribution

The identity of the contaminants is well-established, with data collected from the permanent monitoring wells generally confirming findings from the Hydropunch sampling in terms of compounds detected (PCE and TCE), and the spatial distribution of the contamination.

The vertical extent of contamination is bounded at most sampling locations. The depth of contamination for HP-2, HP-6, MW-3 are not defined but are expected to be similar to neighboring sampling locations where a groundwater sample was collected at depth with a PCE concentration below 5 µg/L. The depth of contamination is also not defined at public well SW-2 which is screened between 43 ft bgs and 63 ft bgs. According to USGS (1995), the depth of permeable sand and gravel deposits is approximately 60 ft, indicating the depth of contamination is approaching the depth of the permeable layer as the plume moves farther to the southeast.

The estimated volume of PCE contaminated groundwater is a rough estimate because the vertical extent of contamination is not know precisely, the horizontal boundary is approximated, but may extend beyond the estimated boundary to the north and west from another source.

7 CONTAMINANT FATE AND TRANSPORT

Fate and transport properties are important for understanding the behavior of the chemicals of concern at the site. As discussed in Chapter 3, the most significant contaminant at the site (i.e., detected at the greatest frequency, the highest concentrations, and often exceeding groundwater criteria) is PCE. Degradation products (TCE, DCE, and vinyl chloride) are detected infrequently. This section focuses on the subsurface fate and the mobility of PCE. An understanding of the fate and transport of PCE is necessary to evaluate future potential exposure risks and to evaluate remedial technologies at the FS stage. Physical properties of PCE, TCE, DCE, and vinyl chloride are summarized on Table 7-1.

7.1 Potential Routes of Contaminant Transport

Contaminant transport pathways provide the mechanisms for contamination to travel from its area of deposition and to potentially leave the site. Potential contaminant transport pathways include:

- Soil vapor intrusion
- Groundwater flow off site
- Discharge of contaminated groundwater to downgradient surface water bodies
- Vertical infiltration of free phase chemicals into the unconfined and/or semi-confined aquifer(s)
- Rainwater flow through contaminated soils with subsequent flushing and dissolution into the deeper vadose zone and aquifer matrix

Of these potential mechanisms, soil vapor intrusion and groundwater flow, and movement of contaminants with groundwater, are the most significant routes of migration for chlorinated contaminants. Soil vapor intrusion is a process by which volatile chemicals migrate from a subsurface source into structures. Groundwater flow may discharge to the Chemung River downgradient from the site, since groundwater provides base flow for the streams in this area (USGS, 1995).

Vertical infiltration of free-phase chemicals (non-aqueous phase) is not relevant as no non-aqueous phase liquid (NAPL) has been observed at the site, and observed contaminant concentrations do not suggest the potential presence of NAPL.

Rainwater flow through contaminated soils (contaminant leaching) may have been a transport mechanism of historical significance. However, most of the site is paved, and contamination in the deep groundwater is related to migration and dispersion of contaminants in the dissolved phase.

7.2 Soil Vapor Intrusion

Soil vapor can enter structures through gaps or cracks in the slabs or basement walls and through openings around sump pumps or where pipes and electrical wires go through the foundation. The soil vapor is primarily drawn into the buildings due to the difference in pressure between interior and exterior pressures. Soil vapor, which is the air found in the pore space in the soil, may be contaminated by VOCs that have evaporated from groundwater or soil, NAPL or other subsurface sources. Soil vapor entering a structure may degrade the indoor air quality. Soil vapor migration is affected by environmental and building factors. Environmental factors include the soil conditions (e.g., wet or dry, fine- or coarse-grained), the level of VOC contamination, proximity to the source area, groundwater conditions, the presence of confining layers, underground conduits (e.g., utility lines), atmospheric conditions, and biodegradation processes. Building factors include the level of pollution in the outdoor air, VOCs found in attached garages, off-gassing of building materials, furnishings, and dry cleaned clothing, household products, indoor emissions from combustible heating systems and industrial processes, and occupant activities (e.g., use of glues or paints).

Migration of soil vapor from source areas is possible considering site environmental factors. The soil in the vicinity of the site is generally dry coarser material with layers of silt and clay which would allow for migration of soil vapor from the site. Higher levels of VOCs were detected near the dry cleaner and to the southeast. No groundwater conditions were identified that would curtail migration of contaminated soil vapor (e.g., the presence of a cleaner upper layer of groundwater). Underground utilities are present in the area which may serve as preferential pathways for vapor migration. The potential for soil vapor migration was evaluated for each structure through completion of the NYSDOH questionnaires and air sampling as described in Sections 2 and 3 of this report.

7.3 Groundwater Flow

Groundwater surface elevation data collected in December 2009 and contours are presented in Figure 5-4, and summarized on Table 2-2. As illustrated in this figure, the groundwater flow direction is towards the southeast. This result is consistent with the literature (e.g., USGS, 1964).

The following modified Darcy equation provides an estimate of the local groundwater seepage velocity, using the hydraulic gradient information with the average hydraulic conductivity:

$$\mathbf{V_s = Ki/n_e}$$

Where:

V_s -- groundwater seepage velocity (ft/day),
K-- hydraulic conductivity (ft /day),
i -- hydraulic gradient (ft/ft), and
n_e -- effective porosity.

The hydraulic gradient was estimated from the location and depth to water at monitoring wells MW-1 through MW-6. The Corning Aquifer is an unconsolidated sand and gravel, valley-fill aquifer with intergranular porosity under unconfined or water-table conditions. Hydraulic conductivity is generally high for valley-fill aquifers but varies depending on the sorting of aquifer materials and the amount of fine-grained material present (USGS, 2009). The hydraulic conductivity selected is the midpoint estimates for coarse grained ice-contact deposits (USGS, 1995) because of the coarse texture of the soils identified in the field. This estimate is likely to result in conservatively high estimates of groundwater flow because some finer grained deposits were identified in the field and may be present at depths greater than those observed in the field. Effective porosity was estimated at 0.25 which is in the lower range for gravel and in the upper range for sand (Argonne National Laboratory, 1993). Bulk density applied is for gravel with sand from SIMetric (2007). Groundwater flow is 4.53 ft/day using the above equation.

7.4 Contaminant Transport

The process by which a solute (dissolved phase contaminant) is transported by the bulk movement of groundwater flow is referred to as advection (Driscoll, 1986). The average linear velocity of groundwater through a porous aquifer is determined by the hydraulic conductivity, effective porosity of the aquifer formation, and hydraulic gradient (Freeze and Cherry, 1979). The velocity of a contaminant in the groundwater can be decreased if there is precipitation/dissolution or partitioning of the contaminant into other media (e.g., adsorption). These physio-chemical processes are discussed below.

7.4.1 Adsorption

One of the most important geochemical processes affecting the rate of migration of chemicals dissolved in groundwater is adsorption to and desorption from the soil matrix. If the organic chemical is strongly adsorbed to the solid matrix (i.e., the aquifer material), the chemical is relatively immobile and will not be leached or transported from the source. If the organic chemical is weakly adsorbed, the chemical can be transported large distances from the source, contaminating large quantities of groundwater. The degree of adsorption also affects other transformation reactions such as volatilization, hydrolysis, and biodegradation since these reactions require the chemical to be in the dissolved phase.

The distribution of chemicals between water and the adjoining solid matrix is often described by the soil/water distribution coefficient, K_d. For dissolved chemicals at environmental concentrations, the distribution coefficient is usually defined as the ratio of concentrations in the solid and water phase (Freeze and Cherry, 1979). K_d has been shown to be proportional to the fraction of natural organic carbon (f_{oc}) in the solid matrix, the solubility of the chemical in the aqueous phase and the n-octanol/water or octanol/carbon partition coefficient (K_{ow}or K_{oc}, respectively). Retardation factors, described below, and K_d values are site specific.

A convenient way to express chemical mobility is by use of the retardation factor (Rd), which is a function of the average velocity of the retarded constituent, velocity of the groundwater, soil bulk density, and total porosity. If $K_d = 0$, the chemical species of concern is not affected by physio-chemical reactions and migrates at the same velocity as the water based on convective-dispersive mechanisms. If $K_d > 0$, the chemical species will be retarded. More accurately, the retardation factor is the average linear velocity of the groundwater divided by the velocity of the contaminant chemical at the point when the chemical concentration is one-half the concentration of the chemical at its source. When K_d equals zero (no adsorption), R equals one (i.e., the chemical and water move at the same velocity). If Rd equals 10, the contaminant chemicals move at 1/10 the velocity of the groundwater.

Adsorption of chlorinated aliphatics at the Crystal Cleaners site may be an important process influencing the transport of contaminants in groundwater. The importance of adsorption depends significantly upon the characteristics of the aquifer matrix material, which acts as the adsorbing medium. In particular, adsorption of hydrophobic organic compounds has been shown to be a function of the amount of natural organic carbon in the aquifer matrix. PCE and daughter compounds have a $K_d > 0$ and, therefore, will be adsorbed/retarded to a degree. The calculated retardation factors are based on literature default values for some aquifer characteristics for which site-specific data are not available.

7.4.2 Dispersion

The study of dispersion at a site is important to determine the concentration of a contaminant and the time it will take to reach a specific location (e.g., a drinking water well). In other words, dispersion of a contaminant affects the velocity and spatial distribution of a contaminant. Although the above discussion implies one-dimensional dispersion, in actuality, dispersion is three dimensional (i.e., longitudinal, transverse, and vertical). The longitudinal and transverse dispersion coefficient are affected primarily by aquifer heterogeneity, whereas, the vertical dispersion is also affected by the density of the contaminant. Because chlorinated aliphatics as a group are denser than water, they have a tendency to migrate vertically faster than many other contaminants (e.g., gasoline-related hydrocarbons such as benzene and toluene).

7.4.3 Dilution

Dilution is an effect of dispersion. When contaminants come in contact with uncontaminated groundwater, mixing occurs, resulting in a decrease in contaminant concentration. Rainwater precipitation can also cause dilution of contaminant concentrations. However, the majority of the study area is paved which limits the influence of dilution on the contaminant concentrations.

7.5 Contaminant-Specific Transport Velocity

As noted above, contaminant-specific migration in the groundwater is affected (reduced) by adsorption, expressed as the retardation factor. The retardation factor, Rd, is calculated as:

$$\mathbf{Rd = 1 + \mathit{K_{oc}} *\mathit{f_{oc}}\, \rho_b / n_e}$$

where:

Rd = retardation factor
K_{oc} = organic carbon partition coefficient
f_{oc} = fraction of organic carbon
ρ_b = dry bulk density of aquifer matrix
n_e -- effective porosity

The fraction of organic carbon is taken from the total organic carbon measured for a soil sample collected during installation of MW-4S (60-62 ft bgs; Table 3-5). The K_{oc} values were obtained from www.state.nj.us/dep/srp/vaporintrusion.htm. There is some variation in literature values for these parameters. The default fraction organic carbon (f_{oc}) value of 0.2% from USEPA Soil Screening Levels, Equation 10 (USEPA, 1996) was selected. Bulk density applied is for gravel with sand (SIMetric, 2007).

The contaminant transport rate V_{pt} is determined by dividing the groundwater seepage velocity V_s by the retardation factor Rd:

$$\mathbf{V_{pt} = \mathit{V_s} / Rd}$$

The distance (D) that a contaminant travels in a given time (t) is calculated using the following equation:

$$\mathbf{D = \mathit{V_{pt} * t}}$$

Using the equations above, the transport rate and distance for the principle contaminants were calculated and are shown on Table 7-2. The estimated seepage velocities are calculated as 488 ft/yr for PCE, 465 ft/yr for TCE, 256 ft/yr for DCE, and 1,280 ft/yr for vinyl chloride. Using these estimates, the PCE-contaminated groundwater from the source would reach public well SW-2 in three years from the time of the release. PCE-contaminated groundwater would reach the Chemung River, approximately 2,100 ft southeast of the site, in four years. These seepage velocities are for the coarse-grained material identified during the investigation. The presence of clay and till layers within the matrix can significantly reduce the hydraulic conductivity and net seepage velocity of the contamination.

7.6 Contaminant Fate

The fate of organic chemicals in the subsurface environment is affected by a variety of physiochemical and biological processes. Abiotic transformations are typically not significant factors in contaminant fate. Biodegradation is the one process which may have reduced PCE concentrations because breakdown products were detected in groundwater samples near the site.

7.6.1 Abiotic Transformation

Examples of abiotic degradation pathways include hydrolysis, dehydrochlorination, and abiotic reductive dechlorination. Abiotic reductive dechlorination and dehydrochlorination of PCE can occur in the presence iron minerals. Hydrolysis is the reaction of a compound with water resulting in the fragmentation of the molecule into two parts. These are chemical degradation reactions not typically associated with biological activity. PCE, TCE, DCE, and vinyl chloride are susceptible to abiotic transformation processes. In practice, it may not be possible to distinguish between the abiotic and biotic reactions at the field scale. Under natural conditions, abiotic reactions may be slow relative to biological degradation processes.

7.6.2 Biotransformation

Degradation or transformation of organic chemicals in the subsurface environment can occur through the action of microorganisms that may be attached to the soil or contained in the void space. Active microbial populations are found in most typical subsurface conditions. Even in low numbers, subsurface microbes possess adequate metabolic activity to reduce the levels of organic compounds migrating through the subsurface soil profiles.

Biodegradation of chlorinated organic chemicals ultimately produces microbial cells, water, carbon dioxide, and chloride ion (i.e., complete “mineralization”). The enzymes produced by the microorganisms are essentially responsible for the degradation of the organic chemicals. Whether or not a chemical is transformed depends on the microbial population present and the types of enzymes they express.

Biodegradation of Chlorinated Ethenes

There are many potential reactions that can degrade chlorinated ethenes (e.g., PCE) in the subsurface, under both aerobic and anaerobic conditions. Not all contaminants are amenable to degradation by each of these processes.

Potential Degradation Processes for Contaminants

Biodegradation occurs when indigenous microorganisms consume organic compounds to obtain energy for reproduction and growth. Microorganisms obtain this energy by facilitating the transfer of electrons from an electron donor (organic substrate) to an electron acceptor (typically native inorganics). Common electron donors at contaminated sites can be natural organic carbon or fuel hydrocarbons. Electron acceptors commonly found in groundwater include oxygen, nitrate, manganese, ferric iron, sulfate, and carbon dioxide. Under certain conditions, contaminants may be used as an electron donor, as in the aerobic oxidation of vinyl chloride. Under anaerobic conditions, contaminants may be used as an electron acceptor, as in the reductive dechlorination of TCE.

The aerobic biodegradation of contaminants consume oxygen and produces inorganic carbon in well-established ratios. Estimating the oxygen supply rate and correlating it with increases in inorganic carbon can yield a quantitative estimate of the rate of contaminants biodegradation, if the changes in inorganic carbon concentration can be measured properly.

The biodegradation of organic contaminants under denitrifying or sulfate-reducing conditions consumes nitrate or sulfate and produces inorganic carbon and alkalinity. Estimating the supply rates of sulfate or nitrate and correlating them with changes in inorganic carbon concentration and alkalinity can provide evidence for these anaerobic biodegradation reactions.

PCE and TCE are not susceptible to aerobic degradation processes (Table 7-3), with the exception of the aerobic cometabolism of TCE which requires the presence of a primary substrate such as toluene or methane, substances which were not detected at the site. Therefore, anaerobic degradation pathways are of interest for the chloroethenes. DCE can be degraded by all the processes listed in Table 7-3. In general, anaerobic reductive dechlorination occurs by sequential removal of a chloride ion. For example, the chlorinated ethenes are transformed sequentially from PCE to TCE to the DCE isomers (cis- or trans-) to vinyl chloride to ethene.

The degree to which this biological transformation proceeds depends on three factors:

1. The presence of dechlorinating microorganisms
2. The presence of suitable electron donors
3. The presence of competing electron acceptors

7.6.3 Biodegradation at the Site

Samples were collected from the monitoring wells to assess whether or not biological transformation is occurring at the site. MW-1 is upgradient from the site. MW-2 is located at the site within the highest PCE concentrations within the groundwater plume. MW-3 is located downgradient within the PCE groundwater plume. The remaining wells are located downgradient at the outer edge of the plume with no PCE detections. A description of the analytical results with respect to the potential for biological transformation is provided below:

- Alkalinity – Higher alkalinity values may indicate microbial growth. The alkalinity concentrations are 190 mg/L (MW-2) and 250 mg/L (MW-3) from wells located within the PCE plume. Alkalinity concentrations outside of the plume range from 150 mg/L to 280 mg/L.

- Nitrate – A decrease in nitrate may indicate nitrate is serving as an electron acceptor under slightly reducing conditions. For this site, the nitrate concentrations within the PCE plume are higher (3.17 mg/L and 3.38 mg/L) than background (0.1 U to 1.64 mg/L) with the exception of MW-4 which has a nitrate concentration of 9.24 mg/L.

- Dissolved manganese – An increase in dissolved manganese may indicate anaerobic biodegradation is occurring with Fe (III) serving as an electron acceptor. The dissolved manganese concentrations within the PCE plume (16,400 µg/L and 19,000 µg/L) are within the range of the background measurements (14,300 µg/L to 27,600 µg/L).

- Dissolved iron – An increase in dissolved iron may indicate anaerobic biodegradation is occurring. The dissolved iron concentration at MW-3 of 2,260 µg/L is high relative to background (57.9 µg/L to 418 µg/L).

- Sulfate – A decrease in sulfate concentrations relative to background may indicate anaerobic biodegradation is occurring. The sulfate concentrations within the PCE plume (26 mg/L and 28 mg/L) are within the range of the background measurements (26 mg/L to 47 mg/L).

- Methane – An increase in methane relative to background may indicate reducing conditions or microbial byproduct using carbon dioxide as an electron acceptor. The methane concentrations within the PCE plume (0.0033 mg/L and 0.019 mg/L) are within the range of the background measurements (0.00048 mg/L to 0.021 mg/L).

- Dissolved Oxygen (DO), oxidation-reduction potential (ORP), and pH were measured in the field during groundwater sampling. The levels are not considered usable for this assessment because the measurements were collected through use of a bladder pump and a flow cell, so the field-measured values may not be indicative of static conditions in the aquifer. The typical pH for the region is approximately 7 (USGS, 1995) and falls within the optimum range for biodegradation.

Based on this data, biological transformation activity does not appear to be significant at this time. This finding is consistent with the VOC concentrations detected in the monitoring wells which shown infrequent detections of the daughter products TCE and DCE, and at low concentrations, relative to the PCE concentrations.

8 QUALITATIVE HUMAN HEALTH RISK ASSESSMENT

A qualitative baseline risk assessment was completed based on the information presented in the preceding sections of this RI report. Generally, the human health evaluation involves an exposure assessment, an evaluation of site occurrence, hazard identification and comparison to New York State and USEPA criteria.

This section discusses the exposure assessment, an evaluation of site occurrence, and a comparison to State and USEPA criteria related to potential impacts to human health. It should be noted that several conservative assumptions were used in completing this assessment; and, thus, the risks identified are expected to be "worst-case" scenarios.

8.1 Exposure Assessment

This exposure assessment discusses potential migration routes by which chemicals in the environment may be able to reach human receptors. This discussion is based on current and hypothetical future site conditions and the extrapolation of site conditions to off-site areas.

Currently, the site is used for commercial purposes. Residential property is located north, south and east of the site and commercial property is located west of the site. For the purposes of this evaluation, it is assumed that the general use of the area will remain unchanged.

The hypothetical future conditions for the site and surrounding areas include development and/or intrusive site work in areas near the site; the possibility for the facilities to be abandoned and left unattended; on-site workers; and use of the groundwater as a potable water source.

A complete exposure pathway must exist for a population to be impacted by the chemicals at the site. A complete exposure pathway consists of five components:

1. a source and mechanism of chemical release;
2. a transport medium;
3. a point of potential human contact with the contaminated medium;
4. an exposure route at the contact point; and
5. a receptor population.

The extent of contamination was discussed in previous sections (6 and 7) of this RI. This section focuses primarily on identifying points of human contact with contaminated media.

The potential exposure pathways identified for the former Crystal Cleaners site are discussed below.

Exposure to groundwater, if used as a drinking water supply, includes ingestion, dermal contact and inhalation of vapors. Public water supply wells are located downgradient, about a quarter mile away from the site and have been impacted by VOCs. An air stripper is currently in place on the public supply wells to remove VOCs from the water and the likelihood of exposure is low. Currently, exposure to contaminated water is not expected as water distributed to the public is tested regularly to confirm that it meets NYS drinking water standards.

As shown in Figure 5-4, it appears that groundwater flows in a south-easterly direction, towards the river. Potential human exposure may occur at the point of groundwater contact. The likelihood of exposure to groundwater due to construction activities is considered to be low since the groundwater is generally encountered at 10 to 12 ft bgs. Potential human exposures include ingestion, dermal contact, and inhalation of vapors. Ingestion of groundwater (as drinking water), dermal contact and vapor inhalation scenarios are potential future exposure scenarios.

Potential human exposures to subsurface soils include ingestion, dermal contact, and inhalation under the future development scenarios with excavation.

Potential inhalation exposure from PCE volatilization from subsurface soils and groundwater near the site source areas may occur under current conditions and under the future development scenarios with excavation (e.g., migration of vapors into buildings, basements, foundations, utilities, and outdoor areas).

8.2 Evaluation of Site Occurrence

Tables 8-1 to 8-4 present the range of concentrations for the chemicals detected in groundwater, subsurface soil, indoor air and outdoor air respectively. The summary includes the frequency of detection, the frequency of criterion exceedance, the number of samples analyzed, the maximum concentration detected, and the location where the maximum value was reported. For purposes of this qualitative and conservative assessment, the exposure point concentration was set as the maximum reported value, and this value was compared to New York and USEPA risk-based criteria.

The contaminant concentrations reported for the site were used for potential off-site exposure points (i.e., potable water concentrations). This is a conservative approach as off-site concentrations may be lower due to dispersion, retardation, and other attenuating mechanisms.

Validated data from the 2009 and 2010 sampling events, as summarized in the tables in Section 3 and provided in full in the tables in Appendix E, were used for this assessment. A summary of the detected analytes and criteria exceedances is provided in Tables 8-1 to 8-4.

8.3 Hazard Identification and Comparison to Criteria

The potential hazards due to human exposures were reviewed based on chemical-specific criteria. Both State and Federal criteria were examined.

8.3.1 Groundwater

Human health risks associated with exposure to groundwater were examined by considering use of the groundwater as a drinking water source.

The SCGs used for human health risks associated with use groundwater at the site as a drinking water source includes the following:

- NYSDEC Class GA Groundwater Quality Criteria, 6NYCRR Part 701-703, as summarized in TOGS 1.1.1, June 1998, with updates through June, 2004.
- New York State Drinking Water Standards (10 NYCRR 5-1.52; Tables 1-14)
- USEPA Maximum Contaminant Levels (MCLs), 40 CFR 141 (last revised June 2008).

As shown on Table 8-1, groundwater concentrations of four VOCs (cis-1,2-DCE, PCE, TCE and VC) exceeded risk-based criteria. PCE was the most significant VOC detection (maximum 430 µg/L), compared to the criterion of 5 µg/L. PCE was detected in 17 of 35 samples and exceeded the criterion in 16 of the samples.

As shown on Table 8-1, metals concentrations (iron and manganese) also exceeded risk-based criteria. These metals are naturally occurring and are not known to be site related.

8.3.2 Soil

Human health risks associated with exposure to subsurface soil were based on the potential for exposure due to future excavation at the site. The concentrations were screened against the NYSDEC Part 375-6.8(b) SCO values (May 2010). As shown on Table 8-2, subsurface soils contained one VOC (xylene) that exceeded risk-based criteria. The exceedance of this contaminant only occurred in one sample (SS-1). Detected concentrations of SVOCs and metals did not exceed the criteria.

8.3.3 Soil Vapor

Human health risks associated with exposure to soil vapors were examined by considering the inhalation of vapors. Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006.

9 CONCLUSIONS

Under contract to NYSDEC, AECOM performed a RI/FS at the Crystal Cleaner(s) site in Corning, NY with field work conducted in 2009 and 2010. The results of that investigation and its conclusions are provided below.

9.1 Remedial Investigation

A remedial investigation was conducted to determine the sources of contamination within the site and its threat to human health or the environment. The scope and execution of the RI is discussed below. The work to date consisted of six field efforts:

- Membrane interface probe investigation
- Direct push soil sampling and groundwater sampling
- Soil sampling at the Crystal Cleaners facility
- Direct push sampling for soil classification
- Groundwater monitoring well installation and sampling
- Soil Vapor Intrusion Investigation

In January 2009, MIP borings were advanced in the immediate vicinity of the Crystal Cleaners facility to collect remote sensing data indicating the possible presence of chlorinated solvents in the soils or groundwater based on the response of the ECD. No samples were collected for laboratory analysis during the initial phase of the investigation.

In March 2009, Hydropunch groundwater and soil samples were collected using direct push drilling. Groundwater and soil samples were shipped to Chemtech in Mountainside, New Jersey for VOC analysis (EPA Method SW846 8260). The Hydropunch data were used as a screening tool to determine the appropriate screened interval for permanent monitoring well installation.

Soil samples were collected from within the Crystal Cleaners facility on June 22, 2009. Samples were collected with a hand auger at a depth of 4-5 ft bgs beneath the concrete slab. The soil samples were shipped to Chemtech in Mountainside, New Jersey for VOC analysis (EPA Method SW846 8260).

Direct push borings were advanced at three locations to determine soil classification in the vicinity of the site and PCE groundwater plume. Soil samples were collected in macrocores using a direct push rig. The Unified Soil Classification System (USCS) was used to describe the soil. No soil samples were collected for laboratory analysis.

Six monitoring wells were installed in October 2009. Groundwater samples collected from the monitoring wells in December 2009 were analyzed by Hampton-Clarke Veritech for VOCs (EPA SW846 Method 8260), metals (whole water and field filtered; EPA Method 200.7), ferrous iron (HACH 8146), biochemical oxygen demand (BOD; Standard Methods [SM] 5210B), chemical oxygen demand (COD; SM 5220), alkalinity (SM 2320B), ammonia (SM 4500-NH3), nitrate, chloride, and sulfate (EPA 300.0), phosphorous (EPA 365.3), sulfide (EPA 9034), total organic carbon (SM 5310B), and methane, ethane, and ethene (PM01C/AM20GAx). The groundwater data from the permanent wells were validated by an independent subcontractor, Environmental Data Services, Inc. (EDS) of Williamsburg, VA. The laboratory data packages and the DUSRs are provided in Appendix E on CD. The analytical data were generally acceptable and appropriate for their intended use. Minor exceptions are detailed in the DUSRs and did not affect the usability of the data for the principal site contaminants (chlorinated aliphatics).

Soil Vapor Intrusion sampling was conducted at 17 structures in 2009. The air samples include sub-slab vapor samples, indoor air samples, and outdoor air samples. In 2010, 5 of these structures were resampled. All air samples were analyzed for VOCs by USEPA method TO-15.

9.2 Site Geology

The Corning aquifer is a valley-fill glacial aquifer. The aquifer overlies four deeply incised bedrock valleys located at the intersection of the Chemung River, Canisteo, Tioga, and Cohocton Rivers. The bedrock valleys are partially filled with sand and gravel intermixed with fine grained glacial-lake deposits. Outwash and alluvial sand and gravel cover the valley floors as a result of redeposition by the streams. Soil was classified as predominantly gravel and sand. A layer of thick clay layer was identified within the area sampled during the investigation.

9.3 Site Hydrogeology

The saturated thickness of the aquifer typically ranges between 20 ft and 60 ft. In the vicinity of the site, the saturated zone is 60 ft or thicker. The groundwater surface is typically at the level of the stream traversing the area. Groundwater is found near ground level in some locations. Aquifer recharge consists of precipitation and inflow from the adjacent bedrock and by downvalley movement of water through the aquifer, stream leakage. The direction of groundwater flow is generally downvalley toward the principal streams. Groundwater provides base flow to the streams. In areas with losing tributary streams, groundwater flow is away from the tributary into the aquifer. Near the Crystal Cleaners site, groundwater flow is toward the southeast. The two public wells, each producing up to 700 gpm, is located southeast of the site.

9.4 Nature of Contaminants Detected

The principle contaminants detected were chlorinated aliphatics. Principle chlorinated aliphatics include PCE and infrequent detection of the degradation products TCE, cis-1,2-DCE, and vinyl chloride. The identity of the contaminants is well-established, with data collected from the permanent monitoring wells confirming findings from the MIP investigation and Hydropunch sampling in terms of compounds detected (PCE, TCE and DCE), and the spatial distribution of the contamination.

9.5 Extent of Contamination

The PCE groundwater plume is centered at the Crystal Cleaners site. The plume extends downgradient towards the southeast toward the two public wells. The plume concentrations are expected to drop below the NYS Class GA groundwater criteria to the southeast of SW-2.

Elevated levels of iron, manganese, sulfide, and sodium, which exceed the NYS Class GA groundwater criteria but are considered background for this aquifer, are not assessed further in this document

9.6 Contaminant Transport

Groundwater flow is generally to the southeast. The process by which a solute (dissolved phase contaminant) is transported by the bulk movement of groundwater flow is referred to as advection. The average linear velocity of groundwater through a porous aquifer is determined by the hydraulic conductivity, effective porosity of the aquifer formation, and hydraulic gradient.

Adsorption of chlorinated aliphatics at the site may be an important process influencing the movement of contaminants in groundwater. The importance of adsorption depends significantly upon the characteristics of the aquifer matrix material, which acts as the adsorbing medium. In particular, adsorption of hydrophobic organic compounds has been shown to be a function of the amount of natural organic carbon in the aquifer matrix. PCE has a $K_d > 0$ and, therefore, will be adsorbed/retarded to a degree.

The estimated seepage velocities are calculated as 488 ft/yr for PCE, 465 ft/yr for TCE, 256 ft/yr for DCE, and 1,280 ft/yr for vinyl chloride. Using these estimates, the PCE-contaminated groundwater from Crystal Cleaners would reach public well SW-2 in three years from the time of the release. PCE contaminated groundwater would reach the Chemung River, which is approximately 2,100 ft southeast of the site in four years. These seepage velocities are for the coarse-grained material identified during the investigation. The presence of clay and till layers within the matrix can significantly reduce the hydraulic conductivity and net seepage velocity of the contamination.

9.7 Contaminant Fate

The fate of organic chemicals in the subsurface environment is affected by a variety of physiochemical and biological processes. Abiotic transformations such as hydrolysis, oxidation, and volatization are not significant factors in contaminant fate. Biological transformation activity does not appear to be significant at this time. This finding is consistent with the VOC concentrations detected in the monitoring wells which shown infrequent detections of the daughter products TCE and DCE, and at low concentrations, relative to the PCE concentrations.

9.8 Human Health Risk Assessment

A qualitative human health risk assessment was completed for the site. Generally, the human health evaluation involves an exposure assessment, an evaluation of site occurrence, hazard identification and comparison to USEPA and New York State criteria. Exposure scenarios were identified and evaluated based on analytical laboratory results of groundwater, subsurface soil and ambient air samples collected. A summary of the results of the risk assessment is presented below.

The potential for exposure to contaminants in the groundwater at the site is minimal under current conditions due to treatment of the water. However, risks would exceed generally acceptable ranges associated with ingestion of untreated groundwater due to high concentrations of PCE and other contaminants.

The potential for exposure to the contaminants in the subsurface soils are minimal since receptors are not currently exposed to subsurface soils (i.e., the pathway is incomplete) and contact is unlikely. Additionally, the concentrations in the soil are generally below the screening levels.

There is a potential for exposure to soil vapor inside of buildings. Due to the high concentrations of PCE, TCE, and other contaminants detected, exposure to on-site soil vapors could pose a significant risk. The risk is also exhibited by the comparison of the concentrations to the NYSDOH air guidelines in Section 3.

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Crystal Cleaners Site
343 West Pulteney Street
Corning, Steuben County, NY

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 100 200 400 Feet

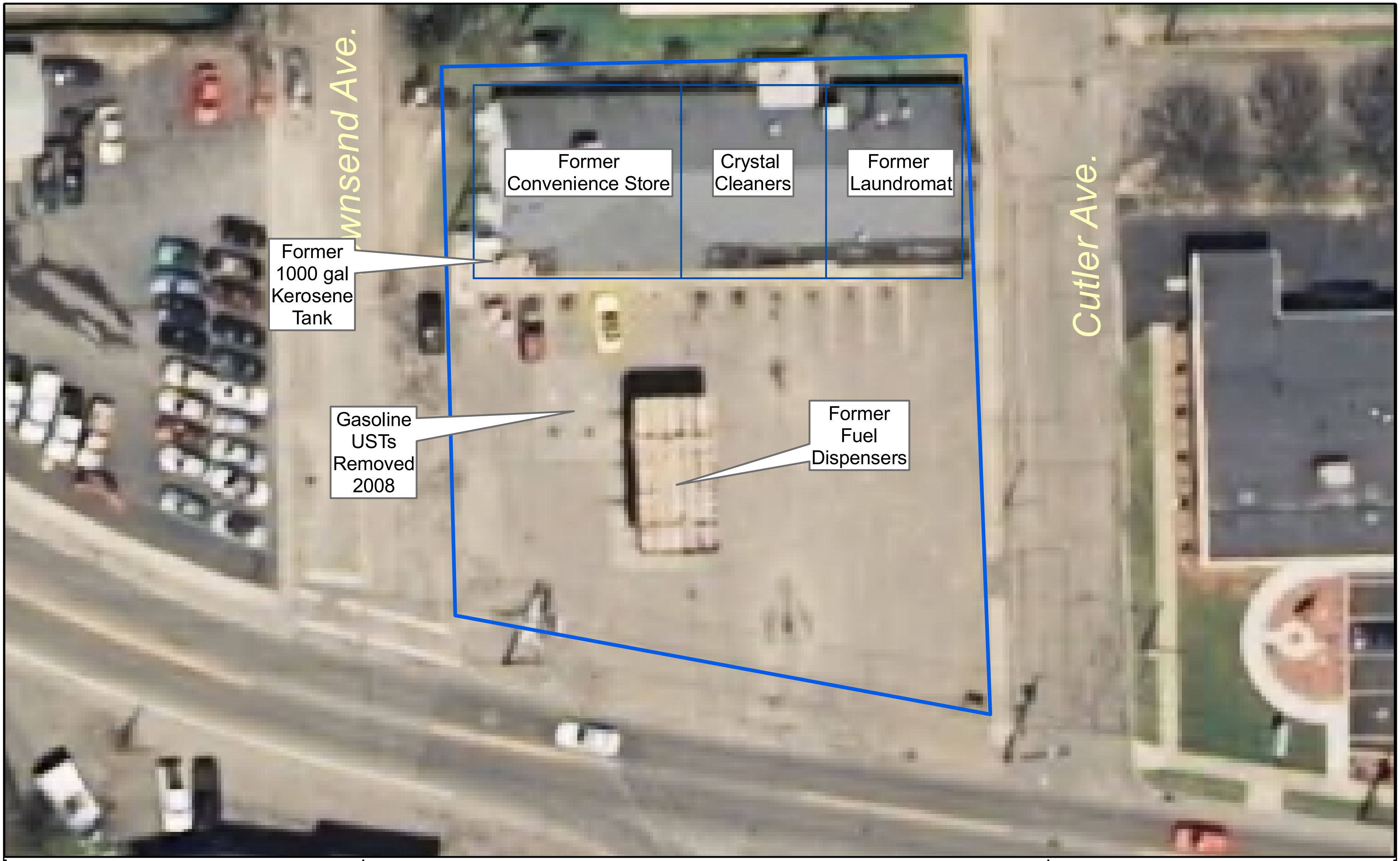
✦ Supply Well

Site Location Map

Project No: 106774

Figure No: 1-1

July 27, 2010



AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

Site Layout

Project No: 106774

Figure No: 1-2

October 20, 2010

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 50 100 200
Feet

Legend

- ● Groundwater Samples - Maximum PCE Conc. (Mactec 2007)
- ● Groundwater Samples 16 ft bgs (Teeter Environmental Services 2005)

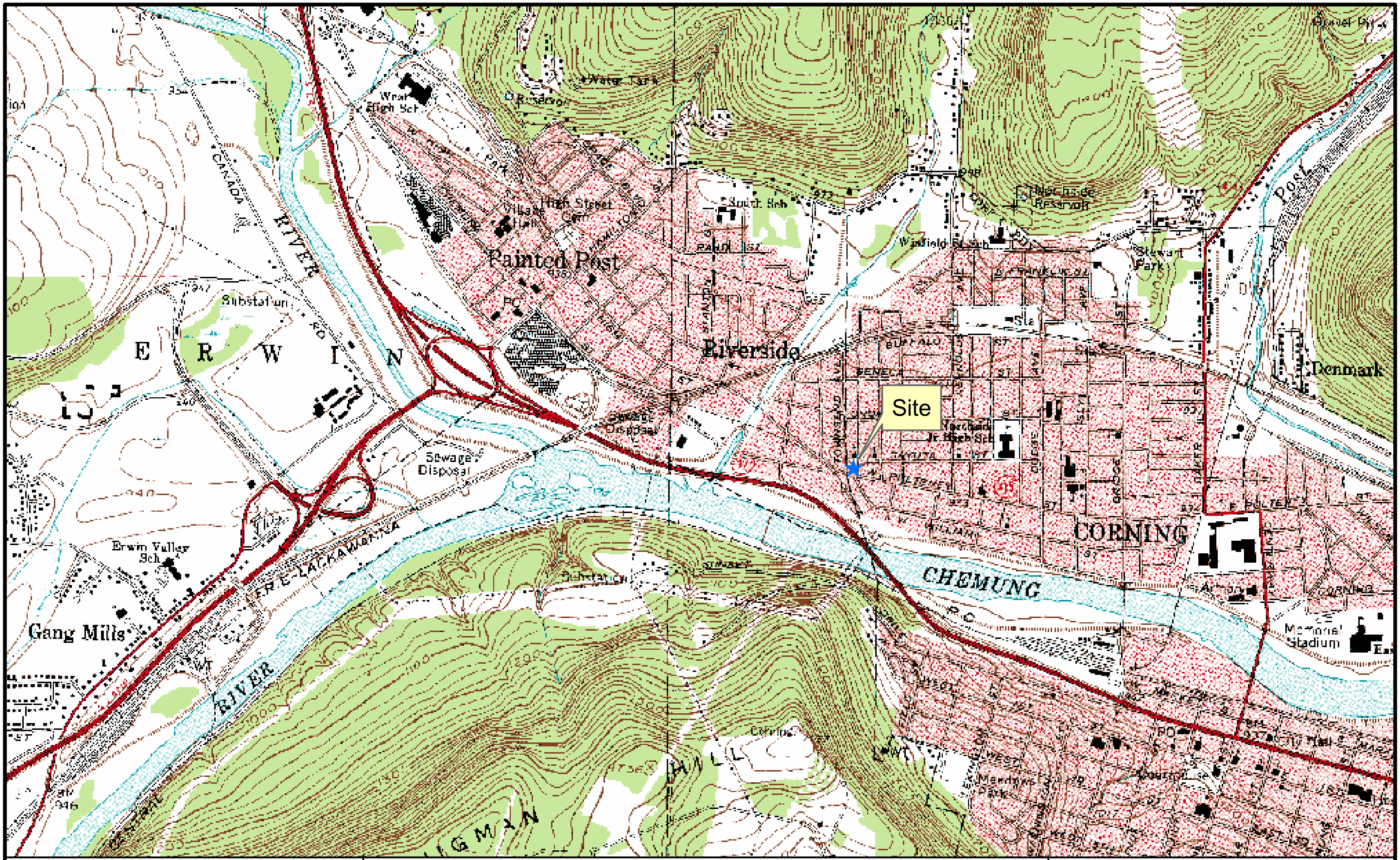
Units: ug/L
ND - Not Detected
NM - Not Measured
J - Estimated Value
D - Value after Dilution

Groundwater Sampling PCE Results
2005 and 2007

Project No: 106774

Figure No: 1-3

July 27, 2010



AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 300 600 1,200
Feet

USGS Quadrangle - Corning

Project No: 106774

Figure No: 1-4

July 27, 2010

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 10 20 40 Feet

Legend

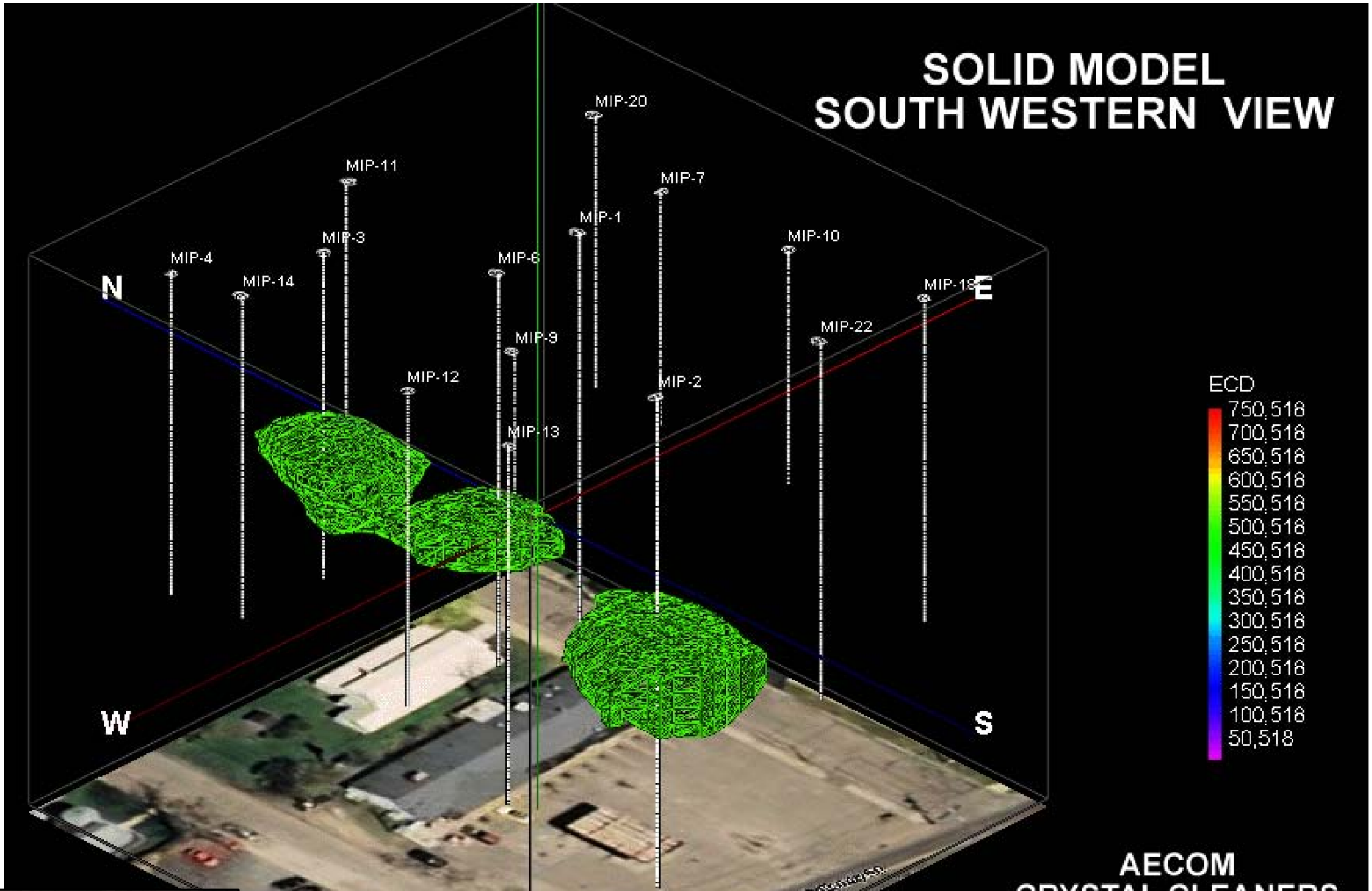
- ✱ MIP Locations January 2009
- Ⓜ Manhole

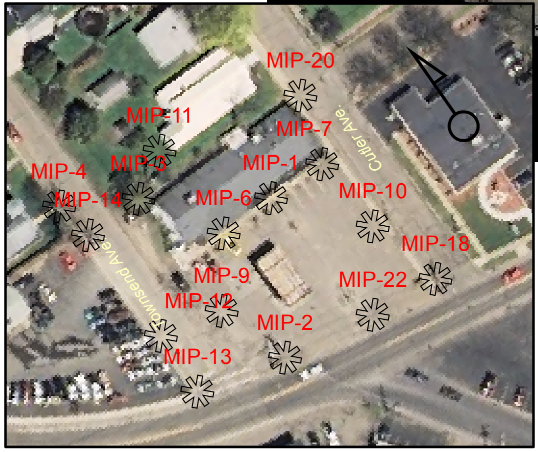
MIP Locations

Project No: 106774

Figure No: 2-1

October 20, 2010





MIP Solid Model Prepared by Zebra Environmental

MIP Results

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

Project No: 106774

Figure No: 2-2

July 27, 2010

Sample ID	Sample Depth (ft bgs)
HP-1-AA	16
HP-1-A	25
HP-1-B	40
HP-2-A	25
HP-2-B	35
HP-3-A	31
HP-3-B	40
HP-3-C	55
HP-4-A	15
HP-6-A	15
HP-6-B	30
HP-6-C	40
HP-7-A	15
HP-7-B	30
HP-8-A	15
HP-8-B	30
HP-9-A	15
HP-9-B	30
HP-10-A	20
HP-11-A	15
HP-11-B	35
HP-12-A	25
HP-12-B	40
HP-12-C	55
HP-13-A	35
HP-13-B	25
HP-14-A	20

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 50 100 200
Feet

Legend

● HP - Hydropunch Locations

✦ SW - SupplyWell

Groundwater Sampling Locations
March 2009

Project No: 106774

Figure No: 2-3

July 27, 2010

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 37.5 75 150 Feet

Legend

- ● HP - Hydropunch Locations March 2009
- 🟩 SS - Surface Soil Samples March 2009

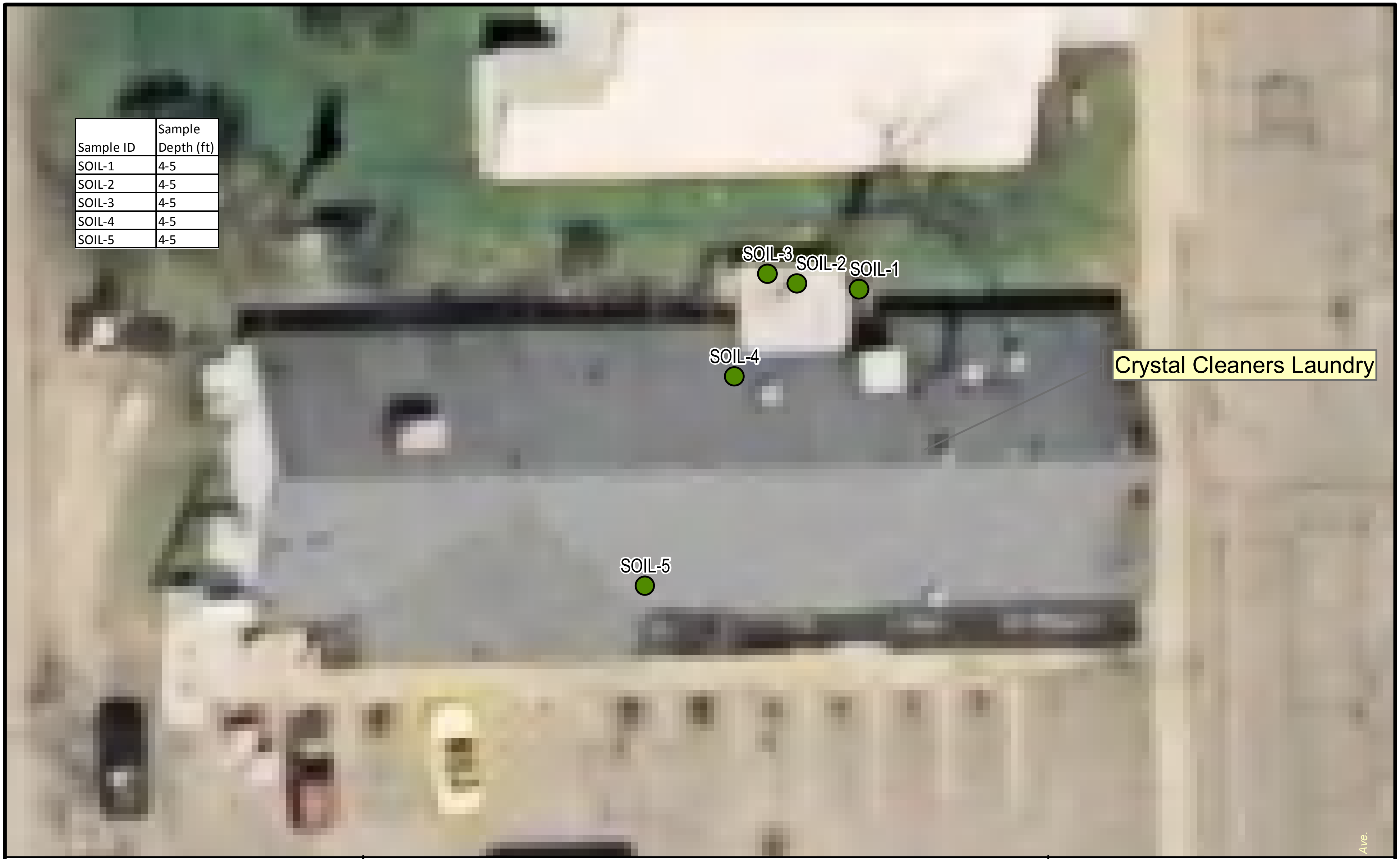
(Sample Depth ft bgs)

Soil Sample Locations
March 2009

Project No: 106774

Figure No: 2-4

July 27, 2010



Sample ID	Sample Depth (ft)
SOIL-1	4-5
SOIL-2	4-5
SOIL-3	4-5
SOIL-4	4-5
SOIL-5	4-5

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 5 10 20
Feet

Legend

● Soil Sampling Location

Soil Sample Locations
June 2009

Project No: 106774

Figure No: 2-5

July 27, 2010

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 30 60 120
Feet

Legend

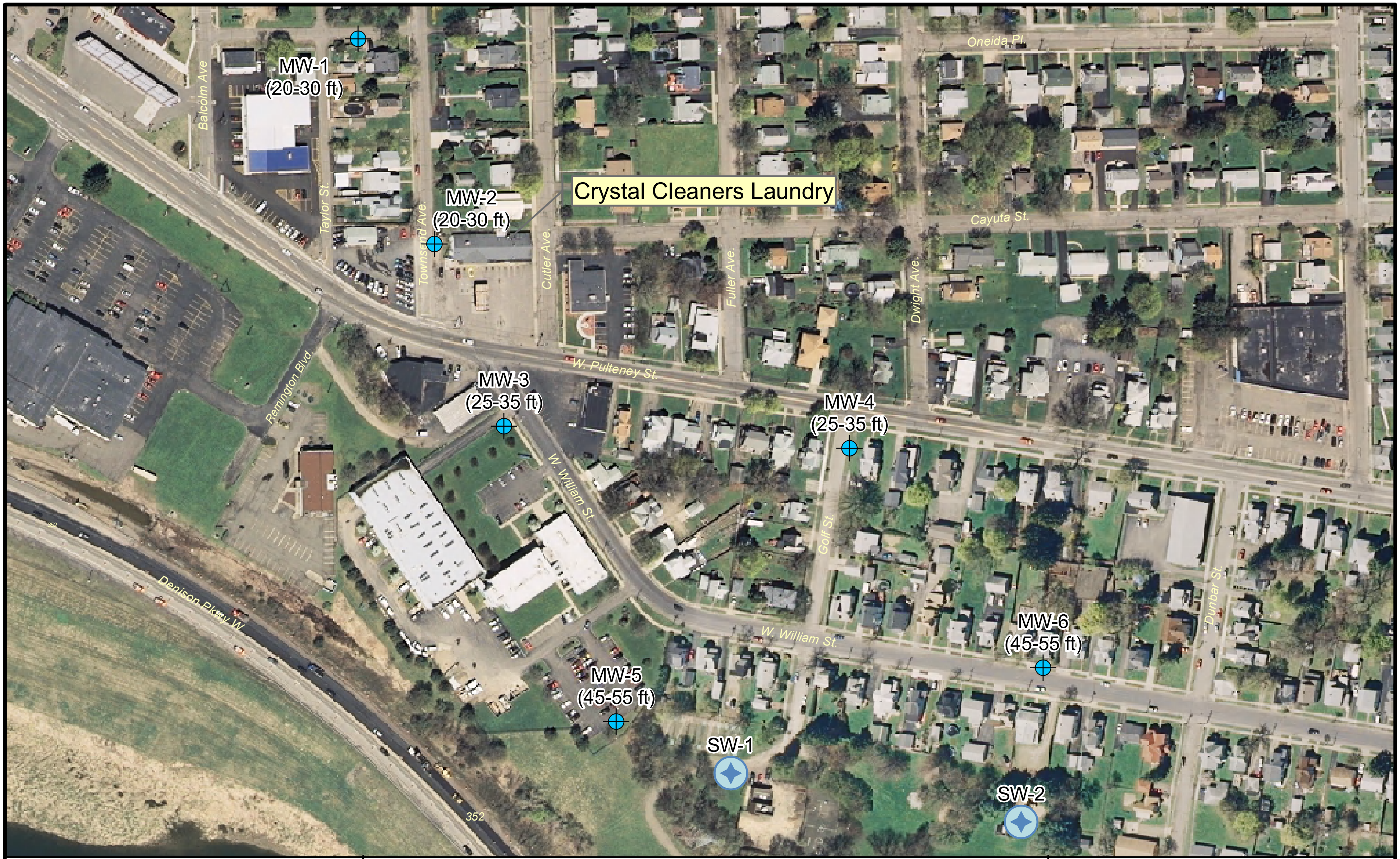
● Direct Push Soil Classification Locations

Soil Classification
by Direct Push Sampling

Project No: 106774

Figure No: 2-6

July 27, 2010



AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 50100 200
Feet

Legend

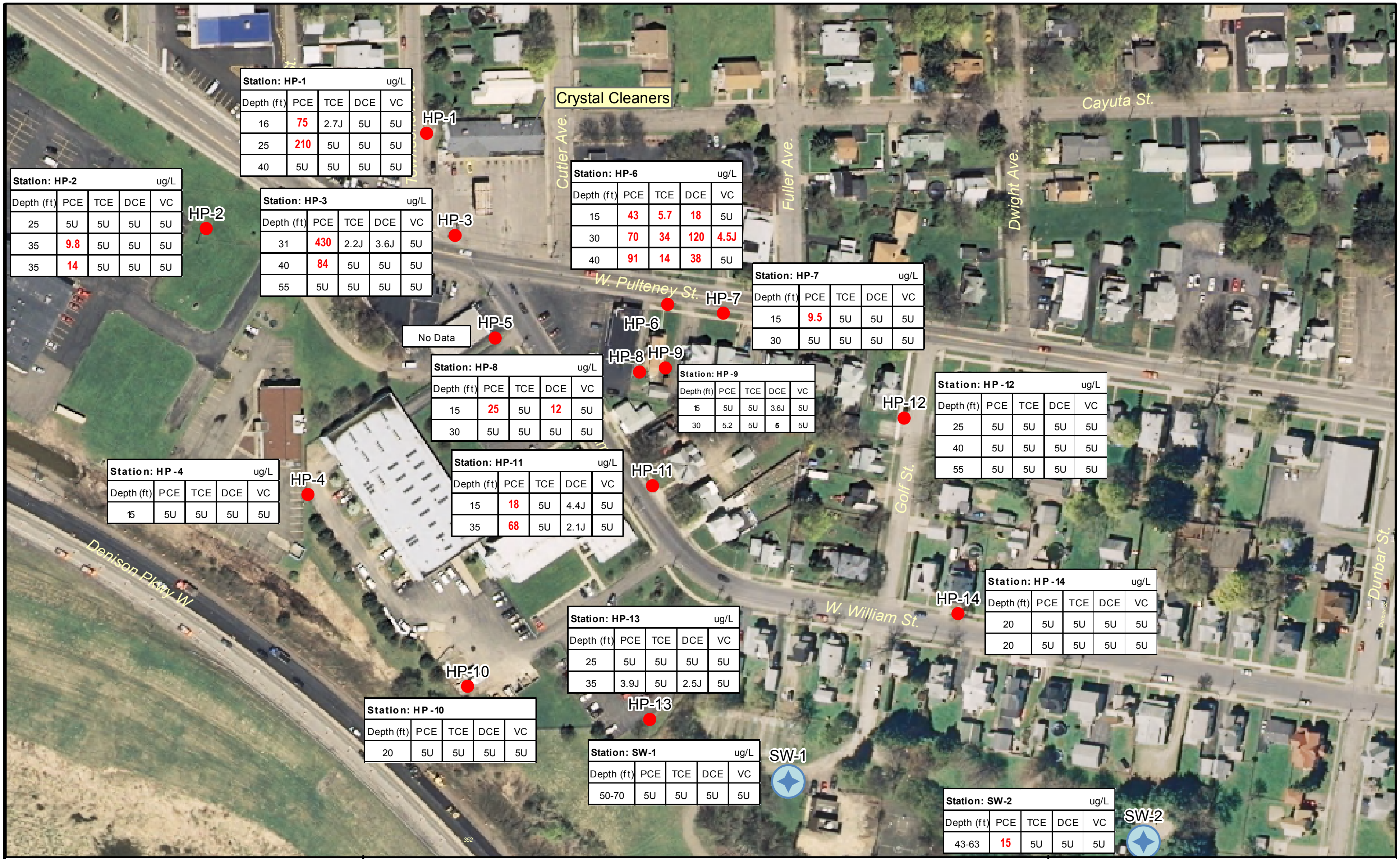
⌖	Permanent Monitoring Wells
✦	Supply Well

Monitoring Well Locations

Project No: 106774

Figure No: 2-7

October 20, 2010



Station: HP-1 ug/L

Depth (ft)	PCE	TCE	DCE	VC
16	75	2.7J	5U	5U
25	210	5U	5U	5U
40	5U	5U	5U	5U

Station: HP-2 ug/L

Depth (ft)	PCE	TCE	DCE	VC
25	5U	5U	5U	5U
35	9.8	5U	5U	5U
35	14	5U	5U	5U

Station: HP-3 ug/L

Depth (ft)	PCE	TCE	DCE	VC
31	430	2.2J	3.6J	5U
40	84	5U	5U	5U
55	5U	5U	5U	5U

Station: HP-6 ug/L

Depth (ft)	PCE	TCE	DCE	VC
15	43	5.7	18	5U
30	70	34	120	4.5J
40	91	14	38	5U

Station: HP-7 ug/L

Depth (ft)	PCE	TCE	DCE	VC
15	9.5	5U	5U	5U
30	5U	5U	5U	5U

Station: HP-8 ug/L

Depth (ft)	PCE	TCE	DCE	VC
15	25	5U	12	5U
30	5U	5U	5U	5U

Station: HP-9

Depth (ft)	PCE	TCE	DCE	VC
15	5U	5U	3.6J	5U
30	5.2	5U	**5**	5U

Station: HP-12 ug/L

Depth (ft)	PCE	TCE	DCE	VC
25	5U	5U	5U	5U
40	5U	5U	5U	5U
55	5U	5U	5U	5U

Station: HP-4 ug/L

Depth (ft)	PCE	TCE	DCE	VC
15	5U	5U	5U	5U

Station: HP-11 ug/L

Depth (ft)	PCE	TCE	DCE	VC
15	18	5U	4.4J	5U
35	68	5U	2.1J	5U

Station: HP-14 ug/L

Depth (ft)	PCE	TCE	DCE	VC
20	5U	5U	5U	5U
20	5U	5U	5U	5U

Station: HP-13 ug/L

Depth (ft)	PCE	TCE	DCE	VC
25	5U	5U	5U	5U
35	3.9J	5U	2.5J	5U

Station: HP-10 ug/L

Depth (ft)	PCE	TCE	DCE	VC
20	5U	5U	5U	5U

Station: SW-1 ug/L

Depth (ft)	PCE	TCE	DCE	VC
50-70	5U	5U	5U	5U

Station: SW-2 ug/L

Depth (ft)	PCE	TCE	DCE	VC
43-63	15	5U	5U	5U

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 50 100 200 Feet

Legend

● HP - Hydropunch Locations

SW - Supply Well

VC - Vinyl Chloride
DCE - cis-1,2-Dichloroethene
TCE - Trichloroethene
PCE - Tetrachloroethene

Concentrations for compounds with one or more exceedances of the NYS Class GA criteria are shown. NYS Class GA criteria exceedances are in red.

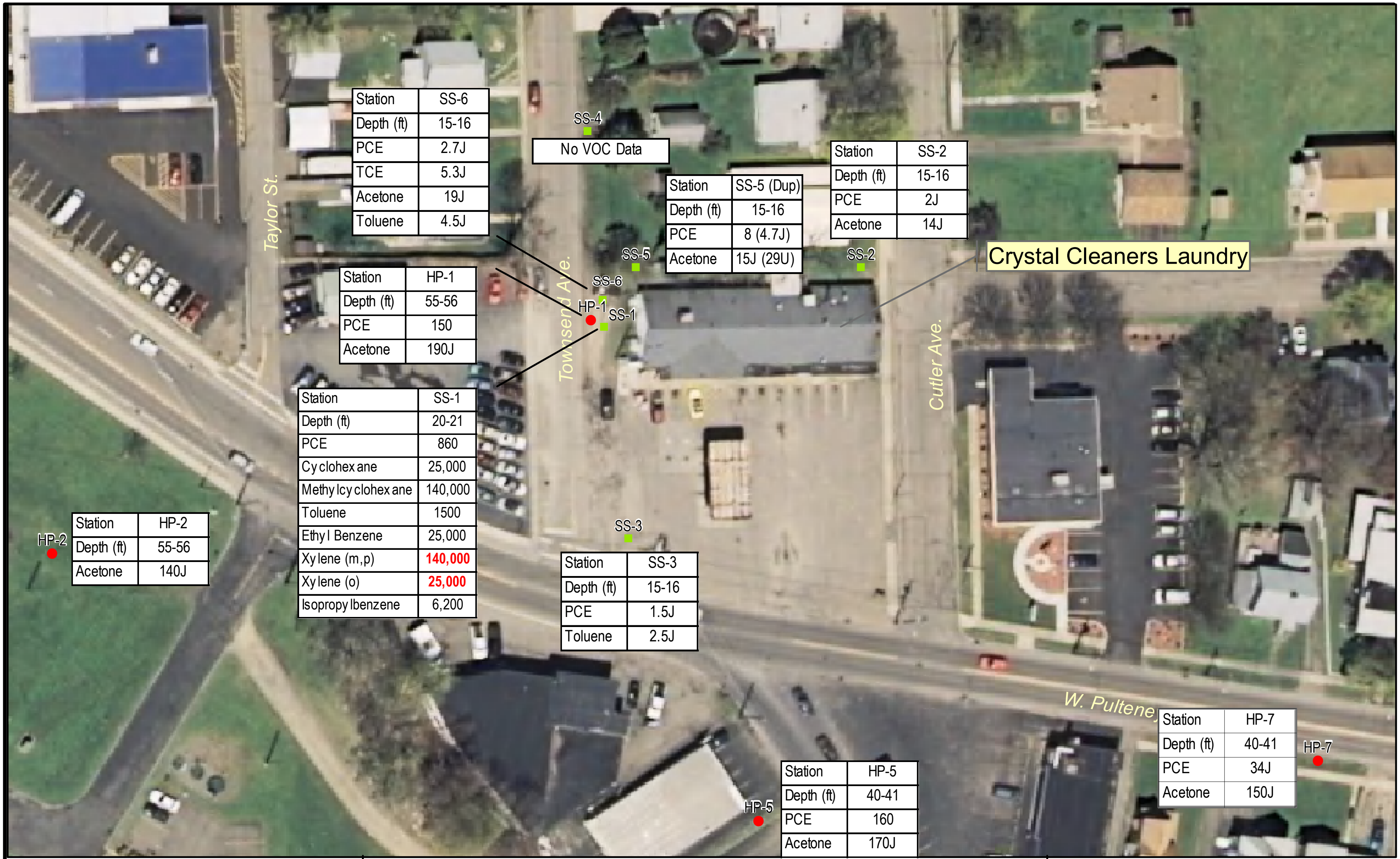
U - Not Detected
J - Estimated Value

Groundwater Sampling Results March 2009

Project No: 106774

Figure No: 3-1

July 27, 2010



Station	SS-6
Depth (ft)	15-16
PCE	2.7J
TCE	5.3J
Acetone	19J
Toluene	4.5J

SS-4: No VOC Data

Station	SS-5 (Dup)
Depth (ft)	15-16
PCE	8 (4.7J)
Acetone	15J (29U)

Station	SS-2
Depth (ft)	15-16
PCE	2J
Acetone	14J

Station	HP-1
Depth (ft)	55-56
PCE	150
Acetone	190J

Station	SS-1
Depth (ft)	20-21
PCE	860
Cyclohexane	25,000
Methylcyclohexane	140,000
Toluene	1500
Ethyl Benzene	25,000
Xylene (m,p)	140,000
Xylene (o)	25,000
Isopropylbenzene	6,200

Station	HP-2
Depth (ft)	55-56
Acetone	140J

Station	SS-3
Depth (ft)	15-16
PCE	1.5J
Toluene	2.5J

Station	HP-5
Depth (ft)	40-41
PCE	160
Acetone	170J

Station	HP-7
Depth (ft)	40-41
PCE	34J
Acetone	150J

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 37.5 75 150
Feet

Legend

🟩 Surface Soil Samples March 2009
● Hydropunch Locations March 2009

U - Not Detected
J - Estimated Value

TCE - Trichloroethene
PCE - Tetrachloroethene
Concentrations in ug/kg. All VOC detections are shown.
"SS-" samples were analyzed for SVOCs, PCBs and metals pesticides. No PCBs or pesticides were detected. No exceedances in SVOCs and Metals.
Values in red exceed the NY 375 Residential Restricted Use criteria.

Soil Sample Results
March 2009

Project No: 106774

Figure No: 3-2

July 27, 2010

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 5 10 20
Feet

Legend

● Soil Samples 4-5 ft bgs

Concentration units: ug/Kg

Compounds with detections are shown. No concentrations exceed the NYS 375 Restricted Residential Use criteria.

PCE - Tetrachloroethene

U - Not Detected

J - Estimated Value

Soil Sample Results
June 2009

Project No: 106774

Figure No: 3-3

July 27, 2010

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 112.5 225 450
Feet

Legend

⊕ MW - Permanent Monitoring Wells

U - Not Detected
J - Estimated Value

Concentrations in ug/L.

TCE - Trichloroethene
DCE - cis-1,2-dichloroethene
PCE - Tetrachloroethene
VC - vinyl chloride

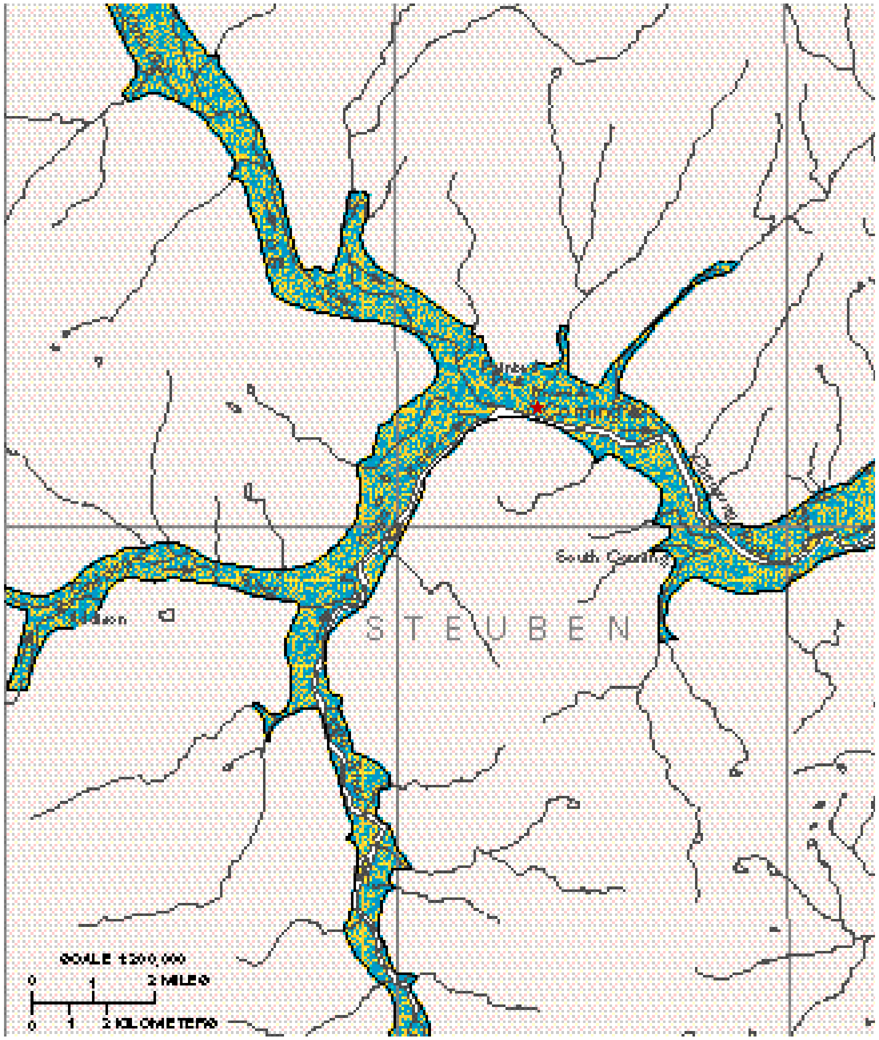
NYS Class GA levels for PCE and TCE are both 5 ug/L.
Vinyl chloride and cis-1,2-DCE concentrations are below the NYS Class GA criteria.

Groundwater Sampling Results
PCE and Dechlorination Compounds
December 2009

Project No: 106774

Figure No: 3-4

July 27, 2010



▨ **Corning aquifer**

———---- **Study area boundary**—Dashed where aquifer extent is uncertain

→ **Direction of surface-water flow**

Site: ★

From USGS (1995)

NYSDEC Site No. 851022
Crystal Cleaners
Corning, New York

N

Prepared for:

AECOM

Prepared by:

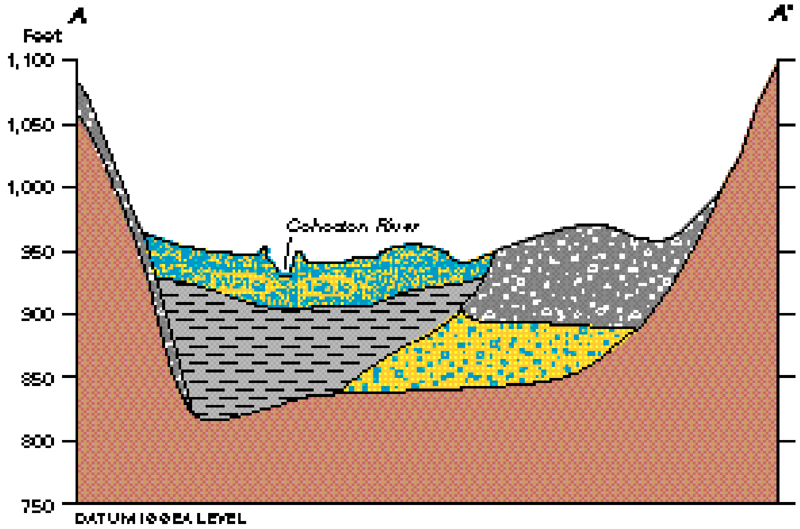
NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

Corning Aquifer

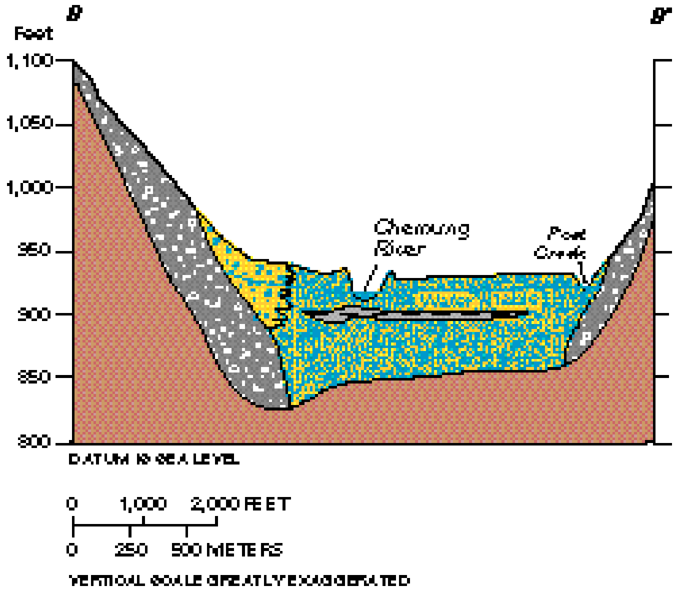
Project No.: 60133623

Figure No: 5-1 August 26, 2010

Cross Section A-A’



Cross Section B-B’



From USGS (1995)

Corning aquifer

▨ Outwash and alluvial sand and gravel

▨ Terrace sand and gravel

▨ **Unsaturated terrace sand and gravel**

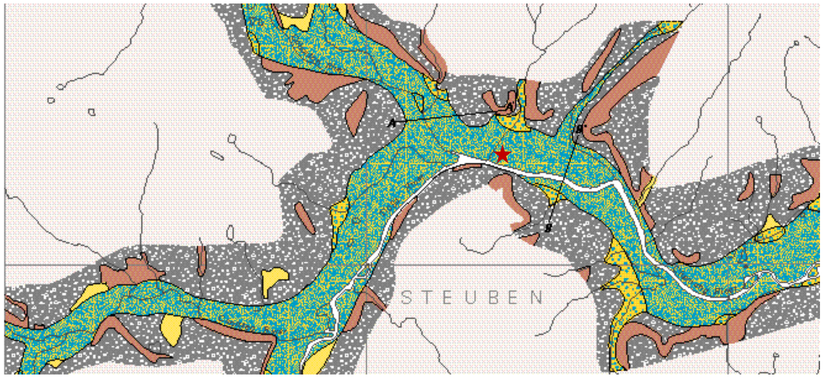
▨ **Till**

▨ **Bedrock**

▨ **Clay, silt, and very fine to fine sand**—Glacial-lake deposits

A——A' **Line of hydrogeologic section**

Site: ★



NYSDEC Site No. 851022
Crystal Cleaners
Corning, New York

N

Prepared for:

AECOM

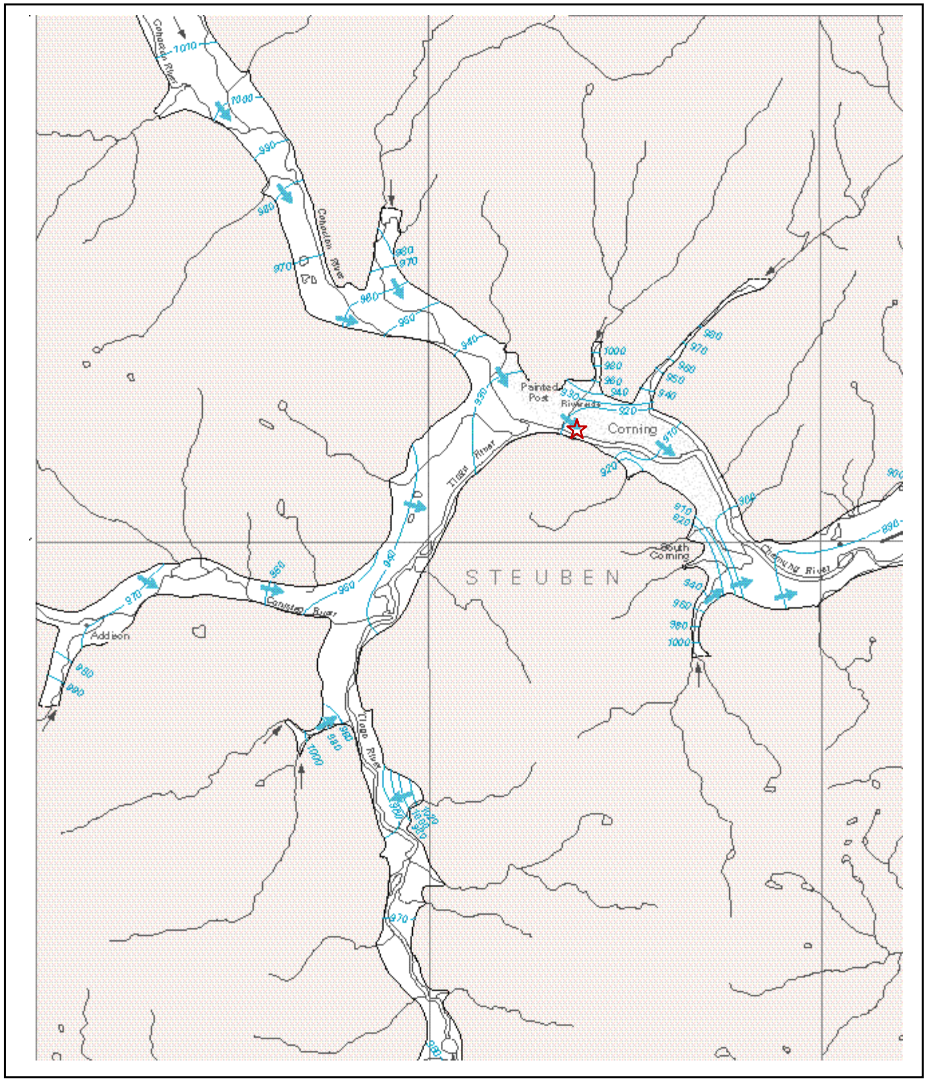
Prepared by:

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Regional Geologic Sections

Project No.: 60133623

Figure No: 5-2 August 26, 2010



—920— **Water-table contour**—Shows approximate altitude of water table. Contour intervals 10 and 20 feet. Datum is sea level

➡ **Direction of ground-water movement within the Corning aquifer**

→ **Major inflow to aquifer from upstream valley-fill deposits**

→ **Major outflow from aquifer to downstream valley-fill deposits**

——---- **Study area boundary**—Dashed where aquifer extent is uncertain

Site: ☆

From USGS (1995)

NYSDEC Site No. 851022
Crystal Cleaners
Corning, New York

N

Prepared for:
AECOM

Prepared by:
NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

Regional Groundwater Flow Direction

Project No.: 60133623

Figure No: 5-3

August 26, 2010

AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 112.5 225
Feet

Legend

⌖ MW - Permanent Monitoring Wells

Groundwater Elevations
(ft amsl)

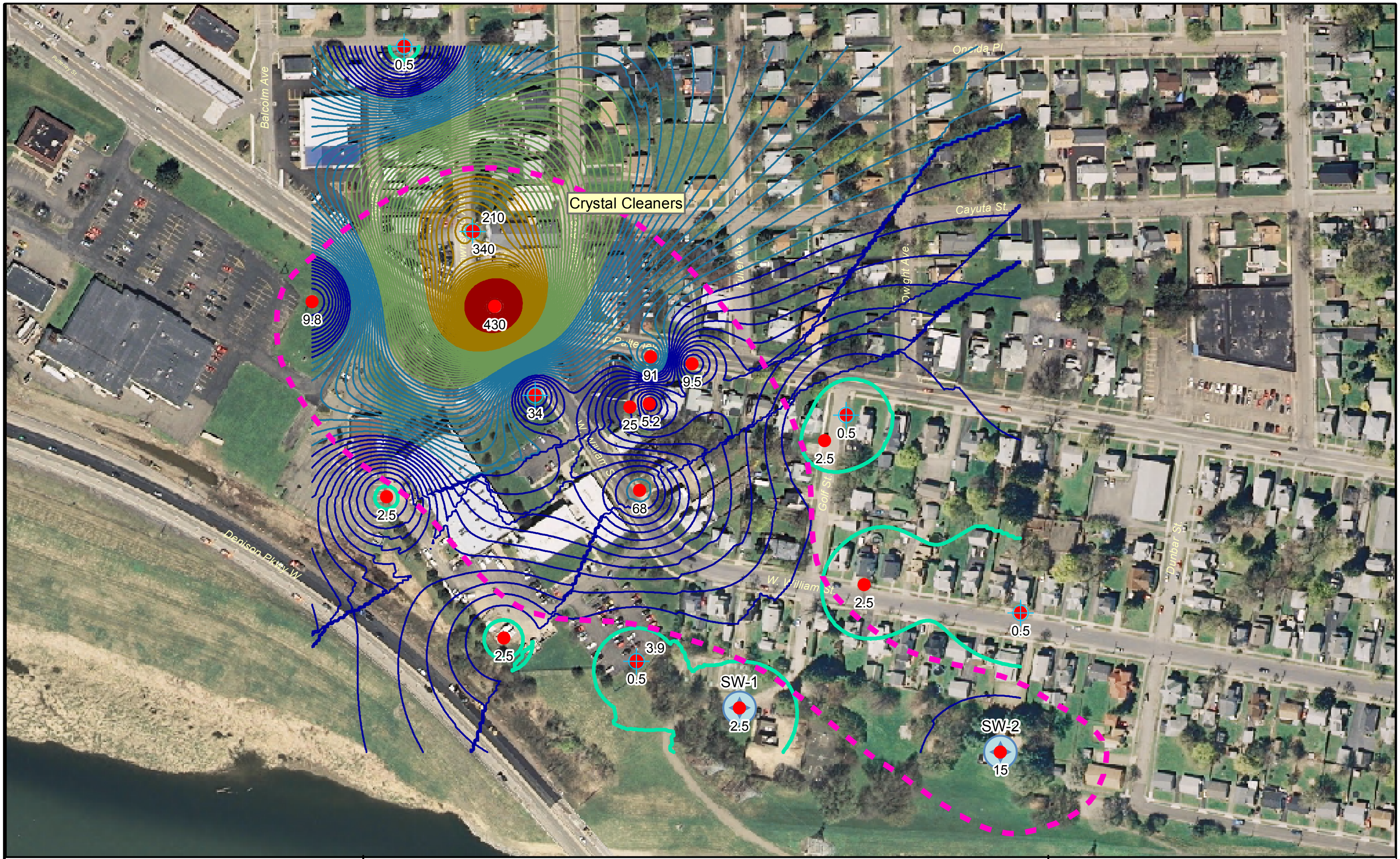
— 913
— 914
— 915
— 916
— 917
— 918
— 919
— 920
— 921
— 922

Groundwater Elevations
October 2009

Project No: 106774

Figure No: 5-4

July 27, 2010



AECOM

Crystal Cleaners Site
Site No. 8-51-022
Corning, NY

0 62.5 125 250
Feet

Legend

- ● HP - Hydropunch Locations
- ⌖ Permanent Monitoring Wells
- ✦ SW - Supply Well

PCE - Tetrachloroethene

PCE Contours (ug/L)

- 5
- 10 - 60
- 61 - 140
- 141 - 235
- 236 - 330
- 331 - 425
- Approximate Extent of PCE >5 ug/L

Groundwater PCE Contours

Project No: 106774

Figure No: 6-1

October 20, 2010

Table 2-1

Hydropunch Sampling Depths (ft bgs)

Boring	AA	A	B	C
HP-1	16	25	40	55 (note 1)
HP-2		25	35 (Dup)	55 (note 1)
HP-3	▨	31	40	55
HP-4	▨	15	Refusal at 23 ft bgs	
HP-5	▨	▨	40 (note 1)	55 (note 2)
HP-6	▨	15	30	40
HP-7		15	30	40 (notes 1 & 3)
HP-8	▨	15	30	▨
HP-9	▨	15	30	▨
HP-10	▨	20	Refusal at 23 ft bgs	
HP-11	▨	15	35	▨
HP-12	▨	25	40	55
HP-13	▨	25	35	42 (note 2)
HP-14	▨	20 (Dup)	Refusal at 26 ft bgs	

Notes:

1. This sample was analyzed as a soil sampled due to low moisture content.
2. Insufficient recovery – no sample was collected.
3. No recovery at lower depths.

Table 2-2
Monitoring Well Information

Well ID	Well Depth (ft bgs)	Screen Interval Depth (ft bgs)	Screen Interval Elevation (ft amsl)	Elevation of Bottom Cap (ft amsl)	Depth to Water 12/09	Groundwater Elevation 12/09
MW-1	30	20-30	918.07-908.07	908.07	15.31	922.76
MW-2	30	20-30	914.48-904.48	904.48	14.19	920.29
MW-3	35	25-35	906.72-896.72	896.72	11.60	920.12
MW-4	35	25-35	907.62-897.62	897.62	12.25	920.37
MW-5	55	45-55	887.55-877.55	877.55	19.62	912.93
MW-6	55	45-55	887.85-877.85	877.85	20.48	912.37

Table 2-3
Indoor Air Samples Collected in 2009 and 2010

Structure	Residence/ Commercial	2009 Number of Samples Indoor	2009 Number of Samples Sub-Slab	2009 Number of Samples Outdoor	2010 Number of Samples Indoor	2010 Number of Samples Sub-Slab	2010 Number of Samples Outdoor
H01	Residence	1	1	0	1	1	0
H02	Residence	2 (dup)	0	1	1	1 (dup)	1
H03	Residence	2	0	1	2	1	0
H04	Residence	2	0	0	2	1	0
H05	Residence	2	0	0	2	1	0
H06	Commercial	2	0	1	0	0	0
H07	Residence	2 (dup)	0	0	0	0	0
H08	Commercial	1	1	1	0	0	0
H09	Residence	2	1	2	0	0	0
H10	Residence	2 (dup)	1	0	0	0	0
H11	Residence	2	0	0	0	0	0
H12	Residence	2	0	0	0	0	0
H13	Residence	3	0	0	0	0	0
H14	Residence	2	0	0	0	0	0
H15	Residence	2	0	0	0	0	0
H16	Commercial - Abandoned	2	0	0	0	0	0
H17	Commercial	2	2	1	0	0	0

Table 3-1

VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	HP-1-AA	HP-1-A	HP-1-B	HP-2-A	HP-2-B	HP-2-B-DUP
Sampling Date		3/16/2009	3/16/2009	3/16/2009	3/19/2009	3/19/2009	3/19/2009
Sample Depth (ft)		16	25	40	25	35	35
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50	25 U	25 U	25 U	25 U	25 U	25 U
Carbon Disulfide	60	5 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl Ether	10	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	NA	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	NA	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	25 U	25 U	25 U	25 U	25 U	25 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	7	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane	NA	4.3 J	2.3 J	5 U	5 U	5 U	5 U
Benzene	1	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene (TCE)	5	2.7 J	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	NA	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	5	5 U	1.2 J	5 U	5 U	5 U	5 U
t-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50	25 U	25 U	25 U	25 U	25 UJ	25 U
Dibromochloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	NA	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene (PCE)	5	**75**	**210**	5 U	5 U	**9.8**	**14**

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class	HP-1-AA	HP-1-A	HP-1-B	HP-2-A	HP-2-B	HP-2-B-DUP
Sampling Date	GA	3/16/2009	3/16/2009	3/16/2009	3/19/2009	3/19/2009	3/19/2009
Sample Depth (ft)	Groundwater	16	25	40	25	35	35
Sample Type	Criteria	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U
m/p-Xylenes	5	10 U	10 U	10 U	10 U	10 U	10 U
o-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50	5 U	5 U	5 U	5 U	5 UJ	5 U
Isopropylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	0.04	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

Bold - Exceeds Criteria

U - Not detected

J - Estimated value

D - Value after dilution

SW - Supply well

HP - Hydropunch

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	HP-3-A	HP-3-B	HP-3-C	HP-4-A	HP-6-A	HP-6-B
Sampling Date		3/16/2009	3/16/2009	3/16/2009	3/18/2009	3/18/2009	3/18/2009
Sample Depth (ft)		31	40	55	15	15	30
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	5 U	5 U	5 U	5 U	5 U	**4.5 J**
Bromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50	25 U	25 U	25 UJ	25 U	25 U	25 U
Carbon Disulfide	60	5 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl Ether	10	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	NA	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	NA	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	25 U	25 U	25 U	25 U	25 U	25 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	3.6 J	5 U	5 U	5 U	**18**	**120**
Chloroform	7	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane	NA	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene (TCE)	5	2.2 J	5 U	5 U	5 U	**5.7**	**34**
1,2-Dichloropropane	1	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	NA	25 U	25 U	25 UJ	25 U	25 U	25 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U
t-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50	25 U	25 U	25 UJ	25 UJ	25 UJ	25 UJ
Dibromochloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	NA	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene (PCE)	5	**430**	**84**	5 U	5 U	**43**	**70**

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class	HP-3-A	HP-3-B	HP-3-C	HP-4-A	HP-6-A	HP-6-B
Sampling Date	GA	3/16/2009	3/16/2009	3/16/2009	3/18/2009	3/18/2009	3/18/2009
Sample Depth (ft)	Groundwater	31	40	55	15	15	30
Sample Type	Criteria	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U
m/p-Xylenes	5	10 U	10 U	10 U	10 U	10 U	10 U
o-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ
Isopropylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	0.04	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U

Notes:
Bold - Exceeds Criteria
U - Not detected
J - Estimated value
D - Value after dilution
SW - Supply well
HP - Hydropunch

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	HP-6-C	HP-7-A	HP-7-B	HP-8-A	HP-8-B	HP-9-A
Sampling Date		3/18/2009	3/18/2009	3/18/2009	3/18/2009	3/18/2009	3/18/2009
Sample Depth (ft)		40	15	30	15	30	15
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50	25 U	25 U	25 U	25 U	25 U	25 U
Carbon Disulfide	60	5 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl Ether	10	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	NA	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	NA	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	25 U	25 U	25 U	25 U	25 U	25 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	**38**	5 U	5 U	**12**	5 U	3.6 J
Chloroform	7	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane	NA	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene (TCE)	5	**14**	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	NA	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U
t-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50	25 UJ	25 U	25 UJ	25 UJ	25 UJ	25 UJ
Dibromochloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	NA	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene (PCE)	5	**91**	**9.5**	5 U	**25**	5 U	5 U

Table 3-1

VOCs in Groundwater March 2009

Sample ID	NYSDEC Class	HP-6-C	HP-7-A	HP-7-B	HP-8-A	HP-8-B	HP-9-A
Sampling Date	GA	3/18/2009	3/18/2009	3/18/2009	3/18/2009	3/18/2009	3/18/2009
Sample Depth (ft)	Groundwater	40	15	30	15	30	15
Sample Type	Criteria	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U
m/p-Xylenes	5	10 U	10 U	10 U	10 U	10 U	10 U
o-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50	5 UJ	5 U	5 UJ	5 UJ	5 UJ	5 UJ
Isopropylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	0.04	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

Bold - Exceeds Criteria

U - Not detected

J - Estimated value

D - Value after dilution

SW - Supply well

HP - Hydropunch

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	HP-9-B	HP-10-A	HP-11-A	HP-11-B	HP-12-A	HP-12-B
Sampling Date		3/18/2009	3/18/2009	3/16/2009	3/16/2009	3/19/2009	3/19/2009
Sample Depth (ft)		30	20	15	35	25	40
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50	25 U	25 U	25 UJ	25 U	25 U	25 U
Carbon Disulfide	60	5 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl Ether	10	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	NA	5 U	5 U	5 UJ	5 U	5 U	5 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Cyclohexane	NA	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	25 U	25 U	25 U	25 U	25 U	25 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5	5 U	4.4 J	2.1 J	5 U	5 U
Chloroform	7	5 U	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane	NA	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene (TCE)	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1	5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	NA	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U
t-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50	25 UJ	25 UJ	25 U	25 U	25 UJ	25 UJ
Dibromochloromethane	50	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	NA	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene (PCE)	5	**5.2**	5 U	**18**	**68**	5 U	5 U

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class	HP-9-B	HP-10-A	HP-11-A	HP-11-B	HP-12-A	HP-12-B
Sampling Date	GA	3/18/2009	3/18/2009	3/16/2009	3/16/2009	3/19/2009	3/19/2009
Sample Depth (ft)	Groundwater	30	20	15	35	25	40
Sample Type	Criteria	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U
m/p-Xylenes	5	10 U	10 U	10 U	10 U	10 U	10 U
o-Xylene	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	50	5 UJ	5 UJ	5 UJ	5 U	5 UJ	5 UJ
Isopropylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	0.04	5 U	5 U	5 UJ	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U

Notes:

Bold - Exceeds Criteria
U - Not detected
J - Estimated value
D - Value after dilution
SW - Supply well
HP - Hydropunch

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	HP-12-C	HP-13-A	HP-13-B	HP-14-A	HP-14-A-DUP
Sampling Date		3/19/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Depth (ft)		55	25	35	20	20
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Dichlorodifluoromethane	5	5 U	5 U	5 U	5 U	5 U
Chloromethane	5	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	5 U	5 U	5 U	5 U	5 U
Bromomethane	5	5 U	5 U	5 U	5 U	5 U
Chloroethane	5	5 U	5 U	5 U	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U
Acetone	50	25 UJ	25 UJ	25 UJ	25 UJ	25 UJ
Carbon Disulfide	60	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl Ether	10	5 U	5 U	5 U	5 U	5 U
Methyl Acetate	NA	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U
Cyclohexane	NA	5 U	5 U	5 U	5 U	5 U
2-Butanone	50	25 U	25 U	25 U	25 U	25 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	2.5 J	5 U	5 U
Chloroform	7	5 U	5 U	5 U	5 U	5 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane	NA	5 U	5 U	5 U	5 U	5 U
Benzene	1	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	0.6	5 U	5 U	5 U	5 U	5 U
Trichloroethene (TCE)	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	1	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	50	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	NA	25 UJ	25 U	25 U	25 U	25 U
Toluene	5	5 U	5 U	5 U	5 U	5 U
t-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	0.4	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	1	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50	25 UJ	25 U	25 U	25 U	25 U
Dibromochloromethane	50	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane	NA	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene (PCE)	5	5 U	5 U	3.9 J	5 U	5 U

Table 3-1

VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	HP-12-C	HP-13-A	HP-13-B	HP-14-A	HP-14-A-DUP
Sampling Date		3/19/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Depth (ft)		55	25	35	20	20
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U
Ethyl Benzene	5	5 U	5 U	5 U	5 U	5 U
m/p-Xylenes	5	10 U	10 U	10 U	10 U	10 U
o-Xylene	5	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U
Bromoform	50	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
Isopropylbenzene	5	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U
1,3-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	3	5 U	5 U	5 U	5 U	5 U
1,2-Dibromo-3-Chloropropane	0.04	5 U	5 UJ	5 UJ	5 UJ	5 UJ
1,2,4-Trichlorobenzene	5	5 U	5 U	5 U	5 U	5 U

Notes:

Bold - Exceeds Criteria

U - Not detected

J - Estimated value

D - Value after dilution

SW - Supply well

HP - Hydropunch

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	SW-1	SW-2
Sampling Date		3/19/2009	3/19/2009
Sample Depth (ft)		50-70	43-63
Sample Type		Env. Sample	Env. Sample
Units	µg/L	µg/L	µg/L
Dichlorodifluoromethane	5	5 U	5 U
Chloromethane	5	5 U	5 U
Vinyl Chloride	2	5 U	5 U
Bromomethane	5	5 U	5 U
Chloroethane	5	5 U	5 U
Trichlorofluoromethane	5	5 U	5 U
1,1,2-Trichlorotrifluoroethane	5	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U
Acetone	50	25 U	25 U
Carbon Disulfide	60	5 U	5 U
Methyl tert-butyl Ether	10	5 U	5 U
Methyl Acetate	NA	5 U	5 U
Methylene Chloride	5	5 U	5 U
trans-1,2-Dichloroethene	5	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U
Cyclohexane	NA	5 U	5 U
2-Butanone	50	25 U	25 U
Carbon Tetrachloride	5	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U
Chloroform	7	5 U	5 U
1,1,1-Trichloroethane	5	5 U	5 U
Methylcyclohexane	NA	5 U	5 U
Benzene	1	5 U	5 U
1,2-Dichloroethane	0.6	5 U	5 U
Trichloroethene (TCE)	5	5 U	5 U
1,2-Dichloropropane	1	5 U	5 U
Bromodichloromethane	50	5 U	5 U
4-Methyl-2-Pentanone	NA	25 U	25 U
Toluene	5	5 U	5 U
t-1,3-Dichloropropene	0.4	5 U	5 U
cis-1,3-Dichloropropene	0.4	5 U	5 U
1,1,2-Trichloroethane	1	5 U	5 U
2-Hexanone	50	25 U	25 U
Dibromochloromethane	50	5 U	5 U
1,2-Dibromoethane	NA	5 U	5 U
Tetrachloroethene (PCE)	5	5 U	**15**

Table 3-1
VOCs in Groundwater March 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	SW-1	SW-2
Sampling Date		3/19/2009	3/19/2009
Sample Depth (ft)		50-70	43-63
Sample Type		Env. Sample	Env. Sample
Chlorobenzene	5	5 U	5 U
Ethyl Benzene	5	5 U	5 U
m/p-Xylenes	5	10 U	10 U
o-Xylene	5	5 U	5 U
Styrene	5	5 U	5 U
Bromoform	50	5 U	5 U
Isopropylbenzene	5	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U
1,3-Dichlorobenzene	3	5 U	5 U
1,4-Dichlorobenzene	3	5 U	5 U
1,2-Dichlorobenzene	3	5 U	5 U
1,2-Dibromo-3-Chloropropane	0.04	5 U	5 U
1,2,4-Trichlorobenzene	5	5 U	5 U

Notes:

Bold - Exceeds Criteria
U - Not detected
J - Estimated value
D - Value after dilution
SW - Supply well
HP - Hydropunch

Table 3-2

VOCs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-5	SS-5-DUP
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.
Sample Depth (ft)		20-21	15-16	15-16	15-16	15-16
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
1,1,1-Trichloroethane	680	830 U	5.8 U	6.2 U	6 U	5.8 U
1,1,2,2-Tetrachloroethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
1,1,2-Trichloroethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
1,1,2-Trichlorotrifluoroethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
1,1-Dichloroethane	270	830 U	5.8 U	6.2 U	6 U	5.8 U
1,1-Dichloroethene	330	830 U	5.8 U	6.2 U	6 U	5.8 U
1,2,4-Trichlorobenzene	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
1,2-Dibromo-3-Chloropropane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
1,2-Dibromoethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
1,2-Dichlorobenzene	1100	830 U	5.8 U	6.2 U	6 U	5.8 U
1,2-Dichloroethane	20	830 U	5.8 U	6.2 U	6 U	5.8 U
1,2-Dichloropropane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
1,3-Dichlorobenzene	2400	830 U	5.8 U	6.2 U	6 U	5.8 U
1,4-Dichlorobenzene	1800	830 U	5.8 U	6.2 U	6 U	5.8 U
2-Butanone	120	4200 U	29 U	31 U	30 U	29 U
2-Hexanone	NA	4200 U	29 U	31 UJ	30 U	29 U
4-Methyl-2-Pentanone	NA	4200 U	29 U	31 UJ	30 U	29 U
Acetone	50	4200 U	14 J	31 UJ	15 J	29 U
Benzene	60	830 U	5.8 U	6.2 U	6 U	5.8 U
Bromodichloromethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Bromoform	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Bromomethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Carbon Disulfide	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Carbon Tetrachloride	760	830 U	5.8 U	6.2 U	6 U	5.8 U
Chlorobenzene	1100	830 U	5.8 U	6.2 U	6 U	5.8 U
Chloroethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Chloroform	370	830 U	5.8 U	6.2 U	6 U	5.8 U
Chloromethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
cis-1,2-Dichloroethene	250	830 U	5.8 U	6.2 U	6 U	5.8 U
cis-1,3-Dichloropropene	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Cyclohexane	NA	25000	5.8 U	6.2 U	6 U	5.8 U

Table 3-2
VOCs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-5	SS-5-DUP
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.
Sample Depth (ft)		20-21	15-16	15-16	15-16	15-16
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Dibromochloromethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Dichlorodifluoromethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Ethyl Benzene	1000	**25000**	5.8 U	6.2 U	6 U	5.8 U
Isopropylbenzene	NA	6200	5.8 U	6.2 U	6 U	5.8 U
m/p-Xylenes	260	**140000**	12 U	12 U	12 U	12 U
Methyl Acetate	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Methyl tert-butyl Ether	930	830 U	5.8 U	6.2 U	6 U	5.8 U
Methylcyclohexane	NA	140000	5.8 U	6.2 U	6 U	5.8 U
Methylene Chloride	50	830 U	5.8 U	6.2 U	6 U	5.8 U
o-Xylene	260	**25000**	5.8 U	6.2 U	6 U	5.8 U
Styrene	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
t-1,3-Dichloropropene	NA	830 U	5.8 U	6.2 UJ	6 U	5.8 U
Tetrachloroethene (PCE)	1300	860	2 J	1.5 J	8	4.7 J
Toluene	700	**1500**	5.8 U	2.5 J	6 U	5.8 U
trans-1,2-Dichloroethene	190	830 U	5.8 U	6.2 U	6 U	5.8 U
Trichloroethene (TCE)	470	830 U	5.8 U	6.2 U	6 U	5.8 U
Trichlorofluoromethane	NA	830 U	5.8 U	6.2 U	6 U	5.8 U
Vinyl Chloride	20	830 U	5.8 U	6.2 U	6 U	5.8 U

Notes:

All units in microgram per kilogram (µg/Kg)

NA - Not available

U - Not detected

J - Estimated value

1. NYS Soil Cleanup Objective for xylene (mixed).

Table 3-2
VOCs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-6	HP-1-C	HP-2-C	HP-5-A	HP-7-C
Sampling Date		3/17/2009	3/16/2009	3/19/2009	3/18/2009	3/18/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Sample Depth (ft)		15-16	55-56	55-56	40-41	40-41
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
1,1,1-Trichloroethane	680	5.7 U	39 U	35 U	46 U	42 U
1,1,2,2-Tetrachloroethane	NA	5.7 U	39 UJ	35 U	46 U	42 U
1,1,2-Trichloroethane	NA	5.7 U	39 U	35 U	46 U	42 U
1,1,2-Trichlorotrifluoroethane	NA	5.7 U	39 U	35 U	46 U	42 U
1,1-Dichloroethane	270	5.7 U	39 U	35 U	46 U	42 U
1,1-Dichloroethene	330	5.7 U	39 U	35 U	46 U	42 U
1,2,4-Trichlorobenzene	NA	5.7 U	39 UJ	35 U	46 U	42 U
1,2-Dibromo-3-Chloropropane	NA	5.7 U	39 UJ	35 U	46 U	42 U
1,2-Dibromoethane	NA	5.7 U	39 U	35 U	46 U	42 U
1,2-Dichlorobenzene	1100	5.7 U	39 UJ	35 U	46 U	42 U
1,2-Dichloroethane	20	5.7 U	39 U	35 U	46 U	42 U
1,2-Dichloropropane	NA	5.7 U	39 U	35 U	46 U	42 U
1,3-Dichlorobenzene	2400	5.7 U	39 UJ	35 U	46 U	42 U
1,4-Dichlorobenzene	1800	5.7 U	39 UJ	35 U	46 U	42 U
2-Butanone	120	28 U	200 U	170 U	230 U	210 U
2-Hexanone	NA	28 U	200 U	170 U	230 U	210 U
4-Methyl-2-Pentanone	NA	28 U	200 U	170 U	230 U	210 U
Acetone	50	19 J	**190** J	**140** J	**170** J	**150** J
Benzene	60	5.7 U	39 U	35 U	46 U	42 U
Bromodichloromethane	NA	5.7 U	39 U	35 U	46 U	42 U
Bromoform	NA	5.7 U	39 UJ	35 U	46 U	42 U
Bromomethane	NA	5.7 U	39 UJ	35 U	46 U	42 U
Carbon Disulfide	NA	5.7 U	39 U	35 U	46 U	42 U
Carbon Tetrachloride	760	5.7 U	39 U	35 U	46 U	42 U
Chlorobenzene	1100	5.7 U	39 U	35 U	46 U	42 U
Chloroethane	NA	5.7 U	39 U	35 U	46 U	42 U
Chloroform	370	5.7 U	39 U	35 U	46 U	42 U
Chloromethane	NA	5.7 U	39 U	35 U	46 U	42 U
cis-1,2-Dichloroethene	250	5.7 U	39 U	35 U	46 U	42 U
cis-1,3-Dichloropropene	NA	5.7 U	39 U	35 U	46 U	42 U
Cyclohexane	NA	5.7 U	39 U	35 U	46 U	42 U

Table 3-2
VOCs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-6	HP-1-C	HP-2-C	HP-5-A	HP-7-C
Sampling Date		3/17/2009	3/16/2009	3/19/2009	3/18/2009	3/18/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Sample Depth (ft)		15-16	55-56	55-56	40-41	40-41
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Dibromochloromethane	NA	5.7 U	39 U	35 U	46 U	42 U
Dichlorodifluoromethane	NA	5.7 U	39 U	35 U	46 U	42 U
Ethyl Benzene	1000	5.7 U	39 U	35 U	46 U	42 U
Isopropylbenzene	NA	5.7 U	39 UJ	35 U	46 U	42 U
m/p-Xylenes	260	11 U	78 U	69 U	92 U	84 U
Methyl Acetate	NA	5.7 U	39 UJ	35 U	46 U	42 U
Methyl tert-butyl Ether	930	5.7 U	39 U	35 U	46 U	42 U
Methylcyclohexane	NA	5.7 U	39 U	35 U	46 U	42 U
Methylene Chloride	50	5.7 U	39 U	35 U	46 U	42 U
o-Xylene	260	5.7 U	39 U	35 U	46 U	42 U
Styrene	NA	5.7 U	39 U	35 U	46 U	42 U
t-1,3-Dichloropropene	NA	5.7 U	39 U	35 U	46 U	42 U
Tetrachloroethene (PCE)	1300	2.7 J	150	35 U	160	34 J
Toluene	700	4.5 J	39 U	35 U	46 U	42 U
trans-1,2-Dichloroethene	190	5.7 U	39 U	35 U	46 U	42 U
Trichloroethene (TCE)	470	5.3 J	39 U	35 U	46 U	42 U
Trichlorofluoromethane	NA	5.7 U	39 U	35 U	46 U	42 U
Vinyl Chloride	20	5.7 U	39 U	35 U	46 U	42 U

Notes:

All units in microgram per kilogram (µg/Kg)

NA - Not available

U - Not detected

J - Estimated value

1. NYS Soil Cleanup Objective for xylene (mixed).

Table 3-3
SVOCs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5-DUP	SS-6
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample
Sample Depth (ft bgs)		20-21	15-16	15-16	10-11	15-16	15-16	15-16
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
1,1-Biphenyl	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2,2-oxybis(1-Chloropropane)	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2,4,5-Trichlorophenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2,4,6-Trichlorophenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2,4-Dichlorophenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2,4-Dimethylphenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2,4-Dinitrophenol	NA	440 UJ	380 UJ	410 UJ	350 UJ	400 UJ	380 UJ	370 UJ
2,4-Dinitrotoluene	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2,6-Dinitrotoluene	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2-Chloronaphthalene	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2-Chlorophenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2-Methylnaphthalene	NA	1500	380 U	410 U	350 U	400 U	380 U	370 U
2-Methylphenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2-Nitroaniline	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
2-Nitrophenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
3,3-Dichlorobenzidine	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
3+4-Methylphenols	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
3-Nitroaniline	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
4,6-Dinitro-2-methylphenol	NA	440 UJ	380 UJ	410 UJ	350 UJ	400 UJ	380 UJ	370 UJ
4-Bromophenyl-phenylether	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
4-Chloro-3-methylphenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
4-Chloroaniline	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
4-Chlorophenyl-phenylether	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
4-Nitroaniline	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
4-Nitrophenol	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Acenaphthene	20000	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Acenaphthylene	100000	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Acetophenone	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Anthracene	100000	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Atrazine	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Benzaldehyde	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Benzo(a)anthracene	1000	440 U	380 U	410 U	350 U	400 U	380 U	370 U

Table 3-3
SVOCs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5-DUP	SS-6
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample
Sample Depth (ft bgs)		20-21	15-16	15-16	10-11	15-16	15-16	15-16
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Benzo(a)pyrene	1000	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Benzo(b)fluoranthene	1000	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Benzo(g,h,i)perylene	100000	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Benzo(k)fluoranthene	800	440 U	380 U	410 U	350 U	400 U	380 U	370 U
bis(2-Chloroethoxy)methane	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
bis(2-Chloroethyl)ether	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
bis(2-Ethylhexyl)phthalate	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Butylbenzylphthalate	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Caprolactam	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Carbazole	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Chrysene	1000	440 U	380 U	43 J	350 U	400 U	380 U	370 U
Dibenz(a,h)anthracene	330	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Dibenzofuran	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Diethylphthalate	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Dimethylphthalate	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Di-n-butylphthalate	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Di-n-octyl phthalate	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Fluoranthene	100000	440 U	380 U	150 J	350 U	400 U	380 U	370 U
Fluorene	30000	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Hexachlorobenzene	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Hexachlorobutadiene	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Hexachlorocyclopentadiene	NA	440 UJ	380 UJ	410 UJ	350 UJ	400 UJ	380 UJ	370 UJ
Hexachloroethane	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Indeno(1,2,3-cd)pyrene	500	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Isophorone	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Naphthalene	12000	1100	380 U	410 U	350 U	400 U	380 U	370 U
Nitrobenzene	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
N-Nitroso-di-n-propylamine	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
N-Nitrosodiphenylamine	NA	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Pentachlorophenol	800	440 U	380 U	410 U	350 U	400 U	380 U	370 U
Phenanthrene	100000	440 U	380 U	61 J	350 U	400 U	380 U	370 U
Phenol	330	440 U	380 U	410 U	350 U	400 U	380 U	370 U

Table 3-3
SVOCs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5-DUP	SS-6
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample
Sample Depth (ft bgs)		20-21	15-16	15-16	10-11	15-16	15-16	15-16
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Pyrene	100000	440 U	380 U	120 J	350 U	400 U	380 U	370 U

Notes:

All units in microgram per kilogram (µg/Kg)

Bold - Exceeds Criteria

NA - Not available

U - Not detected

J - Estimated value

Table 3-4
Pesticides in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5-DUP	SS-6
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample
Sample Depth (ft bgs)		20-21	15-16	15-16	10-11	15-16	15-16	15-16
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
alpha-BHC	20	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
beta-BHC	36	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
delta-BHC	40	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
gamma-BHC	NA	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Heptachlor	42	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Aldrin	5	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Heptachlor epoxide	NA	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Endosulfan I	2400	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Dieldrin	5	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
4,4-DDE	3.3	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Endrin	14	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Endosulfan II	2400	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
4,4-DDD	3.3	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Endosulfan Sulfate	2400	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
4,4-DDT	3.3	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Methoxychlor	NA	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Endrin ketone	NA	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Endrin aldehyde	NA	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
alpha-Chlordane	94	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
gamma-Chlordane	NA	2.3 U	1.9 U	2.1 U	1.8 U	2 U	2 U	1.9 U
Toxaphene	NA	23 U	19 U	21 U	18 U	20 U	20 U	19 U

Notes:

All units in microgram per kilogram (µg/Kg)

NA - Not available

U - Not detected

Table 3-5
PCBs in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5-DUP	SS-6
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample
Sample Depth (ft bgs)		20-21	15-16	15-16	10-11	15-16	15-16	15-16
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Aroclor-1016	0.1	23 U	19 U	21 U	18 U	20 U	20 U	19 U
Aroclor-1221	0.1	23 U	19 U	21 U	18 U	20 U	20 U	19 U
Aroclor-1232	0.1	23 U	19 U	21 U	18 U	20 U	20 U	19 U
Aroclor-1242	0.1	23 U	19 U	21 U	18 U	20 U	20 U	19 U
Aroclor-1248	0.1	23 U	19 U	21 U	18 U	20 U	20 U	19 U
Aroclor-1254	0.1	23 U	19 U	21 U	18 U	20 U	20 U	19 U
Aroclor-1260	0.1	23 U	19 U	21 U	18 U	20 U	20 U	19 U

Notes:

All units in microgram per kilogram (µg/Kg)

Bold - Exceeds Criteria

The NYS Unrestricted Use criteria are for Total PCB.

U - Not detected

Table 3-6
Metals in Soil Samples March 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SS-1	SS-2	SS-3	SS-4	SS-5	SS-5-DUP	SS-6
Sampling Date		3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009	3/17/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample
Sample Depth (ft bgs)		20-21	15-16	15-16	10-11	15-16	15-16	15-16
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aluminum	NA	6250	6470	11700	4640	6240	5450	6520
Antimony	NA	2.23 U	1.89 U	2.06 U	1.78 U	1.98 U	1.93 U	1.88 U
Arsenic	13	4.03	6.3	7.2	3.04	3.77	9.61	4.7
Barium	350	61.4	57.5	62.9	17.2	61.6	51.4	45.9
Beryllium	7.2	0.34	0.39	0.59	0.21 U	0.35	0.33	0.32
Cadmium	2.5	0.69	0.94	0.95	0.66	0.95	0.73	0.8
Calcium	NA	3440	1930	4920	35000	23100	15600	11300
Chromium	30	8.07	9.79	14	6.37	8.07	7.3	9.3
Cobalt	NA	5.49	6.02	9.48	3.97	5.99	5.02	5.49
Copper	50	38.1	29	22.7	23.4	26.7	23.5	26.5
Iron	NA	18300	22200	24200	11500	16900	15500	16000
Lead	63	16.1	**74.2**	13.8	5.76	9.09	8.16	11.2
Magnesium	NA	2980	2410	3460	7130	6470	5900	4430
Manganese	1600	451	870	537	314	816	661	359
Mercury	0.18	0.019	0.059	0.033	0.011 U	0.014	0.012 U	0.012
Nickel	30	16.3	18.2	22.4	11.9	15.9	14.2	15.2
Potassium	NA	618	509	690	399	733	523	551
Selenium	3.9	2.15	2.54	2.81	1.23	1.75	1.62	2.09
Silver	2	0.45 U	0.38 U	0.41 U	0.36 U	0.4 U	0.39 U	0.38 U
Sodium	NA	152	130	321	172	151	124	202
Thallium	NA	1.78 U	1.52 U	1.65 U	1.42 U	1.58 U	1.54 U	1.51 U
Vanadium	NA	10.8	13.4	18.6	8.4	15	11	11.6
Zinc	109	78.8 J	79.3	62.8 J	50.7	84.3 J	79 J	71.8 J

Notes:

All units in milligram per kilogram (mg/kg)

Bold - Exceeds Criteria

NA - Not available

U - Not detected

J - Estimated value

Table 3-7
VOCs in Soil Samples June 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SOIL-1	SOIL-2	SOIL-3	SOIL-3-DUP	SOIL-4	SOIL-5
Sampling Date		6/22/2009	6/22/2009	6/22/2009	6/22/2009	6/22/2009	6/22/2009
Sample Depth (ft)		4-5	4-5	4-5	4-5	4-5	4-5
Units		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
1,1,1-Trichloroethane	680	28 U	28 U	28 U	27 U	29 U	28 U
1,1,2,2-Tetrachloroethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
1,1,2-Trichloroethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
1,1,2-Trichlorotrifluoroethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
1,1-Dichloroethane	270	28 U	28 U	28 U	27 U	29 U	28 U
1,1-Dichloroethene	330	28 U	28 U	28 U	27 U	29 U	28 U
1,2,4-Trichlorobenzene	NA	28 U	28 U	28 U	27 U	29 U	28 U
1,2-Dibromo-3-Chloropropane	NA	28 U	28 U	28 U	27 U	29 U	28 U
1,2-Dibromoethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
1,2-Dichlorobenzene	1100	28 U	28 U	28 U	27 U	29 U	28 U
1,2-Dichloroethane	20	28 U	28 U	28 U	27 U	29 U	28 U
1,2-Dichloropropane	NA	28 U	28 U	28 U	27 U	29 U	28 U
1,3-Dichlorobenzene	2400	28 U	28 U	28 U	27 U	29 U	28 U
1,4-Dichlorobenzene	1800	28 U	28 U	28 U	27 U	29 U	28 U
2-Butanone	NA	140 U	140 U	140 U	140 U	150 U	140 U
2-Hexanone	NA	140 U	140 U	140 U	140 U	150 U	140 U
4-Methyl-2-Pentanone	NA	140 U	140 U	140 U	140 U	150 U	140 U
Acetone	50	**98** J	R	R	R	R	R
Benzene	60	28 U	28 U	28 U	27 U	29 U	28 U
Bromodichloromethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
Bromoform	NA	28 U	28 U	28 U	27 U	29 U	28 U
Bromomethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
Carbon Disulfide	NA	28 U	28 U	28 U	27 U	29 U	28 U
Carbon Tetrachloride	760	28 U	28 U	28 U	27 U	29 U	28 U
Chlorobenzene	1100	28 U	28 U	28 U	27 U	29 U	28 U
Chloroethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
Chloroform	370	28 U	28 U	28 U	27 U	29 U	28 U
Chloromethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
cis-1,2-Dichloroethene	NA	28 U	28 U	28 U	27 U	29 U	28 U
cis-1,3-Dichloropropene	NA	28 U	28 U	28 U	27 U	29 U	28 U
Cyclohexane	NA	28 U	28 U	28 U	27 U	29 U	28 U
Dibromochloromethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
Dichlorodifluoromethane	NA	28 U	28 U	28 U	27 U	29 U	28 U

Table 3-7

VOCs in Soil Samples June 2009

Sample ID	NYS Unrestricted Use Soil Cleanup Objectives	SOIL-1	SOIL-2	SOIL-3	SOIL-3-DUP	SOIL-4	SOIL-5
Sampling Date		6/22/2009	6/22/2009	6/22/2009	6/22/2009	6/22/2009	6/22/2009
Sample Depth (ft)		4-5	4-5	4-5	4-5	4-5	4-5
Units		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Ethyl Benzene	1000	28 U	28 U	28 U	27 U	29 U	28 U
Isopropylbenzene	NA	28 U	28 U	28 U	27 U	29 U	28 U
m/p-Xylenes	260	56 U	56 U	55 U	55 U	58 U	57 U
Methyl Acetate	NA	28 U	28 U	28 U	27 U	29 U	28 U
Methyl tert-butyl Ether	930	28 U	28 U	28 U	27 U	29 U	28 U
Methylcyclohexane	NA	28 U	28 U	28 U	27 U	29 U	28 U
Methylene Chloride	50	28 U	28 U	28 U	27 U	29 U	28 U
o-Xylene	260	28 U	28 U	28 U	27 U	29 U	28 U
Styrene	NA	28 U	16 J	28 U	27 U	29 U	28 U
t-1,3-Dichloropropene	NA	28 U	28 U	28 U	27 U	29 U	28 U
Tetrachloroethene (PCE)	1300	41	210	330	220	10 J	16 J
Toluene	700	28 U	28 U	28 U	27 U	29 U	28 U
trans-1,2-Dichloroethene	330	28 U	28 U	28 U	27 U	29 U	28 U
Trichloroethene (TCE)	470	28 U	28 U	28 U	27 U	29 U	28 U
Trichlorofluoromethane	NA	28 U	28 U	28 U	27 U	29 U	28 U
Vinyl Chloride	20	28 U	28 U	28 U	27 U	29 U	28 U
Total Concentration.		139	226	330	220	10	16
Total TICs		7.4					

Notes:

All units in microgram per kilogram (µg/kg)

Bold - Exceeds Criteria

NA - Not available

U - Not detected

J - Estimated value

R - Rejected value due to the serious defeciencies

Table 3-8
VOCs in Groundwater December 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	MW-1	MW-2	MW-3	MW-3DUP	MW-4	MW-5	MW-6
Sampling Date		12/2/2009	12/2/2009	12/2/2009	12/2/2009	12/3/2009	12/3/2009	12/3/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample	Env. Sample	Env. Sample
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,1,1-Trichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichlorotrifluoroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-Chloropropane	0.04	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	0.0006	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	3	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	0.6	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	3	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	3	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	50	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	50	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	50	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	50	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U
Bromomethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Disulfide	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	5	1 U	2.3	1.7	1.5	1 U	1 U	1 U
cis-1,3-Dichloropropene	0.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cyclohexane	NA	1 U	1.3	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	50	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Table 3-8
VOCs in Groundwater December 2009

Sample ID	NYSDEC	MW-1	MW-2	MW-3	MW-3DUP	MW-4	MW-5	MW-6
Sampling Date	Class GA	12/2/2009	12/2/2009	12/2/2009	12/2/2009	12/3/2009	12/3/2009	12/3/2009
Sample Type	Groundwater	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample	Env. Sample	Env. Sample
Units	Criteria	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Ethyl Benzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
m/p-Xylenes	NA	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Methyl Acetate	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl Ether	NA	1 U	1 U	1 U	1 U	1 U	0.82 J	1 U
Methylcyclohexane	NA	1 U	1.1	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
o-Xylene	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
t-1,3-Dichloropropene	0.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene (PCE)	5	1 UJ	**340**	**34**	**32**	1 U	1 U	1 U
Toluene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene (TCE)	5	1 U	**6.2**	0.83 J	0.87 J	1 U	1 U	0.57 J
Trichlorofluoromethane	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	2	1 U	1.6	1 U	1 U	1 U	1 U	1 U

Notes:

All units in micrograms per liter (µg/L)

Bold - Exceeds Criteria

NA - Not available

U - Not detected

J - Estimated value

Table 3-9
Metals in Groundwater December 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3DUP	MW-3
Sampling Date		12/2/2009	12/2/2009	12/2/2009	12/2/2009	12/2/2009	12/2/2009	12/2/2009
Matrix		Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Unfiltered	Filtered
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Sample Dup.	Env. Sample
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Aluminum	NA	97.1	67.2	53.2	34 J	5010	5171	2010
Antimony	3	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Arsenic	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Barium	1000	192	184	201	201	291	304	252
Beryllium	3	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Cadmium	5	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Calcium	NA	70800	68000	78200	78300	104000	107970	99700
Chromium	50	5 U	5 U	5 U	5 U	4.59 J	5.15	2.8 J
Cobalt	NA	15 U	15 U	15 U	15 U	15 U	15 U	15 U
Copper	250	10 U	10 U	10 U	10 U	9.57 J	11.2	3.87 J
Iron	300	153 J	90.8 J	72.3 J	67.9 J	**6560** J	**7053** J	**2260** J
Lead	25	6 U	6.96 U	6 U	6.27 U	16.7 U	18.7 U	10.9 U
Magnesium	35000	15000	14300	16300	16400	20900	21677	19000
Manganese	300	8.49 J	6.33 J	201	170	**532**	**567**	290
Mercury	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	100	20 U	20 U	20 U	20 U	6 J	6.45 J	20 U
Potassium	NA	1990	1990	2620	2630	5670	5832	4880
Selenium	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Silver	50	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Sodium	20000	**41200**	**40000**	**70000**	**70500**	**219000**	**227050**	**220000**
Thallium	0.5	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Vanadium	NA	20 U	20 U	20 U	20 U	8.67 J	8.79 J	20 U
Zinc	2000	6.03 J	11.8 J	10.2 J	10.5 J	36.9	41.7	22.3

Notes:

All units in micrograms per liter (µg/L)

Bold - Exceeds Criteria

NA - Not available

U - Not detected

J - Estimated value

Table 3-9
Metals in Groundwater December 2009

Sample ID	NYSDEC	MW-4	MW-4	MW-5	MW-5	MW-6	MW-6
Sampling Date	Class GA	12/3/2009	12/3/2009	12/3/2009	12/3/2009	12/3/2009	12/3/2009
Matrix	Groundwater	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
Sample Type	Criteria	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Aluminum	NA	123 U	50 U	3340	112 U	6700	139 U
Antimony	3	25 U	25 U	25 U	25 U	25 U	25 U
Arsenic	25	10 U	10 U	10 U	10 U	10 U	10 U
Barium	1000	279	281	427	362	447	349
Beryllium	3	3 U	3 U	3 U	3 U	3 U	3 U
Cadmium	5	3 U	3 U	3 U	3 U	3 U	3 U
Calcium	NA	93500	94900	108000	96400	109000	96500
Chromium	50	5 U	5 U	4.51 J	5 U	10.8	5 U
Cobalt	NA	15 U	15 U	15 U	15 U	15 U	15 U
Copper	250	10 U	10 U	5.5 J	10 U	13.5	10 U
Iron	300	211 U	57.9 U	**6550**	**418**	**11800**	246 U
Lead	25	3.32 J	3.08 J	6.4	3.27 J	14.9	2.77 J
Magnesium	35000	19600	19900	31900	27600	29800	25300
Manganese	300	175	175	**697**	**554**	**859**	**521**
Mercury	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	100	20 U	20 U	5.18 J	20 U	13.2 J	20 U
Potassium	NA	3540	3500	3570	2390	5330	3230
Selenium	10	10 U	10 U	10 U	10 U	10 U	10 U
Silver	50	5 U	5 U	5 U	5 U	5 U	5 U
Sodium	20000	**154000**	**158000**	**44600**	**41300**	**71000**	**69000**
Thallium	0.5	20 U	20 U	20 U	20 U	20 U	20 U
Vanadium	NA	20 U	20 U	5.78 J	20 U	10.8 J	20 U
Zinc	2000	198	20 U	25.8 U	20 U	54 U	20 U

Notes:

All units in micrograms per liter (µg/L)

Bold - Exceeds Criteria

NA - Not available

U - Not detected

J - Estimated value

Table 3-10

Wet Chemistry Groundwater December 2009

Sample ID	NYSDEC Class GA Groundwater Criteria	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
Sampling Date		12/2/2009	12/2/2009	12/2/2009	12/3/2009	12/3/2009	12/3/2009
Sample Type		Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample	Env. Sample
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Dissolved Ferrous Iron	NA	0.1 U	0.2	0.2	0.1 U	0.1 U	0.1 U
TOC	NA	0.719 J	0.858 J	3.95 J	0.781	1.51	1.12
Sulfide	0.05	**2.4 J**	**2.4 J**	**2.4 J**	**2.4 J**	**2.4 J**	**2.4 J**
TKN	NA	1.12	1.66	0.955	0.824	0.639	0.826
Total Phosphorus	NA	0.01 U	0.01 U	0.18	0.01 U	0.1	0.22
Nitrate+Nitrite	10	1.6 J	3.2 J	3.4 J	0.15 UJ	0.15 UJ	0.15 UJ
Ferrous Iron	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
COD	NA	5 U	5 U	5.47	5 U	5 U	5 U
BOD5	NA	2 U	2 U	2 U	2 U	2 U	2 U
Chloride	NA	110	160	460	320	160	450
Nitrate	10	1.64 J	3.17 J	3.38 J	9.24 J	0.1 UJ	0.932 J
Sulfate	250	26	26	28	30	47	30
Ammonia as N	2	0.2 U	0.2 U	0.2 U	0.076	0.043	0.066
Alkalinity	250	150	190	250	200	250	**280**
Ethane	NA	0.000028	0.00019	0.00089	0.0005	0.0023	0.0076
Ethene	NA	0.00003	0.00032	0.00013	0.00019	0.00063	0.00077
Methane	NA	0.00048	0.019	0.0033	0.002	0.0095	0.021

Notes:

All units in milligram per liter (mg/L)

Bold - Exceeds Criteria

NA - Not available

U - Not detected

J - Estimated value

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H01		H02		H02		H02 (Dup)		H03		H03		H04		H04	
Type of Sample	First floor indoor air		First floor indoor air		Basement indoor air		Basement indoor air		First floor indoor air		Basement indoor air		First floor indoor air		Basement indoor air	
Sampling Date	3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/5/2009	
Units	µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3	
1,1,1-Trichloroethane	0.22	U	0.31		0.22	U	0.22	U	0.34	U	0.65	U	0.22	U	1.1	U
1,1,2,2-Tetrachloroethane	0.27	U	0.27	U	0.27	U	0.27	U	0.43	U	0.82	U	0.27	U	1.4	U
1,1,2-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	0.34	U	0.65	U	0.22	U	1.1	U
1,1-Dichloroethane	0.16	U	0.16	U	0.16	U	0.16	U	0.25	U	0.49	U	0.16	U	0.81	U
1,1-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.25	U	0.48	U	0.16	U	0.79	U
1,2-Dibromoethane	0.31	U	0.31	U	0.31	U	0.31	U	0.48	U	0.92	U	0.31	U	1.5	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.28	U	0.28	U	0.28	U	0.28	U	0.43	U	0.84	U	0.28	U	1.4	U
1,2-Dichloroethane	0.32	U	0.45		0.32	U	0.32	U	0.49	U	1	U	0.32	U	1.6	J
1,2-Dichloroethene (total)	0.16	U	0.16	U	0.16	U	0.16	U	0.25	U	0.48	U	0.16	U	0.79	U
1,2-Dichloropropane	0.37	U	0.37	U	0.37	U	0.37	U	0.55	U	1.2	U	0.37	U	1.8	U
1,3,5-Trimethylbenzene	0.39	U	0.39	U	0.39	U	0.39	U	0.59	U	1.2	U	0.54		2	U
1,3-Butadiene	0.18	U	0.18	U	0.18	U	0.18	U	0.27	U	0.55	U	0.18	U	0.88	U
2,2,4-Trimethylpentane (Isooctane)	0.24		0.36		0.38		0.56		1.8		2.8		0.23		0.93	U
3-Chloro-1-propene (Allyl Chloride)	0.25	U	0.25	U	0.25	U	0.25	U	0.38	U	0.78	U	0.25	U	1.3	U
4-Ethyltoluene	0.34		0.35		0.29		0.43		0.59		0.84		0.98		0.98	U
Benzene	1.1		0.96		0.89		1.2		1.1		1.5		1		1.2	
Bromodichloromethane	0.27	U	0.27	U	0.27	U	0.27	U	0.42	U	0.8	U	0.27	U	1.3	U
Bromoethene	0.35	U	0.35	U	0.35	U	0.35	U	0.52	U	1.1	U	0.35	U	1.7	U
Bromoform	0.41	U	0.41	U	0.41	U	0.41	U	0.64	U	1.2	U	0.41	U	2.1	U
Bromomethane	0.31	U	0.31	U	0.31	U	0.31	U	0.47	U	0.97	U	0.31	U	1.6	U
Carbon Tetrachloride	0.56		0.53		0.52		0.75		0.62		0.82		0.69		1.3	U
Chloroethane	0.21	U	0.21	U	0.21	U	0.21	U	0.32	U	0.66	U	0.21	U	1.1	U
Chloroform	0.2	U	0.2	U	0.2	U	0.2	U	0.3	U	0.59	U	0.22		0.98	U
cis-1,2-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.25	U	0.48	U	0.16	U	0.79	U
cis-1,3-Dichloropropene	0.18	U	0.18	U	0.18	U	0.18	U	0.28	U	0.54	U	0.18	U	0.91	U
Cyclohexane	0.14	U	0.19		0.21		0.28		0.55		0.72		0.69		1.7	
Dibromochloromethane	0.34	U	0.34	U	0.34	U	0.34	U	0.53	U	1	U	0.34	U	1.7	U
Dichlorodifluoromethane (CFC 12)	3.1	J	3.2	J	3.8	J	4.4	J	2.9		3.6		4	J	5.9	J
Ethylbenzene	0.31		0.52		0.35		0.43		0.52		1.1		0.96		1.1	
m,p-Xylenes	0.91		1.3		0.96		1.3		1.8		2.9		4		2.1	
Methyl tert-Butyl Ether	0.14	U	0.14	U	0.14	U	0.14	U	0.22	U	0.43	U	0.14	U	0.72	U
Methylene Chloride	2.8	U	2.8	U	2.8	U	2.8	U	28		59		2.8	U	14	U

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H01	H02	H02	H02 (Dup)	H03	H03	H04	H04
Type of Sample	First floor indoor air	First floor indoor air	Basement indoor air	Basement indoor air	First floor indoor air	Basement indoor air	First floor indoor air	Basement indoor air
Sampling Date	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009
Units	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
n-Heptane	0.23 U	1.2 U	0.3 U	0.37 U	1.4	1.2	1.2 U	2.9
n-Hexane	0.39	0.46	0.56	0.81	1.4	1.8	1.3	1.4 U
o-Xylene	0.38	0.43	0.38	0.52	0.61	1.3	1.2	0.87 U
Tetrachloroethene (PCE)	0.27 U	0.88	2.2	3.2	2	5.4	0.62	1.4 U
Toluene	2.1	2.8	2.1	2.7	5.3	9.8	4.1	45
trans-1,2-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.25 U	0.48 U	0.16 U	0.79 U
trans-1,3-Dichloropropene	0.18 U	0.18 U	0.18 U	0.18 U	0.28 U	0.54 U	0.18 U	0.91 U
Trichloroethene (TCE)	0.21 U	0.21 U	0.21 U	0.21 U	0.33 U	0.64 U	7	4.6
Trichlorofluoromethane	1.3	3.1	4.8	6.7	1.8	1.9	1.7	2.1
Vinyl Chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.31 U	0.64 U	0.2 U	1 U
Xylene (total)	1.3	1.7	1.3	1.8	2.3	4.1	5.2	2.1

Notes:

U - Not detected

J - Estimated value

Table 3-11

VOCs in Indoor Air Samples 2009

Structure	H05		H05		H06		H06		H07		H07		H07 (Dup)		H08	
Type of Sample	First floor indoor air		Basement indoor air		First floor indoor air		Basement indoor air		First floor indoor air		Basement indoor air		Basement indoor air		First floor indoor air	
Sampling Date	3/5/2009		3/5/2009		3/27/2009		3/27/2009		3/27/2009		3/27/2009		3/27/2009		3/5/2009	
Units	µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
1,1,1-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
1,1,2-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethane	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,1-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,2-Dibromoethane	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dichloroethane	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dichloroethene (total)	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,2-Dichloropropane	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.51		0.37	U	0.37	U
1,3,5-Trimethylbenzene	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
1,3-Butadiene	0.33		0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.55		0.18	U
2,2,4-Trimethylpentane (Isooctane)	0.24		0.21		0.23		0.34		0.75		0.56		0.43		0.34	
3-Chloro-1-propene (Allyl Chloride)	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
4-Ethyltoluene	0.25		0.26		0.2	U	0.2	U	0.64		0.2	U	0.25		0.27	
Benzene	1.9		1.3		0.64		0.7		1.7		1.3		1.2		0.7	
Bromodichloromethane	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Bromoethene	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
Bromoform	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromomethane	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Carbon Tetrachloride	0.61		0.75		0.42		0.51		0.56		0.63		0.61		0.63	
Chloroethane	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chloroform	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	1.3	
cis-1,2-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Cyclohexane	1.4		0.83		0.18		1.2		0.34		0.89		0.65		0.33	
Dibromochloromethane	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Dichlorodifluoromethane (CFC 12)	3.5	J	3.6	J	3		3.2		3.3		1.1		3.6		7.4	J
Ethylbenzene	0.42		0.32		0.18		0.17	U	0.91		0.56		0.56		0.52	
m,p-Xylenes	0.87		0.74		0.43		0.35	U	3		1		1.5		1.3	
Methyl tert-Butyl Ether	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
Methylene Chloride	2.8	U	2.8	U	2.8	U	2.8	U	3		2.8	U	2.8	U	2.8	U

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H05	H05	H06	H06	H07	H07	H07 (Dup)	H08
Type of Sample	First floor indoor air	Basement indoor air	First floor indoor air	Basement indoor air	First floor indoor air	Basement indoor air	Basement indoor air	First floor indoor air
Sampling Date	3/5/2009	3/5/2009	3/27/2009	3/27/2009	3/27/2009	3/27/2009	3/27/2009	3/5/2009
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
n-Heptane	1.2 U	0.74 U	0.45	0.32	0.57	0.78	0.82	0.98 U
n-Hexane	3	1.7	0.6	0.85	1.6	1.8	1.5	0.49
o-Xylene	0.29	0.28	0.2	0.17 U	0.96	0.29	0.43	0.42
Tetrachloroethene (PCE)	1	6	3.2	5.4	0.41	0.27 U	0.27 U	2.8
Toluene	2.4	1.7	1.1	1.7	8.3	7.2	6.8	2.6
trans-1,2-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
trans-1,3-Dichloropropene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trichloroethene (TCE)	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Trichlorofluoromethane	2.8	1.7	1.2	1.5	2.1	2.4	2.2	1.8
Vinyl Chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylene (total)	1.1	1	0.61	0.17 U	3.9	1.3	1.9	1.7

Notes:
U - Not detected
J - Estimated value

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H09		H09		H10		H10		H10 (Dup)		H11		H11		H12	
Type of Sample	First floor indoor air		Basement indoor Air		First floor indoor air		Basement indoor Air		Basement indoor air		First floor indoor air		Basement indoor air		First floor indoor air	
Sampling Date	3/5/2009		3/27/2009		3/5/2009		3/27/2009		3/27/2009		3/5/2009		3/5/2009		3/5/2009	
Units	µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3	
1,1,1-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.55	U	0.22	U	0.51	
1,1,2,2-Tetrachloroethane	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.69	U	0.27	U	0.27	U
1,1,2-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.55	U	0.22	U	0.22	U
1,1-Dichloroethane	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.4	U	0.16	U	0.16	U
1,1-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.4	U	0.16	U	0.16	U
1,2-Dibromoethane	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.77	U	0.31	U	0.31	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.7	U	0.28	U	0.28	U
1,2-Dichloroethane	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.81	U	0.32	U	0.32	U
1,2-Dichloroethene (total)	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.4	U	0.16	U	0.16	U
1,2-Dichloropropane	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.92	U	0.37	U	0.37	U
1,3,5-Trimethylbenzene	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.98	U	0.39	U	0.39	U
1,3-Butadiene	1.7		0.91		0.18	U	0.18	U	0.18	U	0.44	U	0.18	U	0.18	U
2,2,4-Trimethylpentane (Isooctane)	0.23		0.33		0.39		0.65		0.47		0.47	U	0.32		0.28	
3-Chloro-1-propene (Allyl Chloride)	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.63	U	0.25	U	0.25	U
4-Ethyltoluene	0.54		0.2	U	0.59		0.34		0.24		0.49	U	0.2	U	0.27	
Benzene	2		1.6		0.99		1.2		0.86		0.93		0.86		0.96	
Bromodichloromethane	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.67	U	0.27	U	0.27	U
Bromoethene	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.87	U	0.35	U	0.35	U
Bromoform	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	1	U	0.41	U	0.41	U
Bromomethane	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.78	U	0.31	U	0.31	U
Carbon Tetrachloride	0.58		0.61		0.69		0.61		0.63		0.82		0.44		0.28	
Chloroethane	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.53	U	0.21	U	0.21	U
Chloroform	0.2	U	0.2	U	0.39		0.2	U	0.2	U	0.49	U	0.2	U	0.2	U
cis-1,2-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.4	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.45	U	0.18	U	0.18	U
Cyclohexane	0.14	U	0.2		0.19		0.27		0.38		0.34	U	0.76		0.22	
Dibromochloromethane	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.85	U	0.34	U	0.34	U
Dichlorodifluoromethane (CFC 12)	3.5	J	3.3		3.9	J	3.4		3.1		35		10		3.3	
Ethylbenzene	0.74		0.43		0.43		0.74		0.52		0.61		0.52		0.38	
m,p-Xylenes	1.9		1.3		1.3		2.6		1.7		1.8		1.7		0.74	
Methyl tert-Butyl Ether	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.36	U	0.14	U	0.14	U
Methylene Chloride	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	6.9	U	2.8	U	2.8	U

Table 3-11

VOCs in Indoor Air Samples 2009

Structure	H09	H09	H10	H10	H10 (Dup)	H11	H11	H12
Type of Sample	First floor indoor air	Basement indoor Air	First floor indoor air	Basement indoor Air	Basement indoor air	First floor indoor air	Basement indoor air	First floor indoor air
Sampling Date	3/5/2009	3/27/2009	3/5/2009	3/27/2009	3/27/2009	3/5/2009	3/5/2009	3/5/2009
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
n-Heptane	0.25 U	0.34	0.45 U	0.86	0.57	0.61	0.49	0.33
n-Hexane	0.53	0.78	0.7	1.6	1.1	0.7	0.81	0.7
o-Xylene	0.52	0.43	0.52	0.96	0.65	0.43 U	0.39	0.31
Tetrachloroethene (PCE)	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.68 U	0.5	0.27 U
Toluene	4.9	3	9	3.8	2.8	3.6	6.8	2.1
trans-1,2-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.4 U	0.16 U	0.16 U
trans-1,3-Dichloropropene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.45 U	0.18 U	0.18 U
Trichloroethene (TCE)	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.54 U	0.21 U	0.21 U
Trichlorofluoromethane	1.4	1.8	1.8	1.8	1.7	1.5	2.1	1.9
Vinyl Chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.51 U	0.2 U	0.2 U
Xylene (total)	2.3	1.7	1.8	3.4	2.3	1.7	2	1

Notes:

U - Not detected

J - Estimated value

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H12		H13 A		H13 B		H13		H14		H14		H15		H15	
Type of Sample	Basement indoor air		First floor indoor air		First floor indoor air		Basement indoor air		First floor indoor air		Basement indoor air		First floor indoor air		Basement indoor air	
Sampling Date	3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/27/2009		3/27/2009	
Units	$\mu g/m^3$		$\mu g/m^3$		$\mu g/m^3$		$\mu g/m^3$		$\mu g/m^3$		$\mu g/m^3$		$\mu g/m^3$		$\mu g/m^3$	
1,1,1-Trichloroethane	0.38		0.22	U	0.22	U	0.22	U	1.4	U	0.55	U	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	0.27	U	0.27	U	0.27	U	0.27	U	1.7	U	0.69	U	0.27	U	0.27	U
1,1,2-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	1.4	U	0.55	U	0.22	U	0.22	U
1,1-Dichloroethane	0.16	U	0.16	U	0.16	U	0.16	U	1	U	0.4	U	0.16	U	0.16	U
1,1-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.99	U	0.4	U	0.16	U	0.16	U
1,2-Dibromoethane	0.31	U	0.31	U	0.31	U	0.31	U	1.9	U	0.77	U	0.31	U	0.31	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.28	U	0.28	U	0.28	U	0.28	U	1.7	U	0.7	U	0.28	U	0.28	U
1,2-Dichloroethane	0.32	U	0.32	U	0.32	U	0.32	U	5.3		1.9		0.69		0.32	U
1,2-Dichloroethene (total)	0.16	U	0.16	U	0.16	U	0.16	U	0.99	U	0.4	U	0.16	U	0.16	U
1,2-Dichloropropane	0.37	U	0.37	U	0.37	U	0.37	U	2.3	U	0.92	U	0.37	U	0.37	U
1,3,5-Trimethylbenzene	0.39	U	0.39	U	0.39	U	0.39	U	2.5	U	0.98	U	0.39	U	0.39	U
1,3-Butadiene	0.18	U	0.18	U	0.18	U	0.18	U	1.1	U	0.44	U	2.7		0.35	
2,2,4-Trimethylpentane (Isooctane)	0.28		0.43		0.39		0.51		1.2	U	0.47	U	0.47		0.39	
3-Chloro-1-propene (Allyl Chloride)	0.25	U	0.25	U	0.25	U	0.25	U	1.6	U	0.63	U	0.25	U	0.25	U
4-Ethyltoluene	0.31		0.32		0.29		0.26		1.2	U	0.49	U	0.2	U	0.2	U
Benzene	0.86		0.96		1		1.1		1.4		1		32		4.2	
Bromodichloromethane	0.27	U	0.27	U	0.27	U	0.27	U	1.7	U	0.67	U	0.27	U	0.27	U
Bromoethene	0.35	U	0.35	U	0.35	U	0.35	U	2.2	U	0.87	U	0.35	U	0.35	U
Bromoform	0.41	U	0.41	U	0.41	U	0.41	U	2.6	U	1	U	0.41	U	0.41	U
Bromomethane	0.31	U	0.31	U	0.31	U	0.31	U	1.9	U	0.78	U	0.31	U	0.31	U
Carbon Tetrachloride	0.69		0.63		0.69		0.69		1.6	U	0.69		0.63		0.6	
Chloroethane	0.21	U	0.21	U	0.21	U	0.21	U	1.3	U	0.53	U	0.21	U	0.21	U
Chloroform	0.2	U	0.2	U	0.2	U	0.2	U	1.2	U	0.49	U	0.28		0.2	U
cis-1,2-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.99	U	0.4	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.18	U	0.18	U	0.18	U	0.18	U	1.1	U	0.45	U	0.18	U	0.18	U
Cyclohexane	0.17		0.3		0.2		0.22		0.86	U	0.34	U	0.93		1.1	
Dibromochloromethane	0.34	U	0.34	U	0.34	U	0.34	U	2.1	U	0.85	U	0.34	U	0.34	U
Dichlorodifluoromethane (CFC 12)	3.4		3.1		3.4		2.3		120	J	41	J	2.5		3.4	
Ethylbenzene	0.38		0.29		0.43		0.39		1.1	U	0.56		0.52		0.41	
m,p-Xylenes	1		0.96		1.2		1.1		2.2	U	1.3		0.87		1.1	
Methyl tert-Butyl Ether	0.14	U	0.14	U	0.14	U	0.14	U	0.9	U	0.36	U	0.14	U	0.14	U
Methylene Chloride	2.8	U	2.8	U	2.8	U	2.8	U	17	U	6.9	U	2.8	U	2.8	U

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H12	H13 A	H13 B	H13	H14	H14	H15	H15
Type of Sample	Basement indoor air	First floor indoor air	First floor indoor air	Basement indoor air	First floor indoor air	Basement indoor air	First floor indoor air	Basement indoor air
Sampling Date	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/27/2009	3/27/2009
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
n-Heptane	0.39	0.49	0.35	0.49	1.7 U	0.9 U	0.98	0.53
n-Hexane	0.67	0.92	0.67	0.81	1.8 U	0.74	1.9	1.2
o-Xylene	0.43	0.43	0.37	0.43	1.1 U	0.43	0.32	0.39
Tetrachloroethene (PCE)	0.39	0.27 U	0.27 U	0.27 U	1.7 U	1.9	0.4	1
Toluene	2.1	2.8	3.4	2.1	60	2.6	3.8	2.6
trans-1,2-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.99 U	0.4 U	0.16 U	0.16 U
trans-1,3-Dichloropropene	0.18 U	0.18 U	0.18 U	0.18 U	1.1 U	0.45 U	0.18 U	0.18 U
Trichloroethene (TCE)	0.21 U	0.21 U	0.21 U	0.21 U	1.3 U	0.54 U	0.21 U	0.21 U
Trichlorofluoromethane	2	1.8	2.1	1.6	36	13	2	3.1
Vinyl Chloride	0.2 U	0.2 U	0.2 U	0.2 U	1.3 U	0.51 U	0.2 U	0.2 U
Xylene (total)	1.4	1.3	1.5	1.5	1.1 U	1.8	1.1	1.4

Notes:

U - Not detected

J - Estimated value

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H16		H16		H17 (1)		H17 (2)	
Type of Sample	First floor indoor air		Basement indoor air		Indoor Air		Indoor Air	
Sampling Date	3/5/2009		3/5/2009		3/27/2009		3/27/2009	
Units	µg/m³		µg/m³		µg/m³		µg/m³	
1,1,1-Trichloroethane	0.22	U	0.82	U	1.9		3.6	
1,1,2,2-Tetrachloroethane	0.27	U	1	U	0.27	U	0.27	U
1,1,2-Trichloroethane	0.22	U	0.82	U	0.22	U	0.22	U
1,1-Dichloroethane	0.16	U	0.61	U	0.16	U	0.16	U
1,1-Dichloroethene	0.16	U	0.59	U	0.16	U	0.16	U
1,2-Dibromoethane	0.31	U	1.2	U	0.31	U	0.31	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.28	U	1	U	0.28	U	0.28	U
1,2-Dichloroethane	0.32	U	1.2	U	0.32	U	0.32	U
1,2-Dichloroethene (total)	0.16	U	0.59	U	0.16	U	0.16	U
1,2-Dichloropropane	0.37	U	1.4	U	0.37	U	0.37	U
1,3,5-Trimethylbenzene	0.39	U	1.5	U	0.39	U	0.39	U
1,3-Butadiene	0.27		0.66	U	0.18	U	0.18	U
2,2,4-Trimethylpentane (Isooctane)	0.3		0.7	U	0.46		0.47	
3-Chloro-1-propene (Allyl Chloride)	0.25	U	0.94	U	0.25	U	0.25	U
4-Ethyltoluene	0.32		0.74	U	0.2	U	0.29	
Benzene	1		1.1		0.99		1.1	
Bromodichloromethane	0.27	U	1	U	0.27	U	0.27	U
Bromoethene	0.35	U	1.3	U	0.35	U	0.35	U
Bromoform	0.41	U	1.6	U	0.41	U	0.41	U
Bromomethane	0.31	U	1.2	U	0.31	U	0.31	U
Carbon Tetrachloride	0.63		0.94	U	0.6		0.63	
Chloroethane	0.21	U	0.79	U	0.21	U	0.21	U
Chloroform	0.2	U	0.73	U	0.2	U	0.2	U
cis-1,2-Dichloroethene	0.16	U	0.59	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.18	U	0.68	U	0.18	U	0.18	U
Cyclohexane	0.14	U	0.52	U	0.15		0.33	
Dibromochloromethane	0.34	U	1.3	U	0.34	U	0.34	U
Dichlorodifluoromethane (CFC 12)	3.7	J	4.1	J	5.4		10	
Ethylbenzene	0.2		0.65	U	0.34		0.48	
m,p-Xylenes	0.83		1.3	U	1		1.3	
Methyl tert-Butyl Ether	0.14	U	0.54	U	0.14	U	0.14	U
Methylene Chloride	2.8	U	10	U	2.8	U	2.8	U

Table 3-11
VOCs in Indoor Air Samples 2009

Structure	H16		H16		H17 (1)		H17 (2)	
Type of Sample	First floor indoor air		Basement indoor air		Indoor Air		Indoor Air	
Sampling Date	3/5/2009		3/5/2009		3/27/2009		3/27/2009	
Units	µg/m³		µg/m³		µg/m³		µg/m³	
n-Heptane	0.18	U	0.61	U	0.49		0.66	
n-Hexane	0.46		1.1	U	0.74		0.67	
o-Xylene	0.3		0.65	U	0.42		0.48	
Tetrachloroethene (PCE)	28	J	60		0.42		0.75	
Toluene	1.5		2.7		2.3		3.2	
trans-1,2-Dichloroethene	0.16	U	0.59	U	0.16	U	0.16	U
trans-1,3-Dichloropropene	0.18	U	0.68	U	0.18	U	0.18	U
Trichloroethene (TCE)	0.54		0.81	U	0.21	U	0.21	U
Trichlorofluoromethane	1.5		1.8		10		13	
Vinyl Chloride	0.2	U	0.77	U	0.2	U	0.2	U
Xylene (total)	1.1		0.65	U	1.4		1.8	

Notes:

U - Not detected

J - Estimated value

Table 3-12
VOCs in Outdoor Air Samples 2009

Structure	H02		H03		H06		H08		H09		H09		H17	
Sampling Date	3/5/2009		3/5/2009		3/27/2009		3/5/2009		3/5/2009		3/5/2009		3/27/2009	
Units	µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
1,1,1-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
1,1,2-Trichloroethane	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U	0.22	U
1,1-Dichloroethane	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,1-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,2-Dibromoethane	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U	0.28	U
1,2-Dichloroethane	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U
1,2-Dichloroethene (total)	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
1,2-Dichloropropane	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U	0.37	U
1,3,5-Trimethylbenzene	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U	0.39	U
1,3-Butadiene	0.19		0.18	U	0.18	U	0.22		0.18	U	0.18	U	0.18	U
2,2,4-Trimethylpentane (Isooctane)	0.26		0.3		0.33		0.36		0.24		0.33		0.36	
3-Chloro-1-propene (Allyl Chloride)	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
4-Ethyltoluene	0.2	U	0.24		0.2	U	0.29		0.2	U	0.36		0.2	U
Benzene	1.1		0.73		0.77		1.2		0.8		1.1		0.83	
Bromodichloromethane	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U
Bromoethene	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
Bromoform	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
Bromomethane	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Carbon Tetrachloride	0.75		0.55		0.47		0.52		0.35		0.69		0.48	
Chloroethane	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U	0.21	U
Chloroform	E	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
cis-1,2-Dichloroethene	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U
Cyclohexane	0.14	U	0.41		0.21		0.14	U	0.14	U	0.19		0.14	U
Dibromochloromethane	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U	0.34	U
Dichlorodifluoromethane (CFC 12)	**3.6**	**J**	**3.1**		**3**		**3.7**	**J**	**3**		**3**		**3.1**	
Ethylbenzene	0.35		0.43		0.38		0.29		0.23		0.43		0.2	
m,p-Xylenes	0.78		0.87		1.7		1		0.74		1.1		0.61	
Methyl tert-Butyl Ether	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U
Methylene Chloride	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U	2.8	U

Table 3-12
VOCs in Outdoor Air Samples 2009

Structure	H02	H03	H06	H08	H09	H09	H17
Sampling Date	3/5/2009	3/5/2009	3/27/2009	3/5/2009	3/5/2009	3/5/2009	3/27/2009
Units	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
n-Heptane	0.27 U	0.39	0.23	0.25 U	0.33	0.32	0.24
n-Hexane	0.39	0.88		0.46	0.53	0.6	0.53
o-Xylene	0.2	0.25	0.74	0.38	0.31	0.35	0.26
Tetrachloroethene (PCE)	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Toluene	1.7	6.4	1.4	1.7	1.6	2.4	1.2
trans-1,2-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
trans-1,3-Dichloropropene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trichloroethene (TCE)	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Trichlorofluoromethane	1.7	1.6	1.3	1.6	1.5	1.6	1.7
Vinyl Chloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Xylene (total)	1	1.1	2.4	1.4	1	1.3	0.87

Notes:

U - Not detected

J - Estimated value

Table 3-13
VOCs in Sub-Slab Vapor Samples 2009

Structure	H01		H08		H09		H10		H17 (1)		H17 (2)	
Sampling Date	3/5/2009		3/5/2009		3/5/2009		3/5/2009		3/27/2009		3/27/2009	
Units	µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3		µg/m^3	
1,1,1-Trichloroethane	7.6		10		5.9		0.59		1.9		4.5	
1,1,2,2-Tetrachloroethane	17		22		23		3.9		69		61	
1,1,2-Trichloroethane	0.87	U	0.87	U	0.87	U	0.87	U	1.1	U	2.2	U
1,1-Dichloroethane	0.65	U	0.65	U	0.65	U	0.65	U	0.81	U	1.6	U
1,1-Dichloroethene	0.63	U	0.63	U	0.63	U	0.63	U	0.79	U	1.6	U
1,2-Dibromoethane	1.2	U	1.2	U	1.2	U	1.2	U	1.5	U	3.1	U
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	1.1	U	1.1	U	1.1	U	1.1	U	1.4	U	2.8	U
1,2-Dichloroethane	0.65	U	0.65	U	0.65	U	0.65	U	0.81	U	1.6	U
1,2-Dichloroethene (total)	1.2		0.63	U	0.63	U	0.63	U	0.79	U	1.6	U
1,2-Dichloropropane	0.74	U	0.74	U	0.74	U	0.74	U	0.92	U	1.8	U
1,3,5-Trimethylbenzene	2.3		2.1		4.1		0.79	U	54		36	
1,3-Butadiene	0.88	U	0.88	U	0.88	U	0.88	U	1.1	U	2.2	U
2,2,4-Trimethylpentane (Isooctane)	2		2.1		1.8		0.51	U	1.2		2.4	
3-Chloro-1-propene (Allyl Chloride)	1.3	U	1.3	U	1.3	U	1.3	U	1.6	U	3.1	U
4-Ethyltoluene	0.84		0.79	U	1.5		0.79	U	33		24	
Benzene	1.2		0.63	U	0.63	U	0.63	U	0.79	U	1.6	U
Bromodichloromethane	1.1	U	1.1	U	1.1	U	1.1	U	1.3	U	2.7	U
Bromoethene	0.7	U	0.7	U	0.7	U	0.7	U	0.87	U	1.7	U
Bromoform	1.1	U	1.1	U	1.1	U	1.1	U	1.4	U	2.7	U
Bromomethane	0.62	U	0.62	U	0.62	U	0.62	U	0.78	U	1.6	U
Carbon Tetrachloride	4.7		2.8		0.75	U	3.7		0.93	U	1.9	U
Chloroethane	1.1	U	1.1	U	1.1	U	1.1	U	1.3	U	2.6	U
Chloroform	0.87	U	0.87	U	0.87	U	0.87	U	1.1	U	2.2	U
cis-1,2-Dichloroethene	0.78	U	0.78	U	0.78	U	0.78	U	0.98	U	2	U
cis-1,3-Dichloropropene	0.73	U	0.73	U	0.73	U	0.73	U	0.91	U	1.8	U
Cyclohexane	1	U	1	U	1	U	1	U	1.3	U	2.5	U
Dibromochloromethane	1.4	U	1.4	U	1.4	U	1.4	U	1.7	U	3.4	U
Dichlorodifluoromethane (CFC 12)	2.8		20		3		2.9		3.6		330	
Ethylbenzene	2.3		2.8		2.6		0.69	U	11		11	
m,p-Xylenes	12		16		17		2.9		43		40	
Methyl tert-Butyl Ether	1.4	U	1.4	U	1.4	U	1.4	U	1.8	U	3.6	U
Methylene Chloride	1.4	U	1.4	U	1.4	U	1.4	U	1.7	U	3.5	U
n-Heptane	5.7		9.8		7.4		0.66	U	6.1		11	
n-Hexane	4.9		11		8.1		1.4	U	6		13	
o-Xylene	4.1		5.6		5.6		0.87		25		20	

Table 3-13

VOCs in Sub-Slab Vapor Samples 2009

Structure	H01	H08	H09	H10	H17 (1)	H17 (2)
Sampling Date	3/5/2009	3/5/2009	3/5/2009	3/5/2009	3/27/2009	3/27/2009
Units	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
Tetrachloroethene (PCE)	5.6	1.6	4.4	4.4	1.4 U	2.7 U
Toluene	12	12	9.4	2.5	11	13
trans-1,2-Dichloroethene	0.63 U	0.63 U	0.63 U	0.63 U	0.79 U	1.6 U
trans-1,3-Dichloropropene	0.73 U	0.73 U	0.73 U	0.73 U	0.91 U	1.8 U
Trichloroethene (TCE)	1.3	0.86 U	0.86 U	0.91	1.1 U	2.1 U
Trichlorofluoromethane	2.2	1.9	1.9	2.2	7.3	11
Vinyl Chloride	0.41 U	0.41 U	0.41 U	0.41 U	0.51 U	1 U
Xylene (total)	1.7 U	1.7 U	1.7 U	1.7 U	2.1 U	4.1 U

Note:

U - Not detected

Table 3-14
Indoor Air 2009 Comparison to NYSDOH Matrices

Structure	Parameter	First Floor Indoor Air µg/m3		Basement Indoor Air µg/m3		Sub-Slab µg/m3		Outdoor Air µg/m3		Matrix [1,2]
H01	PCE	0.27	U			5.6				Matrix 2
	TCE	0.21	U			1.3				Matrix 1
H02	PCE	0.88		2.2				0.27	U	Matrix 2
	TCE	0.21	U	0.21	U			0.21	U	Matrix 1
	PCE			3.2						Matrix 2
	TCE			0.21	U					Matrix 1
H03	PCE	2		5.4				0.27	U	Matrix 2
	TCE	0.33	U	0.64	U			0.21	U	Matrix 1
H04	PCE	0.62		1.4	U					Matrix 2
	TCE	7		4.6						Matrix 1
H05	PCE	1		6						Matrix 2
	TCE	0.21	U	0.21	U					Matrix 1
H06	PCE	3.2		5.4				0.27	U	Matrix 2
	TCE	0.21	U	0.21	U			0.21	U	Matrix 1
H07	PCE	0.41		0.27	U					Matrix 2
	TCE	0.21	U	0.21	U					Matrix 1
H07	PCE			0.27	U					Matrix 2
	TCE			0.21	U					Matrix 1
H08	PCE	2.8				1.6		0.27	U	Matrix 2
	TCE	0.21	U			0.86	U	0.21	U	Matrix 1
H09	PCE	0.27	U	0.27	U	4.4		0.27	U	Matrix 2
	TCE	0.21	U	0.21	U	0.86	U	0.21	U	Matrix 1
H10	PCE	0.27	U	0.27	U	4.4				Matrix 2
	TCE	0.21	U	0.21	U	0.91				Matrix 1
H10	PCE			0.27	U					Matrix 2
	TCE			0.21	U					Matrix 1
H11	PCE	0.68	U	0.5						Matrix 2
	TCE	0.54	U	0.21	U					Matrix 1
H12	PCE	0.27	U	0.39						Matrix 2
	TCE	0.21	U	0.21	U					Matrix 1

Table 3-14
Indoor Air 2009 Comparison to NYSDOH Matrices

Structure	Parameter	First Floor Indoor Air µg/m3		Basement Indoor Air µg/m3		Sub-Slab µg/m3		Outdoor Air µg/m3		Matrix ^{1,2}
H13	PCE	0.27	U	0.27	U					Matrix 2
	TCE	0.21	U	0.21	U					Matrix 1
H13	PCE	0.27	U							Matrix 2
	TCE	0.21	U							Matrix 1
H14	PCE	1.7	U	1.9						Matrix 2
	TCE	1.3	U	0.54	U					Matrix 1
H15	PCE	0.4	U							Matrix 2
	TCE	0.21	U							Matrix 1
H16	PCE	28	J	60						Matrix 2
	TCE	0.54		0.81	U					Matrix 1
H17	PCE	0.42				1.4	U			Matrix 2
	TCE	0.21	U			1.1	U			Matrix 1
H17	PCE	0.75				2.7	U	0.27	U	Matrix 2
	TCE	0.21	U			2.1	U	0.21	U	Matrix 1

1. Soil/Vapor Matrix as shown in NYSDOH (2006); recommended action and numbering taken from corresponding matrix.
2. For structures without Sub-Slab sample results, it is assumed the sub-slab TCE concentration is less than 5 µg/m3 and the PCE concentration is less than 100 µg/m3.

U = Not Detected

Table 3-15

VOCs in Indoor Air Samples 2010

Structure	H01	H02	H03	H03	H04	H04
Type of Samples	Indoor Air	Indoor Air	First Floor	Basement	First Floor	Basement
Date	2/14/2010	2/14/2010	2/14/2010	2/14/2010	2/14/2010	2/14/2010
Units	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
1,1,1-Trichloroethane	0.22 U	0.22 U	0.24	0.22 U	0.22 U	0.22 U
1,1,2,2-Tetrachloroethane	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1,2-Trichloroethane	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,1-Dichloroethane	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,1-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,2-Dibromoethane	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
1,2-Dichloroethane	0.32 U	0.32 U	0.32	0.32 U	0.32 U	0.32 U
1,2-Dichloroethene (total)	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
1,2-Dichloropropane	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2-Dichlorotetrafluoroethane	0.28 UJ	0.28 UJ	0.48 J	0.28 UJ	0.28 U	0.28 U
1,3,5-Trimethylbenzene	0.39 U	0.39 U	0.39 U	0.39 U	2.0	0.88
1,3-Butadiene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
2,2,4-Trimethylpentane	0.36	0.30	0.37	0.19 U	0.19 U	0.19 U
3-Chloropropene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-Ethyltoluene	0.22 J	0.20 U	0.20 U	0.20 U	1.3	0.79
Benzene	0.86	0.89	1.8	0.70	0.89	0.77
Bromodichloromethane	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
Bromoethene	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
Bromoform	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
Bromomethane	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
Carbon Tetrachloride	0.48	0.57	1.6	0.43	0.51	0.48
Chloroethane	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
Chloroform	0.20 U	0.20 U	0.29	0.20 U	2.0	0.68
cis-1,2-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
cis-1,3-Dichloropropene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Cyclohexane	0.76	0.86	0.27	0.32	0.62	0.55
Dibromochloromethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
Dichlorodifluoromethane	2.4	2.7	6.9	2.3	2.8	2.6
Ethylbenzene	0.37	0.40	0.30	0.24	3.4	3.0
Methyl tert-Butyl Ether	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Methylene Chloride	2.8 U	2.8 U	42	80	2.8 U	2.8 U

Table 3-15
VOCs in Indoor Air Samples 2010

Structure	H01	H02	H03	H03	H04	H04
Type of Samples	Indoor Air	Indoor Air	First Floor	Basement	First Floor	Basement
Date	2/14/2010	2/14/2010	2/14/2010	2/14/2010	2/14/2010	2/14/2010
Units	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
n-Heptane	0.66	0.41	1.4	0.61	1.5	1.3
n-Hexane	0.63	1.0	1.1	1.1	1.4	1.1
Tetrachloroethene (PCE)	0.27 U	2.0	1.8	3.6	0.36	0.31
Toluene	4.5	3.5	2.3	1.3	4.5	3.5
trans-1,2-Dichloroethene	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
trans-1,3-Dichloropropene	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Trichloroethene (TCE)	0.21 U	0.21 U	0.21 U	0.21 U	0.91	0.46
Trichlorofluoromethane	1.4	5.2	4.4	1.2	1.6	1.3
Vinyl Chloride	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Xylene (m,p)	1.0	1.1	0.96	0.83	12	9.6
Xylene (o)	0.37	0.37	0.30	0.24	4.1	3.0
Xylene (total)	1.4	1.5	1.3	1.1	16	13

Notes:

All units in micrograms per cubic meter (µg/m³)

U - Not detected

J - Estimated value

Table 3-15

VOCs in Indoor Air Samples 2010

Structure	H05		H05	
Type of Samples	First Floor		Basement	
Date	2/14/2010		2/14/2010	
Units	µg/m³		µg/m³	
1,1,1-Trichloroethane	0.22	U	0.22	U
1,1,2,2-Tetrachloroethane	0.27	U	0.27	U
1,1,2-Trichloroethane	0.22	U	0.22	U
1,1-Dichloroethane	0.16	U	0.16	U
1,1-Dichloroethene	0.16	U	0.16	U
1,2-Dibromoethane	0.31	U	0.31	U
1,2-Dichloroethane	0.40		0.32	U
1,2-Dichloroethene (total)	0.16	U	0.16	U
1,2-Dichloropropane	0.37	U	0.37	U
1,2-Dichlorotetrafluoroethane	0.28	U	0.28	U
1,3,5-Trimethylbenzene	0.39	U	0.39	U
1,3-Butadiene	0.88		0.18	U
2,2,4-Trimethylpentane	0.19	U	0.19	U
3-Chloropropene	0.25	U	0.25	U
4-Ethyltoluene	0.20	U	0.23	
Benzene	1.1		0.51	
Bromodichloromethane	0.27	U	0.27	U
Bromoethene	0.35	U	0.35	U
Bromoform	0.41	U	0.41	U
Bromomethane	0.31	U	0.31	U
Carbon Tetrachloride	0.36		0.53	
Chloroethane	0.21	U	0.21	U
Chloroform	0.20	U	0.20	U
cis-1,2-Dichloroethene	0.16	U	0.16	U
cis-1,3-Dichloropropene	0.18	U	0.18	U
Cyclohexane	0.14	U	0.14	U
Dibromochloromethane	0.34	U	0.34	U
Dichlorodifluoromethane	2.2		2.3	
Ethylbenzene	0.37		0.25	
Methyl tert-Butyl Ether	0.14	U	0.14	U
Methylene Chloride	2.8	U	2.8	U

Table 3-15

VOCs in Indoor Air Samples 2010

Structure	H05		H05	
Type of Samples	First Floor		Basement	
Date	2/14/2010		2/14/2010	
Units	µg/m³		µg/m³	
n-Heptane	0.32		0.20	
n-Hexane	0.42		0.35	
Tetrachloroethene (PCE)	0.81		6.2	
Toluene	2.4		1.0	
trans-1,2-Dichloroethene	0.16	U	0.16	U
trans-1,3-Dichloropropene	0.18	U	0.18	U
Trichloroethene (TCE)	0.21	U	0.21	U
Trichlorofluoromethane	2.4		1.2	
Vinyl Chloride	0.20	U	0.20	U
Xylene (m,p)	1.1		0.87	
Xylene (o)	0.33		0.32	
Xylene (total)	1.4		1.2	

Notes:

All units in micrograms per cubi

U - Not detected

J - Estimated value

Table 3-16

VOCs in Outdoor Air Samples 2010

Structure	H02	
Date	2/14/2010	
Units	µg/m³	
1,1,1-Trichloroethane	0.22	U
1,1,2,2-Tetrachloroethane	0.27	U
1,1,2-Trichloroethane	0.22	U
1,1-Dichloroethane	0.16	U
1,1-Dichloroethene	0.16	U
1,2-Dibromoethane	0.31	U
1,2-Dichloroethane	0.32	U
1,2-Dichloroethene (total)	0.16	U
1,2-Dichloropropane	0.37	U
1,2-Dichlorotetrafluoroethane	0.28	UJ
1,3,5-Trimethylbenzene	0.39	U
1,3-Butadiene	0.18	U
2,2,4-Trimethylpentane	0.19	U
3-Chloropropene	0.25	U
4-Ethyltoluene	0.20	U
Benzene	0.54	
Bromodichloromethane	0.27	U
Bromoethene	0.35	U
Bromoform	0.41	U
Bromomethane	0.31	U
Carbon Tetrachloride	0.45	
Chloroethane	0.21	U
Chloroform	0.20	U
cis-1,2-Dichloroethene	0.16	U
cis-1,3-Dichloropropene	0.18	U
Cyclohexane	0.14	U
Dibromochloromethane	0.34	U
Dichlorodifluoromethane	2.1	
Ethylbenzene	0.17	U
Methyl tert-Butyl Ether	0.14	U
Methylene Chloride	2.8	U

Table 3-16

VOCs in Outdoor Air Samples 2010

Structure	H02
Date	2/14/2010
Units	µg/m³
n-Heptane	0.16 U
n-Hexane	0.28 U
Tetrachloroethene (PCE)	0.27 U
Toluene	0.57
trans-1,2-Dichloroethene	0.16 U
trans-1,3-Dichloropropene	0.18 U
Trichloroethene (TCE)	0.21 U
Trichlorofluoromethane	1.1
Vinyl Chloride	0.20 U
Xylene (m,p)	0.35
Xylene (o)	0.17 U
Xylene (total)	0.35

Notes:

All units in micrograms per cubic meter (µg/m³)

U - Not detected

J - Estimated value

Table 3-17

VOCs in Sub-Slab Vapor Samples 2010

Structure	H01		H02		H02 (Dup)		H03		H04		H05	
Sample Date	2/14/2010		2/14/2010		2/14/2010		2/14/2010		2/14/2010		2/14/2010	
Units	µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
1,1,1-Trichloroethane	1.1	U	2.2	U	2.2	U	1.5		1.1	U	6.0	U
1,1,2,2-Tetrachloroethane	1.4	U	2.7	U	2.7	U	1.4	U	1.4	U	7.6	U
1,1,2-Trichloroethane	1.1	U	2.2	U	2.2	U	1.1	U	1.1	U	6.0	U
1,1-Dichloroethane	0.81	U	1.6	U	1.6	U	0.81	U	0.81	U	4.5	U
1,1-Dichloroethene	0.79	U	1.6	U	1.6	U	0.79	U	0.79	U	4.4	U
1,2-Dibromoethane	1.5	U	3.1	U	3.1	U	1.5	U	1.5	U	8.5	U
1,2-Dichloroethane	1.2		1.6	U	1.6	U	1.4		0.81	U	4.5	U
1,2-Dichloroethene (total)	0.79	U	1.6	U	1.6	U	0.79	U	0.79	U	56	
1,2-Dichloropropane	0.92	U	1.8	U	1.8	U	0.92	U	0.92	U	5.1	U
1,2-Dichlorotetrafluoroethane	1.4	U	2.8	U	2.8	U	1.4	U	1.4	U	7.7	U
1,3,5-Trimethylbenzene	1.2		4.8		4.6		0.98	U	1.4		5.4	U
1,3-Butadiene	1.1	U	2.2	U	2.2	U	1.1	U	1.1	U	6.0	U
2,2,4-Trimethylpentane	0.93	U	1.9	U	1.9	U	0.93	U	0.93	U	5.1	U
3-Chloropropene	1.6	U	3.1	U	3.1	U	1.6	U	1.6	U	8.5	U
4-Ethyltoluene	0.98	U	2.4		2.2		0.98	U	0.98	U	5.4	U
Benzene	1.7		6.1		6.4		0.99		3.2		3.5	U
Bromodichloromethane	1.3	U	2.7	U	2.7	U	1.3	U	1.3	U	7.4	U
Bromoethene	0.87	U	1.7	U	1.7	U	0.87	U	0.87	U	4.8	U
Bromoform	2.1	U	4.1	U	4.1	U	2.1	U	2.1	U	11	U
Bromomethane	0.78	U	1.6	U	1.6	U	0.78	U	0.78	U	4.3	U
Carbon Tetrachloride	1.3	U	2.5	U	2.5	U	1.3	U	1.3	U	6.9	U
Chloroethane	1.3	U	2.6	U	2.6	U	1.3	U	1.3	U	7.1	U
Chloroform	16		2.0	U	2.0	U	3.0		1.7		5.4	U
cis-1,2-Dichloroethene	0.79	U	1.6	U	1.6	U	0.79	U	0.79	U	56	
cis-1,3-Dichloropropene	0.91	U	1.8	U	1.8	U	0.91	U	0.91	U	5.0	U
Cyclohexane	6.5		210		220		2.7		6.2		7.6	
Dibromochloromethane	1.7	U	3.4	U	3.4	U	1.7	U	1.7	U	9.4	U
Dichlorodifluoromethane	2.6		4.9	U	4.9	U	23		2.5	U	13	U
Ethylbenzene	2.4		11		10		3.0		3.6		4.8	U
Methyl tert-Butyl Ether	1.8	U	3.6	U	3.6	U	1.8	U	1.8	U	9.7	U
Methylene Chloride	3.8		3.5	U	3.5	U	20		1.7	U	9.4	U
n-Heptane	15		86		86		6.1		9.8		20	
n-Hexane	15		88		88		6.0		12		19	

Table 3-17

VOCs in Sub-Slab Vapor Samples 2010

Structure	H01		H02		H02 (Dup)		H03		H04		H05	
Sample Date	2/14/2010		2/14/2010		2/14/2010		2/14/2010		2/14/2010		2/14/2010	
Units	µg/m³		µg/m³		µg/m³		µg/m³		µg/m³		µg/m³	
Tetrachloroethene (PCE)	4.7		48		47		260		10		1100	
Toluene	12		23		22		11		14		12	
trans-1,2-Dichloroethene	0.79	U	1.6	U	1.6	U	0.79	U	0.79	U	4.4	U
trans-1,3-Dichloropropene	0.91	U	1.8	U	1.8	U	0.91	U	0.91	U	5.0	U
Trichloroethene (TCE)	1.2		2.1	U	2.1	U	1.2		1.1	U	45	
Trichlorofluoromethane	1.3		2.2	U	2.2	U	1.5		1.2		6.2	U
Vinyl Chloride	0.51	U	1.0	U	1.0	U	0.51	U	0.51	U	2.8	U
Xylene (m,p)	9.6		40		39		8.3		13		14	
Xylene (o)	4.0		18		17		3.9		4.8		4.8	U
Xylene (total)	14		61		56		13		19		14	

Notes:

All units in micrograms per cubic meter (µg/m³)

U - Not detected

J - Estimated value

Dup - Field Duplicate

Table 3-18

Indoor Air 2010 Comparison to NYSDOH Matrices

Structure	Parameter	Indoor Air µg/m3	Sub-Slab µg/m3	Outdoor Air µg/m3	Matrix [1]
H01					
	PCE	0.27 U	4.7		2
	TCE	0.21 U	1.2		1
H02					
	PCE	2	48	0.27 U	2
	TCE	0.21 U	2.1 U	0.21 U	1
H02 (dup)					
	PCE		47		2
	TCE		2.1 U		1
H03		Basement			
	PCE	3.6	260		2
	TCE	0.21 U	1.2		1
H03		First floor			
	PCE	1.8			2
	TCE	0.21 U			1
H04		Basement			
	PCE	0.31	10		2
	TCE	0.46	1.1 U		1
H04		First floor			
	PCE	0.36			2
	TCE	0.91			1
H05		Basement			
	PCE	6.2	1100		2
	TCE	0.21 U	45		1
H05		First floor			
	PCE	0.81			2
	TCE	0.21 U			1

1. Soil/Vapor Matrix as shown in NYSDOH (2006); recommended action and numbering taker

U = Not Detected

Table 7-1
Chemical-Specific Values Used in Fate and Transport Calculations

CAS No.	Chemical	Org. Car. partition coefficient K_{oc} (cm^3/g)	Log K_{oc} (unitless)	Diffusivity in air D_a (cm^2/s)	Diffusivity in water D_w (cm^2/s)	Pure component water sol S (mg/L)	Henry's Law Constant H' (unitless)	Normal boiling point (bp) T_B (^oC)	Density (Specific Gravity) ρ (g/cm^3)
156592	1,2-Dichloroethene (cis)	3.55E+01	1.55E+00	7.36E-02	1.13E-05	3.50E+03	1.67E-01	60.5	1.284
127184	Tetrachloroethene (PCE)	1.55E+02	2.19E+00	7.20E-02	8.20E-06	2.00E+02	7.53E-01	121.3	1.624
79016	Trichloroethene (TCE)	1.66E+02	2.22E+00	7.90E-02	9.10E-06	1.47E+03	4.21E-01	87.2	1.466
75014	Vinyl chloride	1.86E+01	1.27E+00	1.06E-01	1.23E-05	8.80E+03	1.10E+00	-13.9	0.908

Table adapted from NJDEP (2007; Table G-2)

NOTES

[d] Calculated using USEPA (2001b)

[e] From Hazardous Substances Databank (2004)

Table 7-2
Groundwater Flow and Contaminant Migration

Contaminant	Horizontal Gradient (ft/ft)	Hydraulic Cond. (ft/day)	Effective Porosity	GW Flow (ft/day)	Partition K_{oc}	Carbon f_{oc}	Density P_b (g/cc)	Retardation Rd	Contaminant Transport ft/day	Contaminant Transport ft/year	Distance [1] (ft)	Time[2] (yrs)
PCE	0.0065	175	0.25	4.53	155	0.002	1.922	3.38	1.34	488.2	1280	3
TCE	0.0065	175	0.25	4.53	166	0.002	1.922	3.55	1.27	465.0	1280	3
cis-1,2-DCE	0.0065	175	0.25	4.53	355	0.002	1.922	6.46	0.70	255.8	1280	5
VC	0.0065	175	0.25	4.53	18.6	0.002	1.922	1.29	3.52	1284.5	1280	1

1. Distance (in ft) between the Crystal Cleaners building and public well SW-2.
2. Estimated time required for the contaminant to reach public well SW-2.
3. Koc values were obtained from www.state.nj.us/dep/srp/vaporintrusion.htm; see Table 7-1.

Table 7-3

Degradation Processes

Degradation Process	Compound			
	PCE	**TCE**	**DCE**	**VC**
Aerobic Oxidation	N	N	P	Y
Aerobic Co-metabolism	N	Y	Y	Y
Anaerobic Oxidation	N	N	P	Y
Anaerobic Reductive Dechlorination	Y	Y	Y	Y
Co-metabolic Anaerobic Reduction	Y	Y	Y	Y

PCE = tetrachloroethene, TCE = trichloroethene, DCE = 1,2-dichloroethene, VC = vinyl chloride

N = Not documented in the literature.

Y = Documented in the literature.

P = Potential for reaction to occur but not well documented in the literature.

Adapted from ITRC, 1999

Table 8-1

Groundwater Concentration Summary Statistics

Parameter	CAS	**Detection Frequency**	**Detection Limit Range**	**Minimum Detected Value**	**Maximum Detected Value**	**Maximum Detected Sample**	**NYSDEC Class GA Groundwater Criteria**	**EPA RSL Screening Toxicity Values**	**EPA MCL**	**Used for Screening**	**Number of Exceedances**
VOCs (ug/L)											
cis-1,2-Dichloroethene	156-59-2	12 / 35	1 - 5	1.6	120	HP-6-B	5	37	70	GA	4
Cyclohexane	110-82-7	1 / 35	1 - 5	1.3	1.3	MW-2	NL	1300	NL	RSL	0
Methyl tert-butyl Ether	1634-04-4	1 / 35	1 - 5	0.82	0.82	MW-5	NL	12	NL	RSL	0
Methylcyclohexane	108-87-2	3 / 35	1 - 5	1.1	4.3	HP-1-AA	NL	NL	NL	NL	
Tetrachloroethene (PCE)	127-18-4	17 / 35	1 - 5	3.9	430	HP-3-A	5	0.11	5	RSL	17
Toluene	108-88-3	1 / 35	1 - 5	1.2	1.2	HP-1-A	5	230	1000	GA	0
Trichloroethene (TCE)	79-01-6	8 / 35	1 - 5	0.57	34	HP-6-B	5	2	5	RSL	6
Vinyl Chloride	75-01-4	2 / 35	1 - 5	1.6	4.5	HP-6-B	2	0.016	2	RSL	2
Inorganics (ug/L)											
Aluminum	7429-90-5	5 / 6	50 - 50	53.2	6700	MW-6	NL	3700	NL	RSL	2
Barium	7440-39-3	6 / 6	50 - 50	192	447	MW-6	1000	730	2000	RSL	0
Calcium	7440-70-2	6 / 6	1000 - 1000	70800	109000	MW-6	NL	NL	NL	NL	
Chromium	7440-47-3	3 / 6	5 - 5	4.51	10.8	MW-6	50	NL	100	GA	0
Copper	7440-50-8	3 / 6	10 - 10	5.5	13.5	MW-6	250	150	1300	RSL	0
Iron	7439-89-6	5 / 6	50 - 50	72.3	11800	MW-6	300	2600	NL	GA	3
Lead	7439-92-1	3 / 6	6 - 6	3.32	14.9	MW-6	25	NL	15	MCL	0
Magnesium	7439-95-4	6 / 6	1000 - 1000	15000	31900	MW-5	35000	NL	NL	GA	0
Manganese	7439-96-5	6 / 6	10 - 10	8.49	859	MW-6	300	88	NL	RSL	5
Nickel	7440-02-0	3 / 6	20 - 20	5.18	13.2	MW-6	100	73	NL	RSL	0
Potassium	7440-09-7	6 / 6	1000 - 1000	1990	5751.45	MW-3	NL	NL	NL	NL	
Sodium	7440-23-5	6 / 6	1000 - 1000	41200	223025	MW-3	20000	NL	NL	GA	6
Vanadium	7440-62-2	3 / 6	20 - 20	5.78	10.8	MW-6	NL	0.26	NL	RSL	3
Zinc	7440-66-6	4 / 6	20 - 20	6.03	198	MW-4	2000	1100	NL	RSL	0

Table 8-1
Groundwater Concentration Summary Statistics

Parameter	CAS	Detection Frequency	Detection Limit Range	Minimum Detected Value	Maximum Detected Value	Maximum Detected Sample	NYSDEC Class GA Groundwater Criteria	EPA RSL Screening Toxicity Values	EPA MCL	Used for Screening	Number of Exceed-ances
Inorganics-Filtered (ug/L)											
Aluminum	7429-90-5	3 / 6	50 - 50	34	2010	MW-3F	NL	3700	NL	RSL	0
Barium	7440-39-3	6 / 6	50 - 50	184	362	MW-5F	1000	730	2000	RSL	0
Calcium	7440-70-2	6 / 6	1000 - 1000	68000	99700	MW-3F	NL	NL	NL	NL	
Chromium	7440-47-3	1 / 6	5 - 5	2.8	2.8	MW-3F	50	NL	100	GA	0
Copper	7440-50-8	1 / 6	10 - 10	3.87	3.87	MW-3F	250	150	1300	RSL	0
Iron	7439-89-6	4 / 6	50 - 50	67.9	2260	MW-3F	300	2600	NL	GA	2
Lead	7439-92-1	3 / 6	6 - 6	2.77	3.27	MW-5F	25	NL	15	MCL	0
Magnesium	7439-95-4	6 / 6	1000 - 1000	14300	27600	MW-5F	35000	NL	NL	GA	0
Manganese	7439-96-5	6 / 6	10 - 10	6.33	554	MW-5F	300	88	NL	RSL	5
Potassium	7440-09-7	6 / 6	1000 - 1000	1990	4880	MW-3F	NL	NL	NL	NL	
Sodium	7440-23-5	6 / 6	1000 - 1000	40000	220000	MW-3F	20000	NL	NL	GA	6
Zinc	7440-66-6	3 / 6	20 - 20	10.5	22.3	MW-3F	2000	1100	NL	RSL	0

Notes:
1. Background values are Eastern USA background values from New York State TAGM 4046, Table 4.
2. Screening toxicity values are the EPA Regional Screening Level (RSL) Resident Tap (May 2010).
3. RSLs correspond to 1E-6 of a hazard quotient of 0.1 or MCL, whichever is lower.

Table 8-2

Soil Concentration Summary Statistics

Parameters	Detection Frequency	**Detection Limit Range**	**Minimum Detected Value**	**Maximum Detected Value**	**Maximum Detected Sample**	**Background Levels**	**EPA RSL Screening Toxicity Values**	**Used for Screening**	**Number of Exceedances**
VOCs (ug/kg)									
Acetone	8 / 14	28 - 4200	14	190	HP-1-C	NL	6100000	RSL	0
Cyclohexane	1 / 14	5.7 - 830	25000	25000	SS-1	NL	700000	RSL	0
Ethyl Benzene	1 / 14	5.7 - 830	25000	25000	SS-1	NL	5400	RSL	1
Isopropylbenzene	1 / 14	5.7 - 830	6200	6200	SS-1	NL	210000	RSL	0
Methylcyclohexane	1 / 14	5.7 - 830	140000	140000	SS-1	NL	NL	NL	
Styrene	1 / 14	5.7 - 830	16	16	SOIL-2	NL	630000	RSL	0
Tetrachloroethene (PCE)	13 / 14	5.7 - 830	1.5	860	SS-1	NL	550	RSL	1
Toluene	3 / 14	5.7 - 830	2.5	1500	SS-1	NL	500000	RSL	0
Trichloroethene (TCE)	1 / 14	5.7 - 830	5.3	5.3	SS-6	NL	2800	RSL	0
Xylene (m,p)	1 / 14	11 - 1700	140000	140000	SS-1	NL	63000	RSL	0
Xylene (o)	1 / 14	5.7 - 830	25000	25000	SS-1	NL	380000	RSL	0
SVOCs (ug/kg)									
2-Methylnaphthalene	1 / 6	350 - 440	1500	1500	SS-1	NL	31000	RSL	0
Chrysene	1 / 6	350 - 440	43	43	SS-3	NL	15000	RSL	0
Fluoranthene	1 / 6	350 - 440	150	150	SS-3	NL	230000	RSL	0
Naphthalene	1 / 6	350 - 440	1100	1100	SS-1	NL	3600	RSL	0
Phenanthrene	1 / 6	350 - 440	61	61	SS-3	NL	NL	NL	0
Pyrene	1 / 6	350 - 440	120	120	SS-3	NL	170000	RSL	0
Inorganics (mg/kg)									
Aluminum	6 / 6	3.56 - 4.46	4640	11700	SS-3	33000	7700	BKG	0
Arsenic	6 / 6	0.71 - 0.89	3.04	7.2	SS-3	3-12	0.39	BKG	0
Barium	6 / 6	3.56 - 4.46	17.2	62.9	SS-3	15-600	1500	RSL	0
Beryllium	5 / 6	0.21 - 0.27	0.32	0.59	SS-3	0-1.75	16	RSL	0
Cadmium	6 / 6	0.21 - 0.27	0.66	0.95	SS-3	0.1-1	7	RSL	0
Calcium	6 / 6	71.2 - 89.2	1930	35000	SS-4	130 - 35,000	NL	BKG	0
Chromium	6 / 6	0.36 - 0.45	6.37	14	SS-3	1.5 - 40	NL	BKG	0
Cobalt	6 / 6	1.07 - 1.34	3.97	9.48	SS-3	2.5 - 60	2.3	BKG	0
Copper	6 / 6	0.71 - 0.89	22.7	38.1	SS-1	18264	310	BKG	0
Iron	6 / 6	3.56 - 4.46	11500	24200	SS-3	2,000 - 550,000	5500	BKG	0
Lead	6 / 6	0.43 - 0.54	5.76	74.2	SS-2	4-61	40	BKG	1
Magnesium	6 / 6	71.2 - 89.2	2410	7130	SS-4	100 - 5,000	NL	BKG	2
Manganese	6 / 6	0.71 - 0.89	314	870	SS-2	50 - 5,000	NL	BKG	0
Mercury	5 / 6	0.01 - 0.013	0.012	0.059	SS-2	0.001 - 0.2	0.56	RSL	0
Nickel	6 / 6	1.42 - 1.78	11.9	22.4	SS-3	0.5 -25	150	RSL	0
Potassium	6 / 6	71.2 - 89.2	399	690	SS-3	8,500 - 43,000	NL	BKG	0

Table 8-2

Soil Concentration Summary Statistics

Parameters	Detection Frequency	**Detection Limit Range**	**Minimum Detected Value**	**Maximum Detected Value**	**Maximum Detected Sample**	**Background Levels**	**EPA RSL Screening Toxicity Values**	**Used for Screening**	**Number of Exceedances**
Selenium	6 / 6	0.71 - 0.89	1.23	2.81	SS-3	0.1 - 3.9	39	RSL	0
Sodium	6 / 6	71.2 - 89.2	130	321	SS-3	6,000 - 8,000	NL	BKG	0
Vanadium	6 / 6	1.42 - 1.78	8.4	18.6	SS-3	1-300	0.55	BKG	0
Zinc	6 / 6	1.42 - 1.78	50.7	81.65	SS-5	18507	2300	BKG	0

Notes:

1. Background values are Eastern USA background values from New York State TAGM 4046, Table 4.
2. Screening toxicity values are the EPA Regional Screening Level (RSL) Resident Soil (May 2010).
3. RSLs correspond to 1E-6 or a hazard quotient of 0.1, whichever is lower.
4. PCBs and pesticides were analyzed in some samples but not detected.

Table 8-3
Indoor Air Concentration Summary Statistics

Parameter	Detection Frequency	Detection Limit Range	Minimum Detected Value	Maximum Detected Value	Maximum Detected Sample	NYSDOH Indoor Background 75th Percentile	EPA RSL Screening Toxicity Values	Used for Screening	Number of Exceedances
VOCs (ug/m3)									
1,1,1-Trichloroethane	6 / 41	0.22 - 1.4	0.24	3.6	330-WWS-IA2	1.1	520	RSL	0
CFC 114	1 / 41	0.28 - 1.7	0.48	0.48	H03-IAF-20100213	<0.25	NL	BKG	1
1,2-Dichloroethane	6 / 41	0.32 - 2	0.32	5.3	IA-FF-260WW	<0.25	0.094	RSL	6
1,2-Dichloropropane	1 / 41	0.37 - 2.3	0.44	0.44	IA-B-126CA	<0.25	0.24	RSL	1
1,3,5-Trimethylbenzene	3 / 41	0.39 - 2.5	0.54	2	H04-IAF-20100213	1.7	NL	BKG	1
1,3-Butadiene	7 / 41	0.18 - 1.1	0.27	2.7	266 WWS-FF-IA	NL	0.081	BKG	7
2,2,4-Trimethylpentane	31 / 41	0.19 - 1.2	0.21	2.8	IA-B-8TA	2.1	NL	BKG	1
4-Ethyltoluene	24 / 41	0.2 - 1.2	0.22	1.3	H04-IAF-20100213	NL	NL	NL	
Benzene	41 / 41	0.13 - 0.8	0.51	32	266 WWS-FF-IA	5.9	0.31	BKG	1
Carbon Tetrachloride	38 / 41	0.25 - 1.6	0.28	1.6	H03-IAF-20100213	0.59	0.41	BKG	23
Chloroform	7 / 41	0.2 - 1.2	0.22	2	H04-IAF-20100213	0.54	0.11	BKG	3
Cyclohexane	32 / 41	0.14 - 0.9	0.15	1.7	IA-B-61GS	2.6	630	RSL	0
Dichlorodifluoromethane	41 / 41	0.2 - 1.2	2.2	120	IA-FF-260WW	4.1	21	RSL	3
Ethylbenzene	38 / 41	0.17 - 1.1	0.18	3.4	H04-IAF-20100213	2.8	0.97	BKG	2
Methylene Chloride	5 / 41	2.8 - 17	3	80	H03-IAB-20100213	6.6	5.2	BKG	4
n-Heptane	28 / 41	0.16 - 1	0.2	2.9	IA-B-61GS	7.6	NL	BKG	0
n-Hexane	38 / 41	0.28 - 1.8	0.35	3	IA-FF-292WW	6	73	RSL	0
Tetrachloroethene (PCE)	27 / 41	0.27 - 1.7	0.31	60	IA-B-CC	1.1	0.41	BKG	14
Toluene	41 / 41	0.15 - 0.9	1	60	IA-FF-260WW	24.8	520	RSL	0
Trichloroethene (TCE)	5 / 41	0.21 - 1.3	0.46	7	IA-FF-61GS	<0.25	1.2	RSL	2
Trichlorofluoromethane	41 / 41	0.22 - 1.4	1.2	36	IA-FF-260WW	5.4	73	RSL	0
Xylene (m,p)	38 / 41	0.35 - 2.2	0.43	12	H04-IAF-20100213	4.6	10	RSL	1
Xylene (o)	36 / 41	0.17 - 1.1	0.2	4.1	H04-IAF-20100213	3.1	73	RSL	0
Xylene (total)	38 / 41	0.17 - 1.1	0.61	16	H04-IAF-20100213	NL	10	RSL	2

Notes:

1. Background values are from NYSDOH 2003 study of volatile organic chemicals in air of fuel oil heated homes.
2. Screening toxicity values are the EPA Regional Screening Level (RSL) Resident Air (May 2010).
3. RSLs correspond to 1E-6 or a hazard quotient of 0.1, whichever is lower.

Table 8-4

Outdoor Air Concentration Summary Statistics

Parameter	Detection Frequency	Detection Limit Range	Minimum Detected Value	Maximum Detected Value	Maximum Detected Sample	NYSDOH Outdoor Background 75th Percentile	EPA RSL Screening Toxicity Values	Used for Screening	Number of Exceedances
VOCs (ug/m3)									
1,3-Butadiene	2 / 8	0.18 - 0.2	0.19	0.22	AMB-5-20090305	NL	0.081	RSL	2
2,2,4-Trimethylpentane	7 / 8	0.19 - 0.2	0.24	0.36	AMB-1-20090327	0.3	NL	BKG	4
4-Ethyltoluene	3 / 8	0.2 - 0.2	0.24	0.36	AMB-3-20090305	NL	NL	NL	
Benzene	8 / 8	0.13 - 0.1	0.54	1.2	AMB-5-20090305	2.2	0.31	BKG	0
Carbon Tetrachloride	8 / 8	0.25 - 0.3	0.35	0.75	AMB-4-20090305	0.6	0.41	BKG	2
Cyclohexane	3 / 8	0.14 - 0.1	0.19	0.41	AMB-1-20090305	0.4	630	RSL	0
Dichlorodifluoromethane	8 / 8	0.2 - 0.2	2.1	3.7	AMB-5-20090305	4.2	21	RSL	0
Ethylbenzene	7 / 8	0.17 - 0.2	0.2	0.43	AMB-1-20090305	0.5	0.97	RSL	0
n-Heptane	5 / 8	0.16 - 0.2	0.23	0.39	AMB-1-20090305	1.9	NL	BKG	0
n-Hexane	7 / 8	0.28 - 0.3	0.39	0.88	AMB-1-20090305	1	73	RSL	0
Toluene	8 / 8	0.15 - 0.2	0.57	6.4	AMB-1-20090305	2.4	520	RSL	0
Trichlorofluoromethane	8 / 8	0.22 - 0.2	1.1	1.7	AMB-1-20090327	2.2	73	RSL	0
Xylene (m,p)	8 / 8	0.35 - 0.4	0.35	1.7	AMB-2-20090327	0.5	10	RSL	0
Xylene (o)	7 / 8	0.17 - 0.2	0.2	0.74	AMB-2-20090327	0.7	73	RSL	0
Xylene (total)	8 / 8	0.17 - 0.2	0.35	2.4	AMB-2-20090327	NL	10	RSL	0

Notes:

1. Background values are from NYSDOH 2003 study of volatile organic chemicals in air of fuel oil heated homes.
2. Screening toxicity values are the EPA Regional Screening Level (RSL) Resident Air (May 2010).
3. RSLs correspond to 1E-6 or a hazard quotient of 0.1, whichever is lower.

Appendix A
Photolog

Hydropunch Sampling 2009

Macrocore from HP-11, depth 15ft – 20ft

Macrocore from HP-13, depth 20ft – 25ft

Crystal Cleaners Soil Sampling 2009

Clay Classification 2009

Geoprobe drill rig

Macrocore from location Geo-1, depth 45+

Macrocore from location Geo-2, depth 5ft – 10ft

Macrocore from location Geo-3, depth 0ft – 5ft

Monitoring well installation 2009

Monitoring well installation (Hollowstamp Augur), GPR Survey

Monitoring well installation

Monitoring Well - 4

Appendix B
MIP Investigation

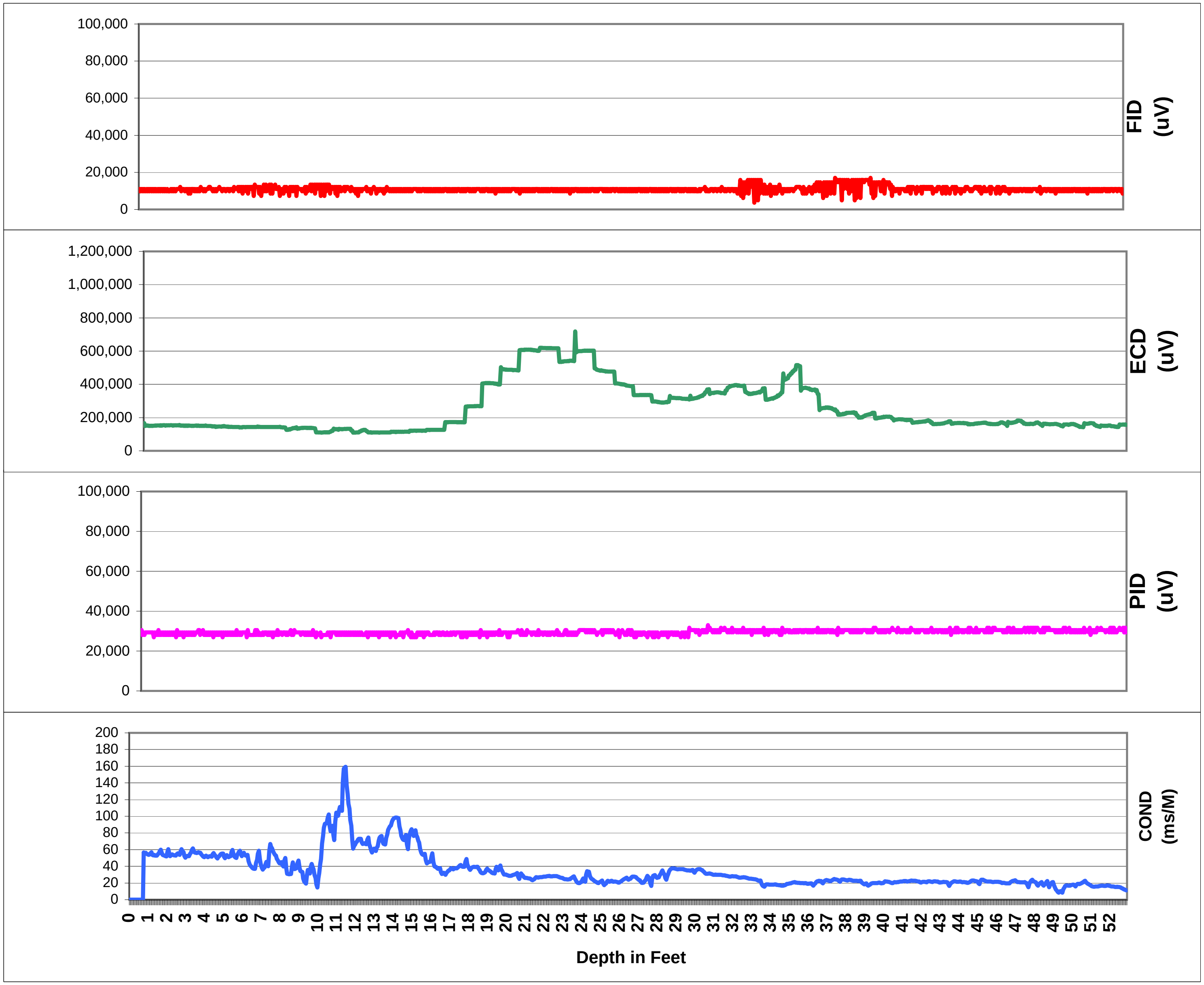
ZEBRA MIP Field Book

AECOM	**CORNING, NY**							
Number of Days MIP	**4**	1			2			
Weather		Sunny			Sunny			
DEPTH for DAY		**158**			**169**			
DATE		1/5/2009	1/5/2009	1/5/2009	1/6/2009	1/6/2009	1/6/2009	1/6/2009
DS15019								
Number of locations	**15**	ETMP1	ETMP2	ETMP3	ETMIP4	ETMIP12	ETMIP13	ETMIP14
MIP Unit		gator	gator	gator	gator	gator	gator	gator
	0							
Probe #733	**613**	53	63	42	41	41	46	41
Probe #H734	**0**							
	0							
Total Depth	**613**							
Response Test		Good	Good	Good	Good	Good	Good	Good
PID MAX		32967	31746	81807	23199	39072	21978	21978
ECD MAX		719170	991453	978022	233211	418803	649573	770452
FID MAX		17094	17094	13431	14652	26862	13431	12210
Water								
PID Lamp Percentage		50	50	50	50	50	50	50
Mass Flow		40	40	40	40	40	40	40
		Location Notes	**Location Notes**	**Location Notes**	**Location Notes**	**Location Notes**	**Location Notes**	**Location Notes**

ZEBRA MIP Field Book

AECOM	**CORNING, NY**								
Number of Days MIP	**4**	3						4	
Weather		Icy Rain						Icy	
DEPTH for DAY		**218**						**68**	
DATE		1/7/2009	1/7/2009	1/7/2009	1/7/2009	1/7/2009	1/7/2009	1/8/2009	1/8/2009
DS15019									
Number of locations	**15**	ETMIP10	ETMIP11	ETMIP7	ETMIP18	ETMIP20	ETMIP22	ETMIP6	ETMIP9
MIP Unit		gator	gator	gator	gator	gator	gator	gator	gator
	0								
Probe #733	**613**	30	35	31	41	35	46	50	18
Probe #H734	**0**								
	0								
Total Depth	**613**								
Response Test		Good	Good	Good	Good	Good	Good	Good	Good
PID MAX		20757	20757	20757	23199	20757	25641	21978	31746
ECD MAX		321123	406593	305250	378510	335775	671551	991453	192918
FID MAX		12210	12210	12210	14652	13431	17094	12210	12210
Water									
PID Lamp Percentage		50	50	50	50	50	50	50	50
Mass Flow		40	40	40	40	40	40	40	40
		Location Notes	**Location Notes**	**Location Notes**	**Location Notes**	**Location Notes**	**Location Notes**	**Location Notes**	**Location Notes**
								PID lamp out at 45 ft.	Probe Thermocouple Short at 18 ft.

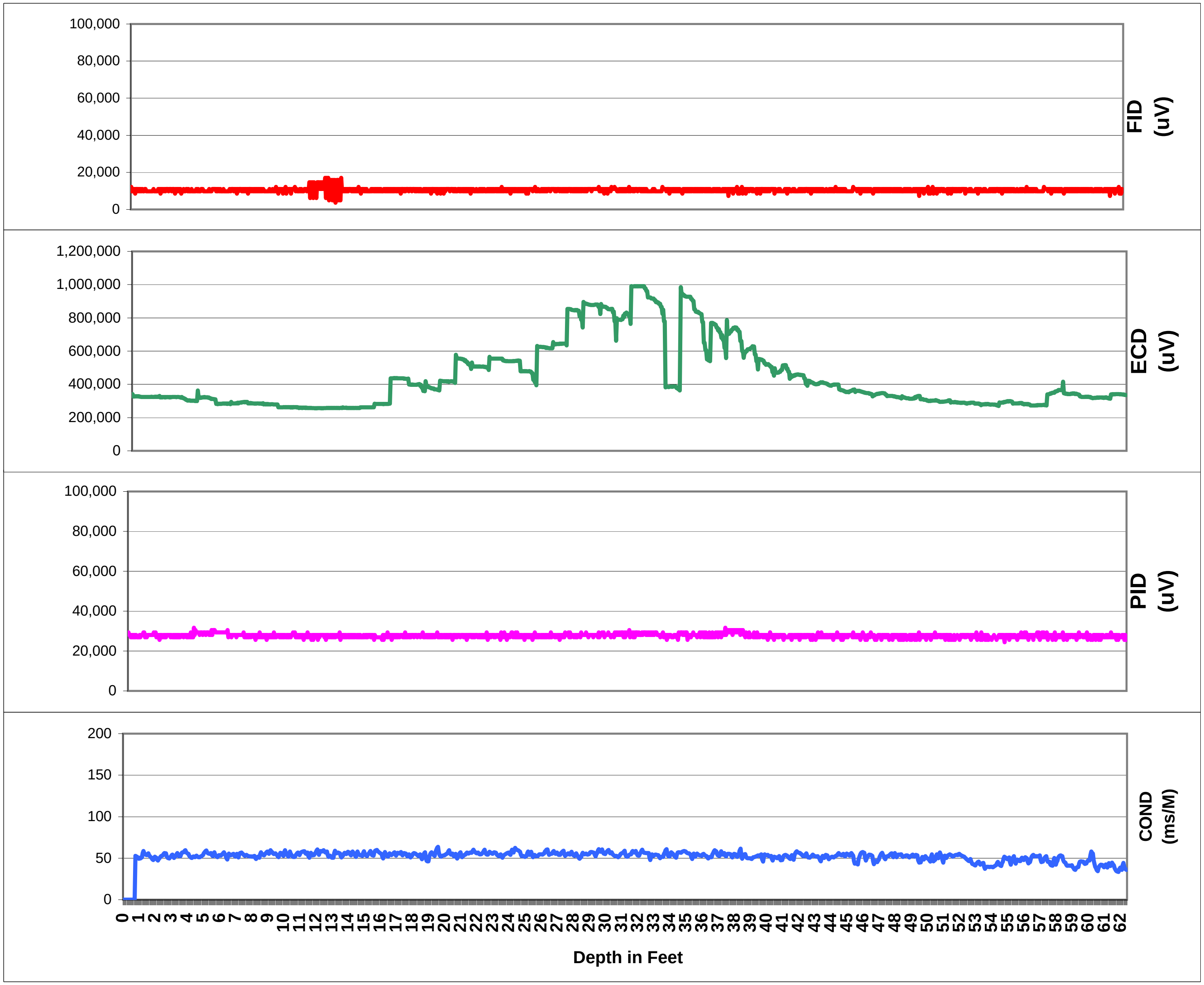
ZEBRA EC/MIP Summary Log, Point ETMP1
Corning, NY



Date: 1/5/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 1 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

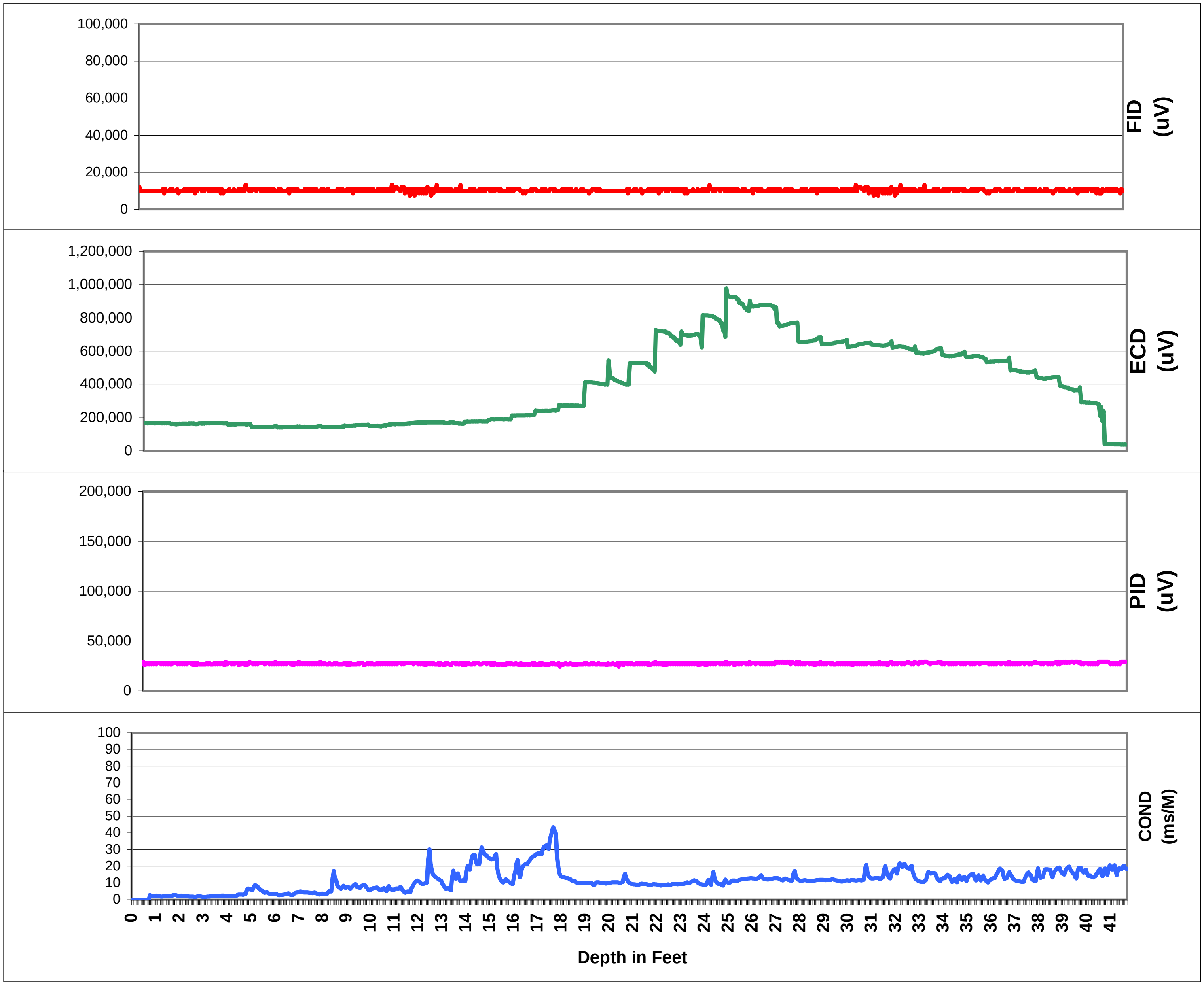
ZEBRA EC/MIP Summary Log, Point ETMP2
Corning, NY



Date: 1/5/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 2 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

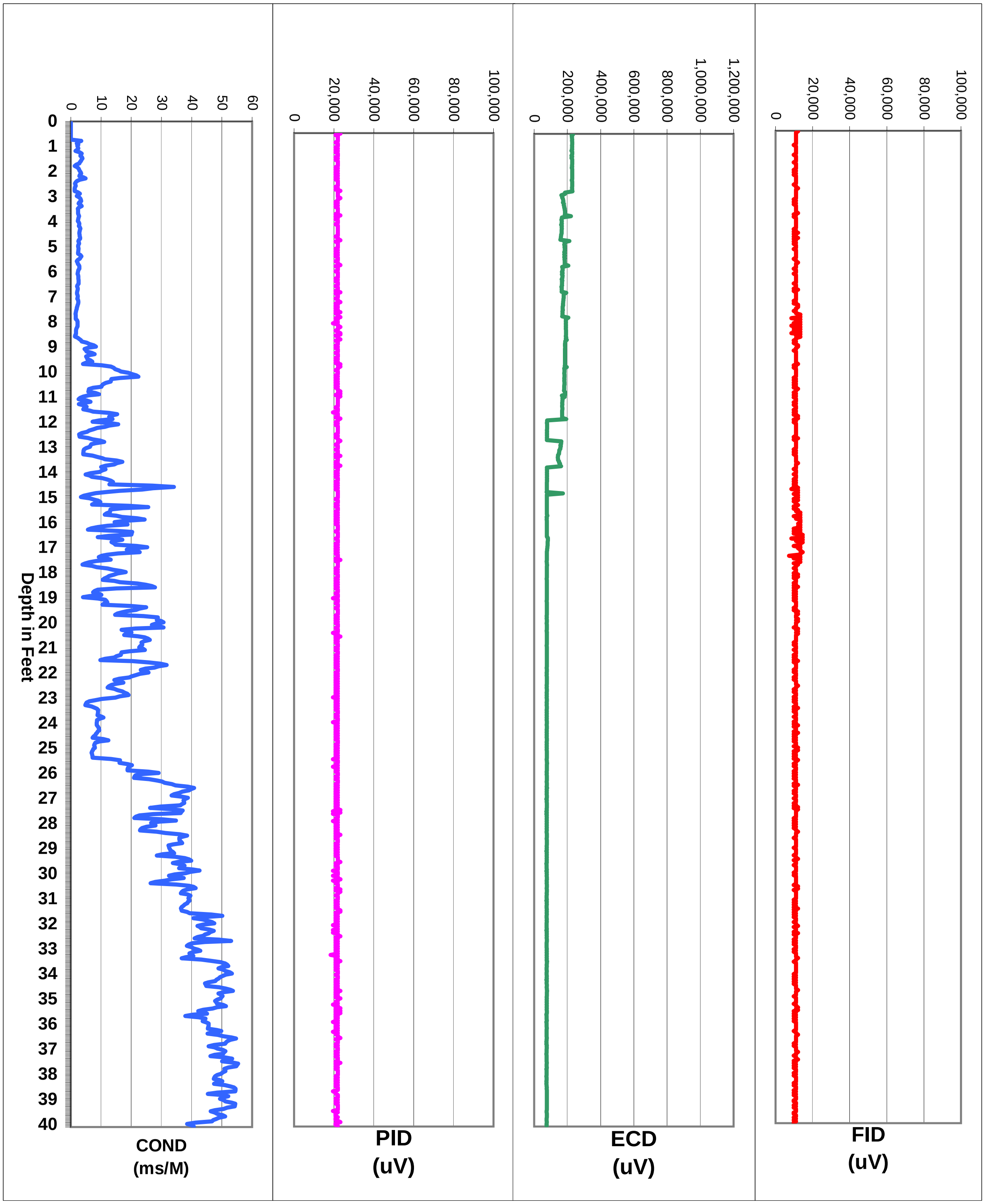
ZEBRA EC/MIP Summary Log, Point ETMP3
Corning, NY



Date: 1/5/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 3 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

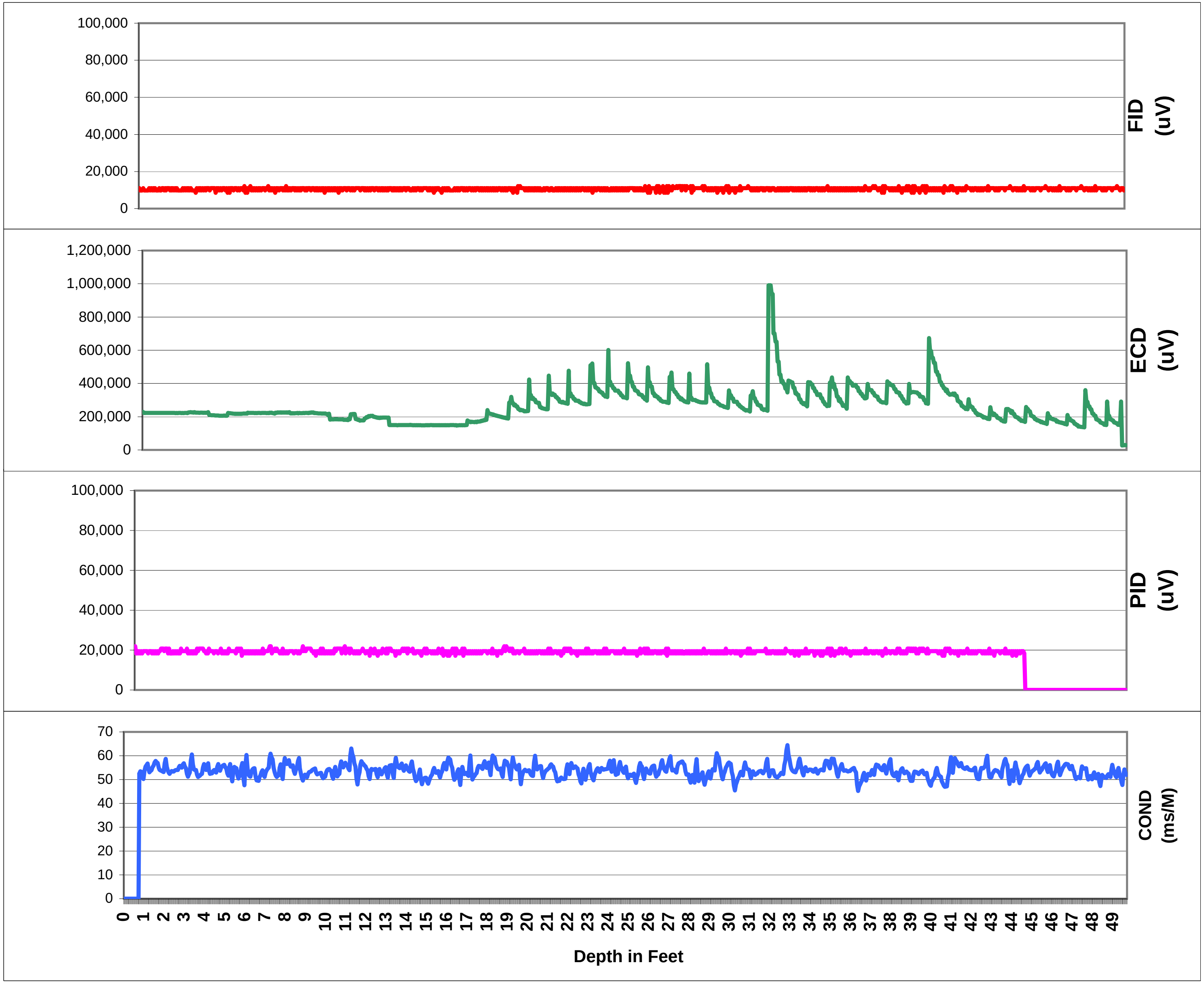
ZEBRA EC/MIP Summary Log, Point ETMIP4
Corning, NY



for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

Date: 1/6/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 4 of 0

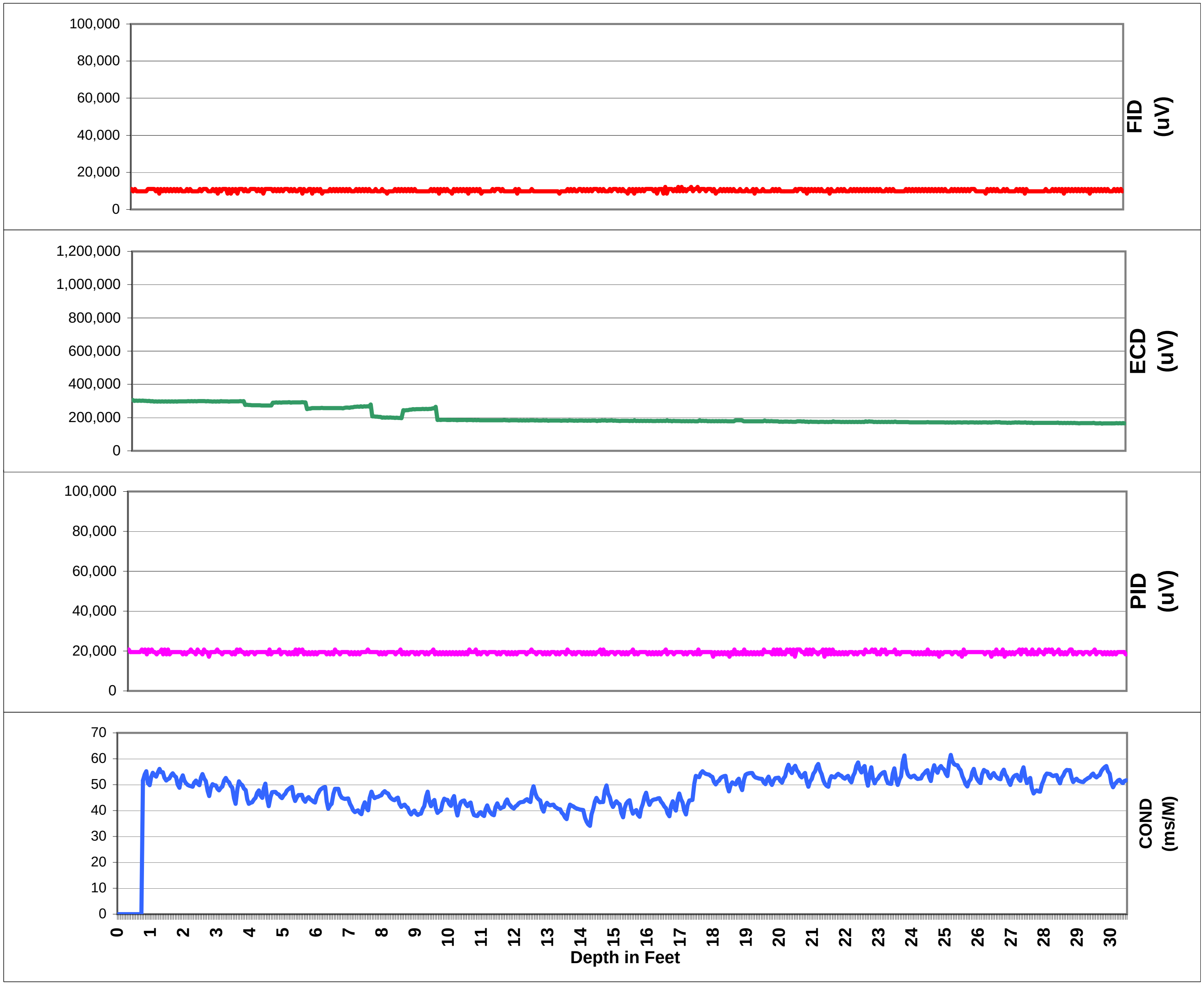
ZEBRA EC/MIP Summary Log, Point ETMIP6
Corning, NY



Date: 1/8/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 15 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

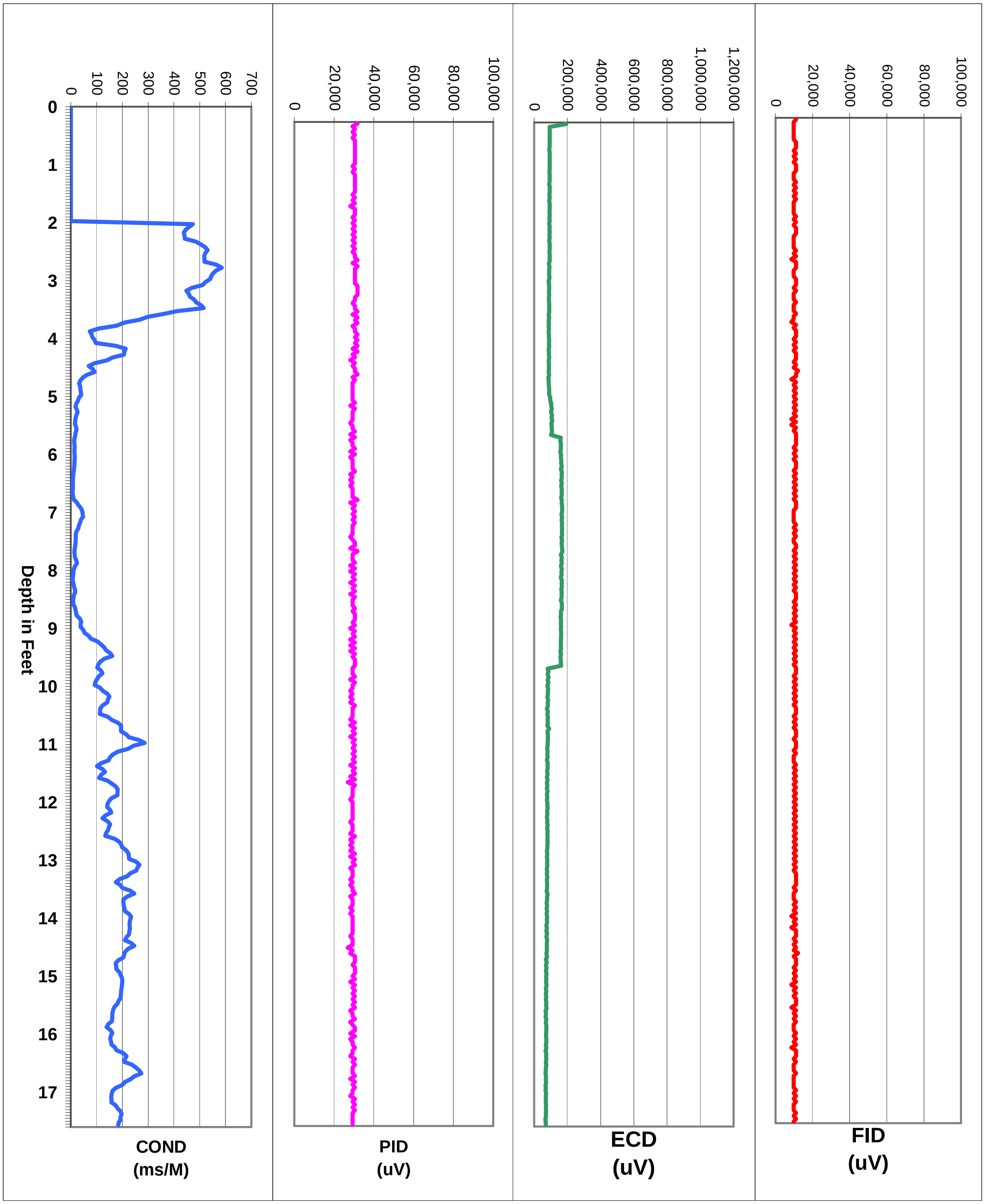
ZEBRA EC/MIP Summary Log, Point ETMIP7
Corning, NY



Date: 1/7/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 7 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

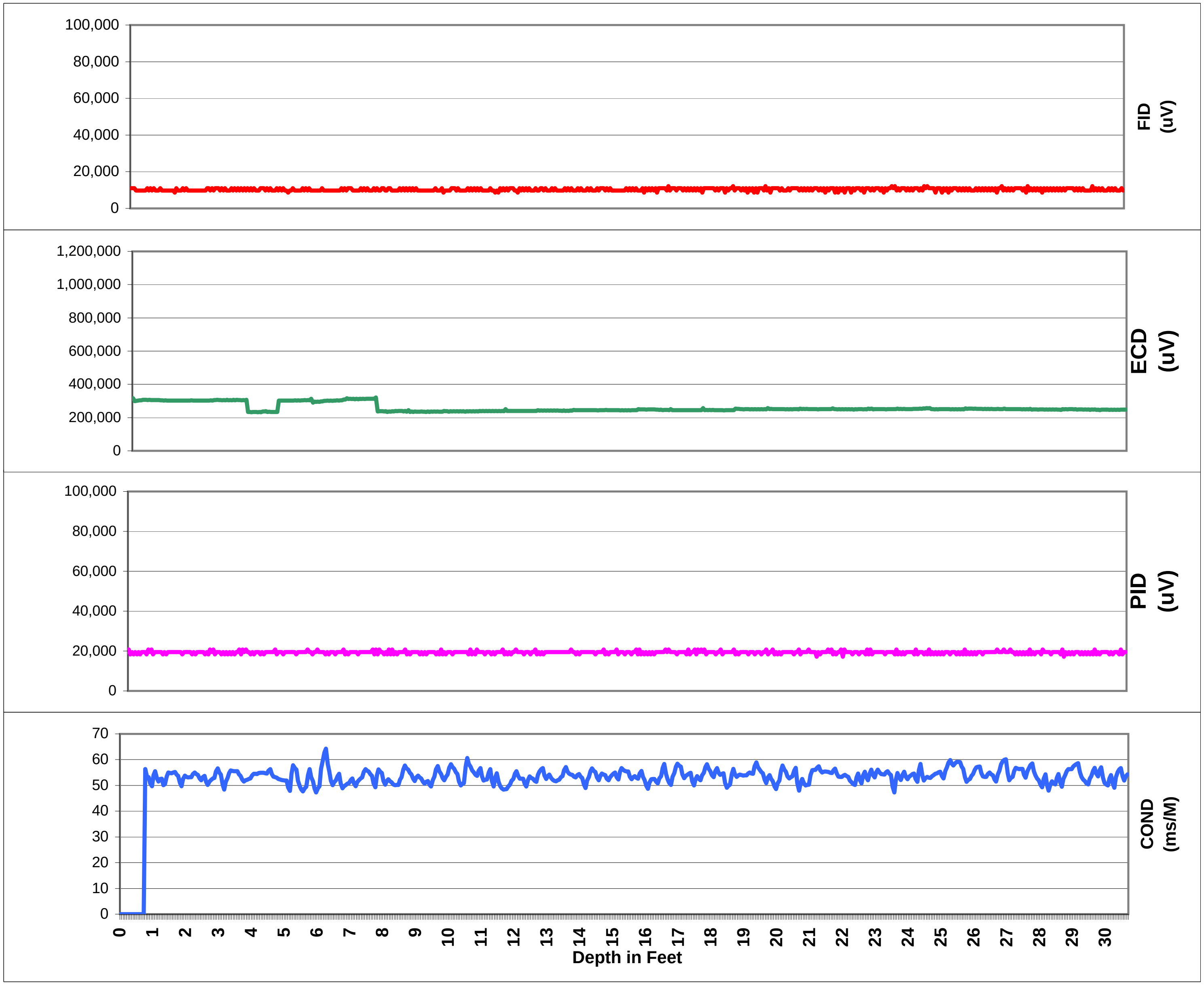
ZEBRA EC/MIP Summary Log, Point ETMIP9
Corning, NY



for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

Date: 1/8/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 16 of 0

ZEBRA EC/MIP Summary Log, Point ETMIP10
Corning, NY

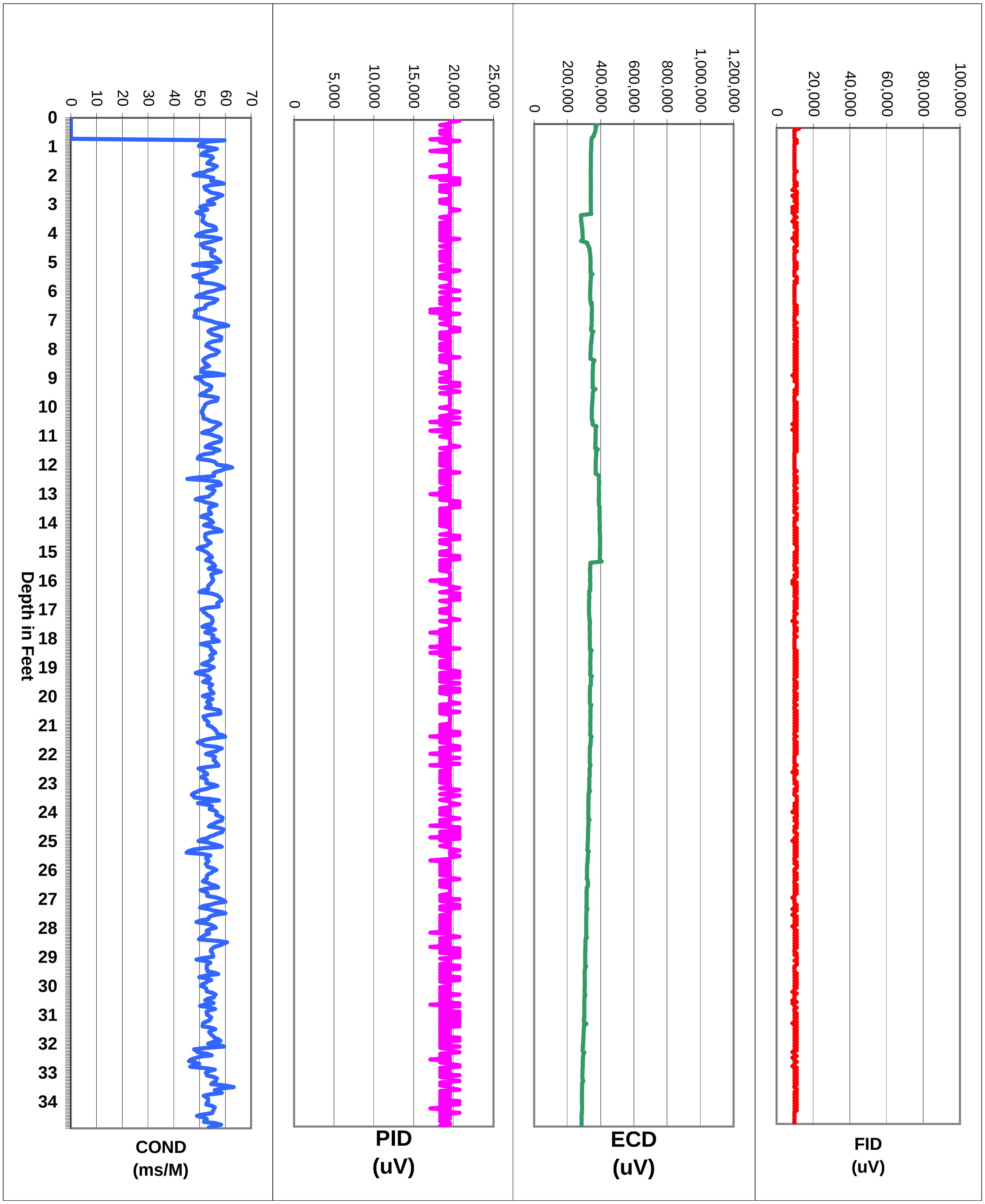


Date: 1/7/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 5 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

ZEBRA

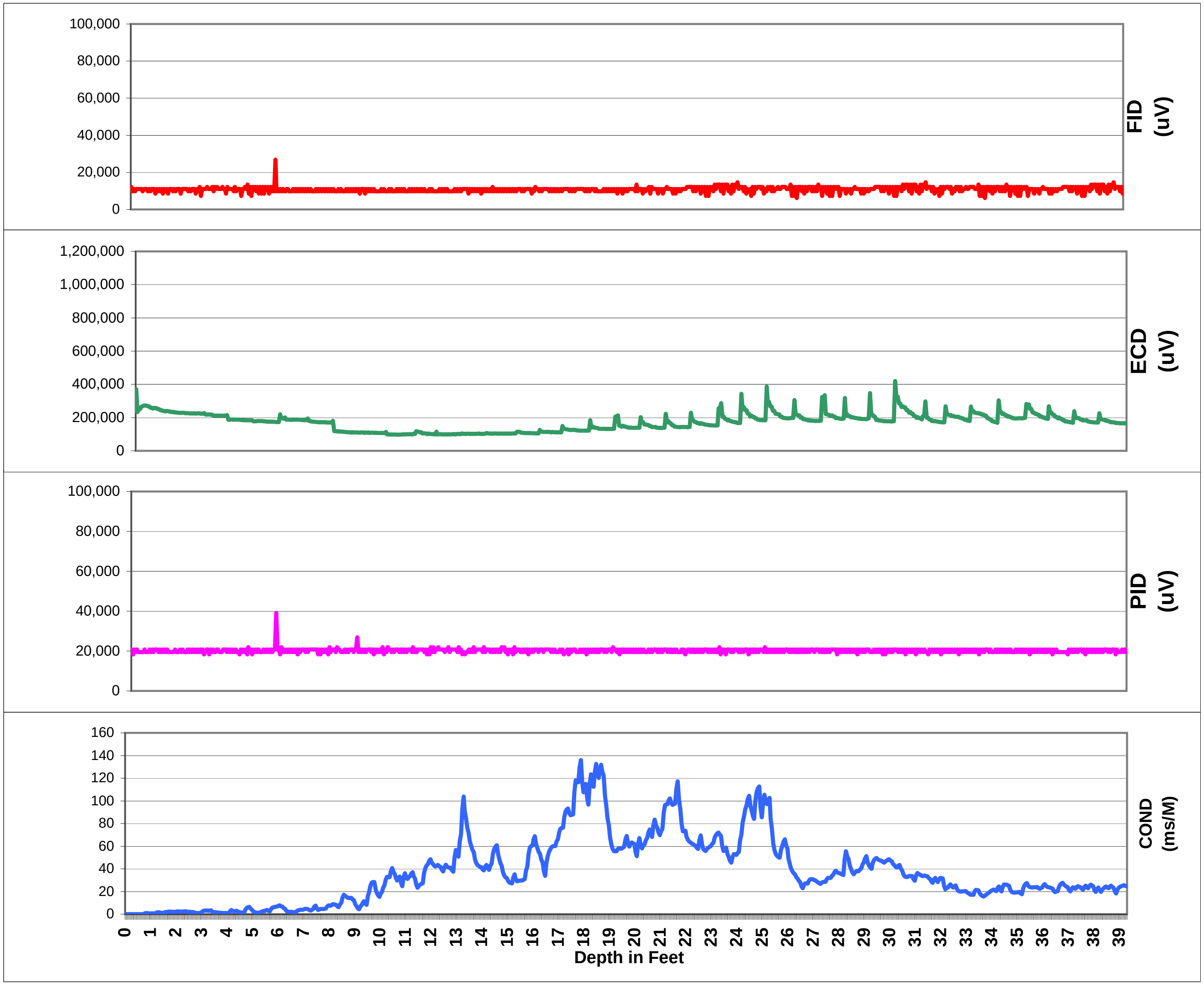
ZEBRA EC/MIP Summary Log, Point ETMIP11
Corning, NY



for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

Date: 1/7/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 6 of 0

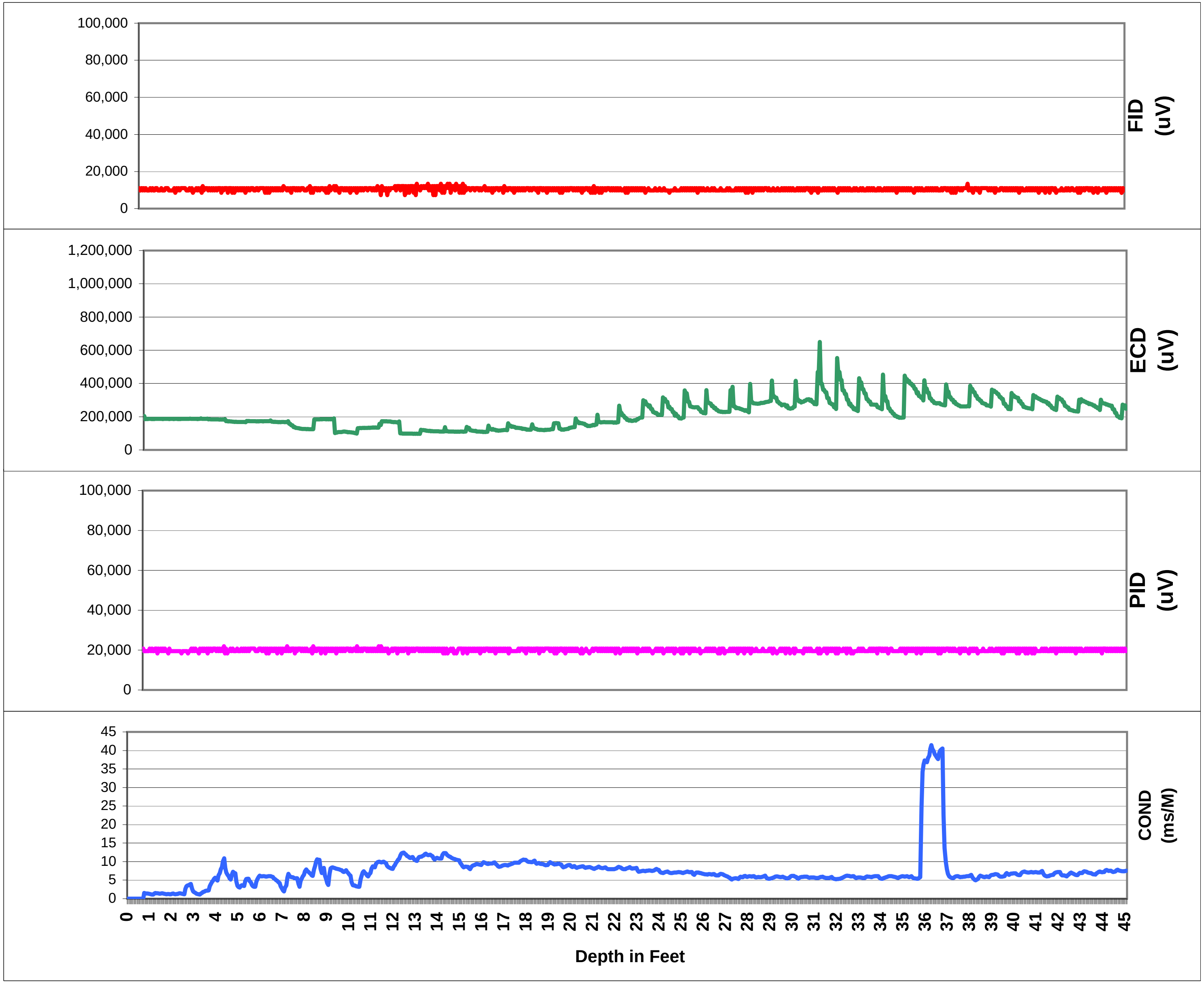
ZEBRA EC/MIP Summary Log, Point ETMIP12
Corning, NY



Date: 1/6/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 12 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

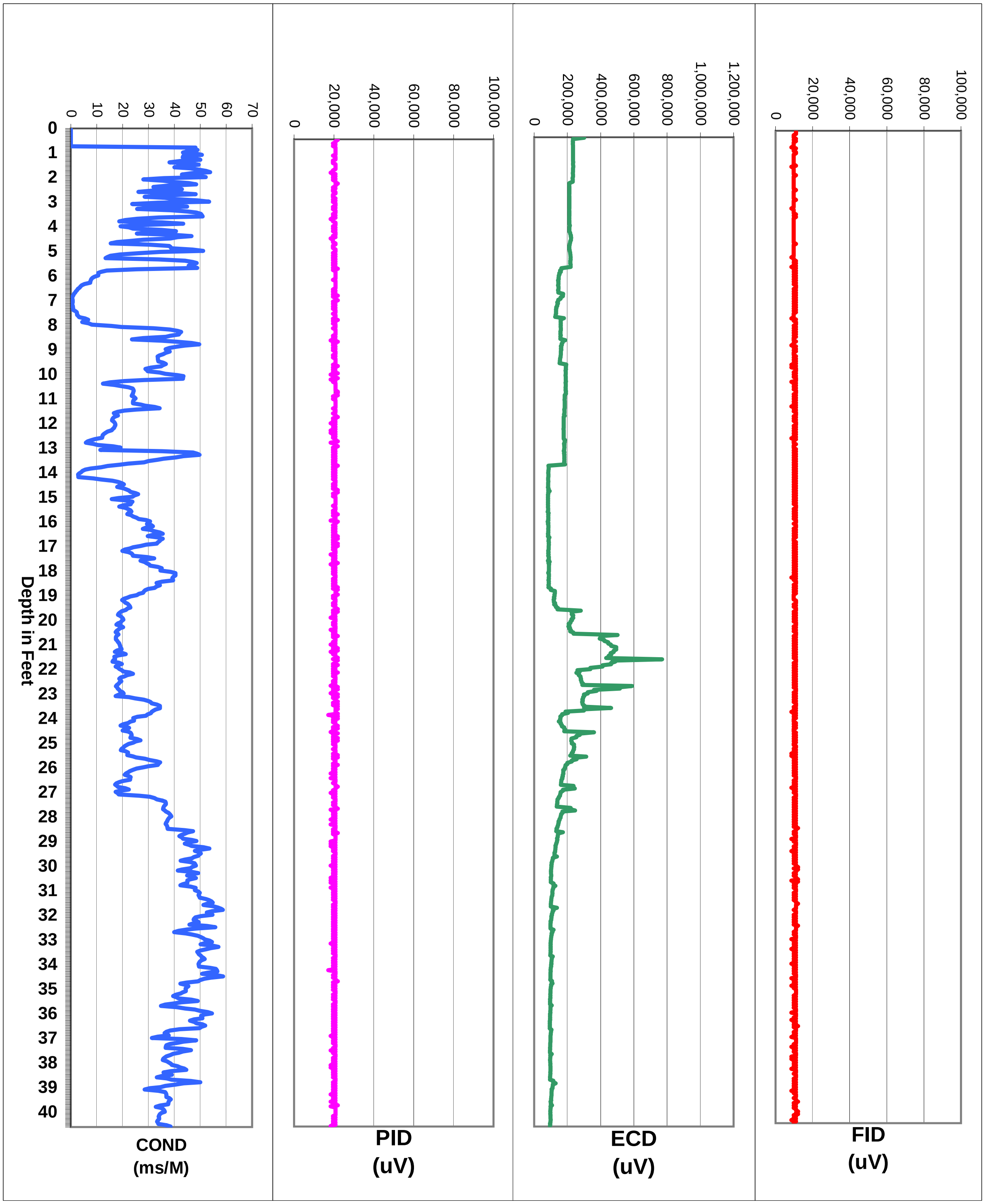
ZEBRA EC/MIP Summary Log, Point ETMIP13
Corning, NY



Date: 1/6/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 13 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

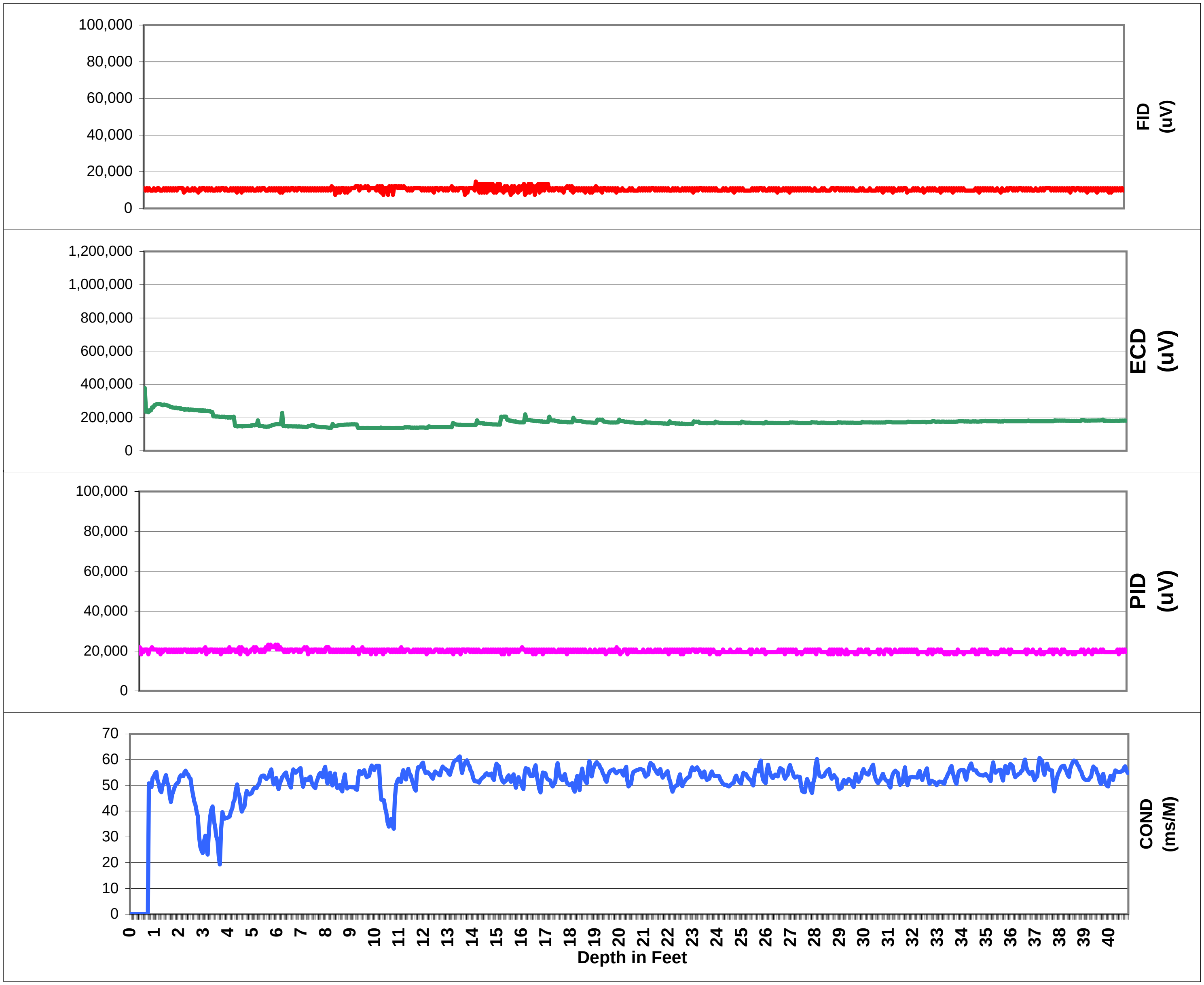
ZEBRA EC/MIP Summary Log, Point ETMIP14
Corning, NY



for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

Date: 1/6/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 14 of 0

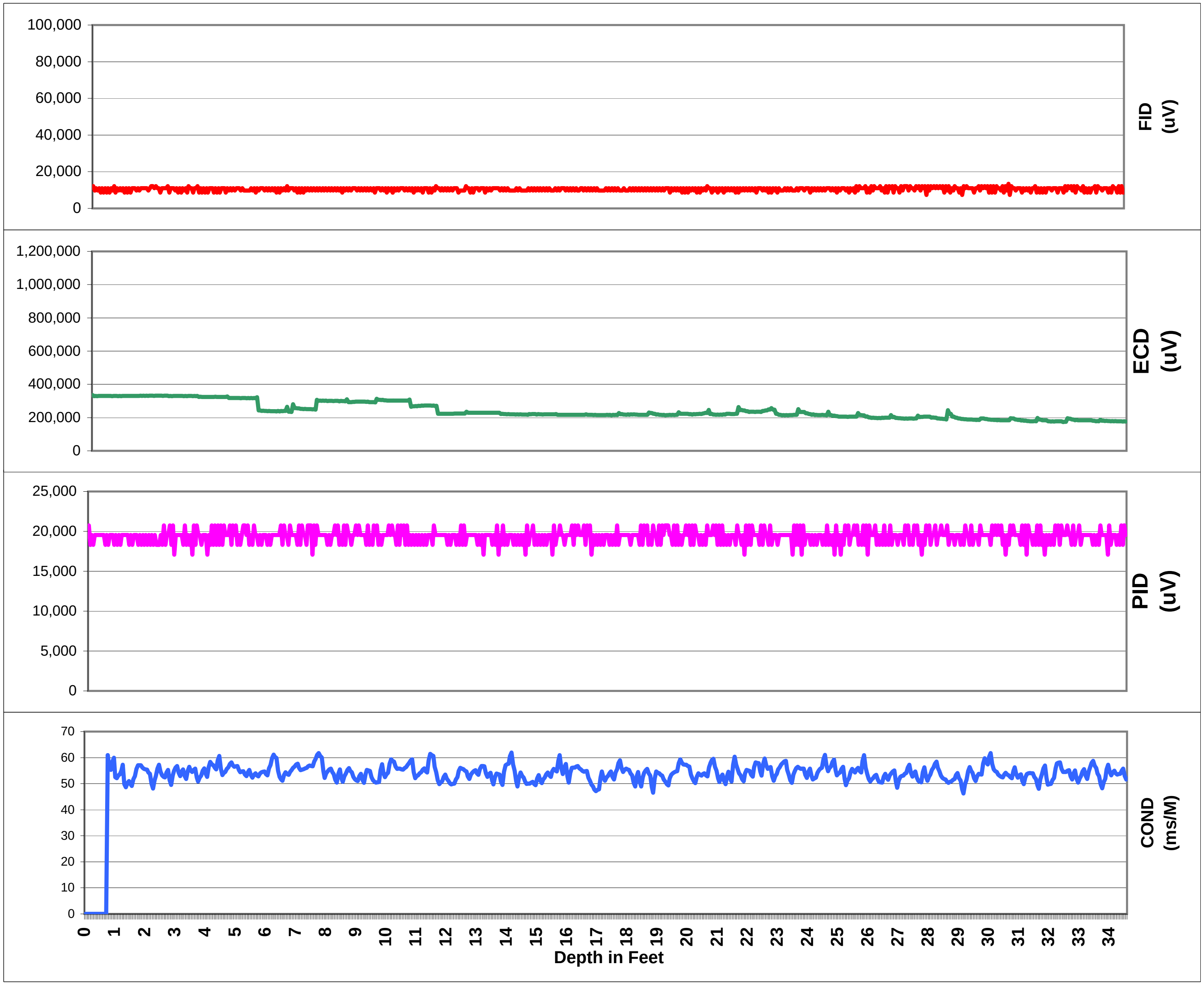
ZEBRA EC/MIP Summary Log, Point ETMIP18
Corning, NY



Date: 1/7/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 8 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

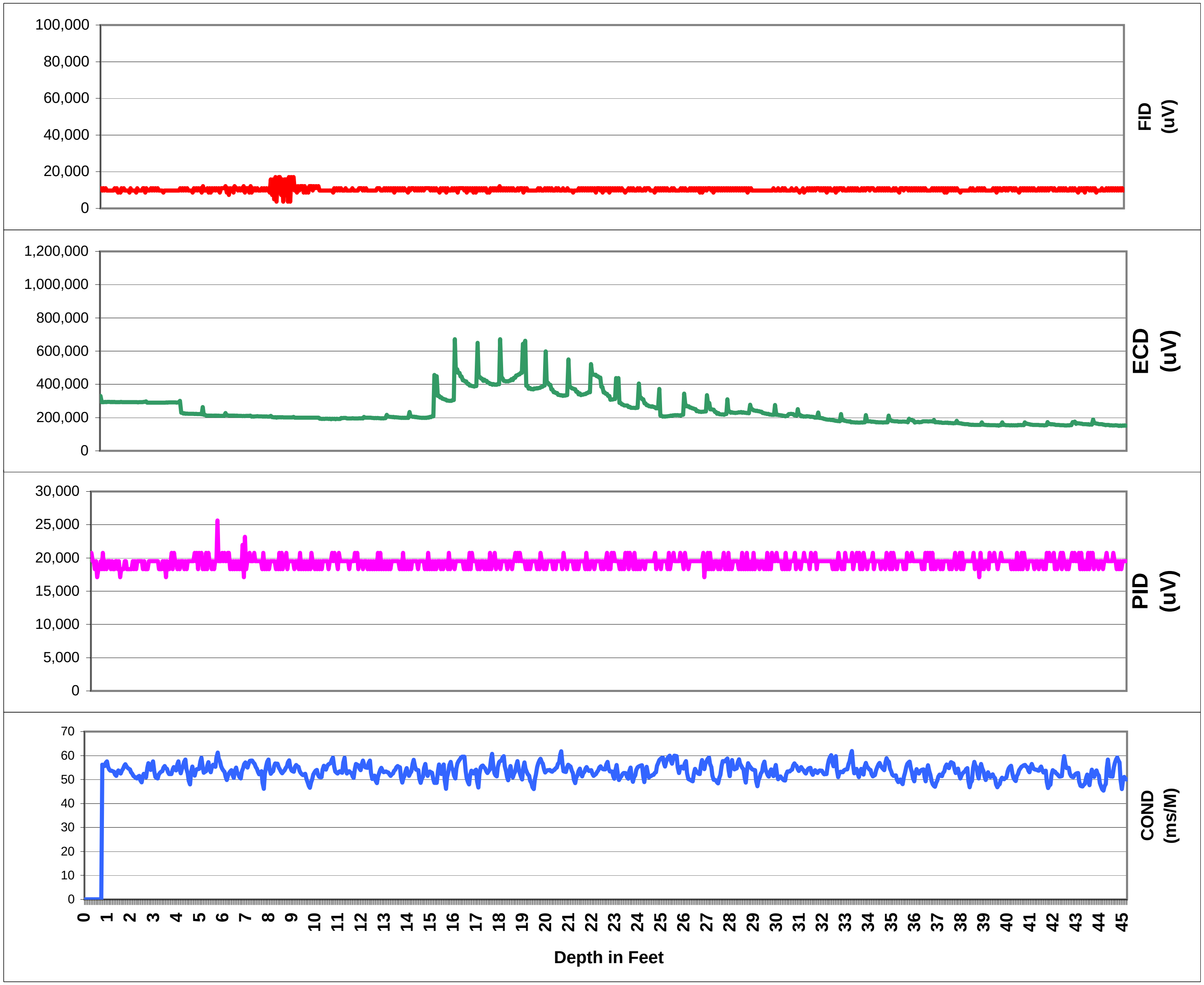
ZEBRA EC/MIP Summary Log, Point ETMIP20
Corning, NY



Date: 1/7/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 9 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

ZEBRA EC/MIP Summary Log, Point ETMIP22
Corning, NY



Date: 1/7/2009
Proj. Name: Crystal Cleaners
Proj. #: DS15019
Operators: Will M
Point 10 of 0

for: AECOM
by: Zebra Environmental
30 No. Prospect Avenue
Lynbrook, NY 11563
(516) 596-6300

Appendix C
Field Forms

AECOM

BORING LOG

Boring No.: HP-1

PROJECT: Crystal Cleaners
PAGE 1 OF 2
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/16/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS

DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

AECOM

BORING LOG

Boring No.: **HP-1**

PROJECT: Crystal Cleaners

PROJECT No.: 106774

PAGE 2 OF 2

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
14				
15				
16				Sample HP-1
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				

BORING LOG

Boring No.: HP-3

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/16/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS

DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				
30				
35				Sample collected, HP-2-C at 9:25, HP-2-B at 10:05, HP-2-B-Dup at 10:10, HP-2-A at 10:20, HP-2-A-MS 10:25, HP-2-A-MSD at 10:30
40				No recovery
45				
50				
55				
60				
65				
70				

AECOM

BORING LOG

Boring No.: HP-3

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/16/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra

WATER LEVELS			
DATE	TIME	DEPTH	
			DESIGNATION OF DRILL RIG: Geo Probe
			SIZE AND TYPE OF EQUIPMENT:
			REFERENCE ELEVATION: DEPTH OF BOREHOLE:
			THICKNESS OF OVERBURDEN: DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				
30				
35				
40				
45				
50				Sample HP-3
55				
60				
65				
70				

AECOM

BORING LOG

Boring No.: **HP-4**

PROJECT: Crystal Cleaners

PAGE 1 OF 2

PROJECT No.: 106774

CONTRACTOR: AZTECH

DATE: 03/17/2009

LOCATION: Corning, NY

DRILLERS NAME:

ET REP.: Vipul Mehra

WATER LEVELS		
DATE	TIME	DEPTH

DESIGNATION OF DRILL RIG: Geo Probe

SIZE AND TYPE OF EQUIPMENT:

REFERENCE ELEVATION:

DEPTH OF BOREHOLE:

THICKNESS OF OVERBURDEN:

DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

AECOM

BORING LOG

Boring No.: HP-4

PROJECT: Crystal Cleaners

PROJECT No.: 106774

PAGE 2 OF 2

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
14				
15				Sample collected, HP-4-A at 15:50
16				
17				
18				
19				
20				
21				
22				
23				Refusal
24				
25				
26				
27				
28				

AECOM	**BORING LOG**		**Boring No.:**	**HP-5**
PROJECT: Crystal Cleaners			PAGE 1 OF	1
PROJECT No.: 106774	CONTRACTOR: AZTECH		DATE: 03/16/2009	
LOCATION: Corning, NY	DRILLERS NAME:		ET REP.: Vipul Mehra	

WATER LEVELS				
DATE	TIME	DEPTH	DESIGNATION OF DRILL RIG: Geo Probe	
			SIZE AND TYPE OF EQUIPMENT:	
			REFERENCE ELEVATION:	DEPTH OF BOREHOLE:
			THICKNESS OF OVERBURDEN:	DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				
30				
35				
40				Sample collected, HP-5-B, HP-5-A
45				
50				
55				Refusal, no sample recovery
60				
65				
70				

AECOM

BORING LOG

Boring No.: HP-6

PROJECT: Crystal Cleaners

PAGE 1 OF 1

PROJECT No.: 106774

CONTRACTOR: AZTECH

DATE: 03/18/2009

LOCATION: Corning, NY

DRILLERS NAME:

ET REP.: Vipul Mehra

WATER LEVELS		
DATE	TIME	DEPTH

DESIGNATION OF DRILL RIG: Geo Probe

SIZE AND TYPE OF EQUIPMENT:

REFERENCE ELEVATION:

DEPTH OF BOREHOLE:

THICKNESS OF OVERBURDEN:

DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				Sample collected HP-6-A at 9:35
20				
25				
30				Sample collected HP-6-B at 9:05
35				
40				Sample collected HP-6-C at 8:50
45				
50				
55				No recovery
60				
65				
70				

AECOM

BORING LOG

Boring No.: **HP-7**

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/18/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra

WATER LEVELS		
DATE	TIME	DEPTH

DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:
LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				
30				
35				
40				Sample collected HP-7-C at 11:15, HP-7-B at 11:25, HP-7-B-MS at 11:30, HP-7-B-MSD at 11:35
45				
50				
55				No recovery
60				
65				
70				

AECOM

BORING LOG

Boring No.: **HP-8**

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/18/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra

DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS		
DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				
30				Sample collected, HP-8-B at 15:20, HP-8-A at 15:30
35				
40				
45				
50				
55				No recovery
60				
65				
70				

BORING LOG

Boring No.: HP-9

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/18/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS		
DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				
30				Sample collected, HP-9-B at 14:15, HP-9-A at 14:30
35				
40				Mud
45				
50				
55				No recovery, mud
60				
65				
70				

AECOM

BORING LOG

Boring No.: HP-10

PROJECT: Crystal Cleaners

PAGE 1 OF 2

PROJECT No.: 106774

CONTRACTOR: AZTECH

DATE: 03/17/2009

LOCATION: Corning, NY

DRILLERS NAME:

ET REP.: Vipul Mehra

DESIGNATION OF DRILL RIG: Geo Probe

SIZE AND TYPE OF EQUIPMENT:

REFERENCE ELEVATION:

DEPTH OF BOREHOLE:

THICKNESS OF OVERBURDEN:

DISPOSITION OF BOREHOLE:

WATER LEVELS		
DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

AECOM

BORING LOG

Boring No.: HP-10

PROJECT: Crystal Cleaners

PROJECT No.: 106774

PAGE 2 OF 2

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
14				
15				
16				
17				
18				
19				
20				Sample collected, HP-10-A at 16:10
21				
22				
23				Refusal at 23.5'
24				
25				
26				
27				
28				

BORING LOG

Boring No.: HP-11

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/16/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS		
DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				Sample collected, HP-11-A at 16:30
20				
25				
30				
35				Sample collected, HP-11-B at 16:08
40				
45				Refusal, no recovery
50				
55				
60				
65				
70				

BORING LOG

Boring No.: **HP-12**

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/18/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra

WATER LEVELS		
DATE	TIME	DEPTH

DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				Sample collected, HP-12-A at 8:35
30				
35				
40				Sample collected, HP-12-B at 8:25
45				
50				
55				Sample collected, HP-12-C at 8:10
60				
65				
70				

AECOM

BORING LOG

Boring No.: **HP-11**

PROJECT: Crystal Cleaners
PAGE 1 OF 3
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/19/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS		
DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
				Fill, Stones, Coarse gravel with little clayey sand
1			0.0	
2				
3			0.0	
4				
5			0.0	
6				Stones with coarse gravel
7			0.0	
8				
9			0.0	
10				only 6" of recovery
11			0.0	
12				
13			0.0	
14				

AECOM

BORING LOG

Boring No.: HP-11

PROJECT: Crystal Cleaners

PROJECT No.: 106774

PAGE 2 OF 3

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
14				
15			0.0	
16				Coarse gravel with stones
17			0.0	
18				
19			0.0	
20				Stones, medium fine brown sand
21			0.0	
22				
23			0.0	
24				
25			0.0	Stones, gravel, medium fine sand + last 3" clay
26				
27			0.0	
28				

AECOM

DIRECT PUSH BORING LOG

Boring No.: **HP-11**

PROJECT: Crystal Cleaners

PROJECT No.: 106774

PAGE 3 OF 3

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
28				
29				Refusal - Bed rock - fragments of shale
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				

BORING LOG

Boring No.: HP-13

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/17/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS

DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
15				
20				
25				Sample collected, HP-13-A at 9:15
30				
35				Sample collected, HP-13-B at 8:53
40				
45				Refusal at 42', no recovery, no sample collected
50				
55				
60				
65				
70				

BORING LOG

Boring No.: HP-13

PROJECT: Crystal Cleaners
PAGE 1 OF 2
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/19/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS

DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
				Backfill, Stones, medium sand
1			0.0	
2				
3			0.0	
4				
5			0.0	
6				Clayey silt, medium fine sand some stones
7			0.0	
8				
9			0.0	
10				
11			0.0	Medium fine sand, small stones, low recovery
12				
13			0.0	
14				

AECOM

BORING LOG

Boring No.: **HP-13**

PROJECT: Crystal Cleaners

PROJECT No.: 106774

PAGE 2 OF 2

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
14				
			0.0	
15				
				Grey/Brown medium fine sand, some stones
16				
17				
			0.0	
18				
			0.0	
19				
20				
				Stone, gravel, some bedrock (shale) material, coarse gravel and
			0.0	medium sand
21				
22				
			0.0	
23				
24				
			0.0	
25				
				Medium fine sand, some clay, stones
26				
			0.0	
27				
				Refusal - Bedrock (shale)
28				

AECOM

BORING LOG

Boring No.: HP-14

PROJECT: Crystal Cleaners

PAGE 1 OF 2

PROJECT No.: 106774

CONTRACTOR: AZTECH

DATE: 03/17/2009

LOCATION: Corning, NY

DRILLERS NAME:

ET REP.: Vipul Mehra

WATER LEVELS		
DATE	TIME	DEPTH

DESIGNATION OF DRILL RIG: Geo Probe

SIZE AND TYPE OF EQUIPMENT:

REFERENCE ELEVATION:

DEPTH OF BOREHOLE:

THICKNESS OF OVERBURDEN:

DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

AECOM

BORING LOG **Boring No.: HP-14**

PROJECT: Crystal Cleaners

PROJECT No.: 106774

PAGE 2 OF 2

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
14				
15				
16				
17				
18				
19				
20				Sample collected, HP-14-A at 12:30, HP-14-A-Dup 12:35
21				
22				
23				
24				
25				
26				Refusal, no recovery
27				
28				

AECOM

BORING LOG

Boring No.: **SS-1**

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/17/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra

WATER LEVELS			
DATE	TIME	DEPTH	

DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:
LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
			0.0	
5				
			0.0	
10				
			0.0	
15				
			0.0	
20				Sample collection SS-1 at 13:45
25				
30				
40				

AECOM

BORING LOG

Boring No.: SS-2

PROJECT: Crystal Cleaners		PAGE 1 OF 1
PROJECT No.: 106774	CONTRACTOR: AZTECH	DATE: 03/17/2009
LOCATION: Corning, NY	DRILLERS NAME:	ET REP.: Vipul Mehra

WATER LEVELS				
			DESIGNATION OF DRILL RIG: Geo Probe	
DATE	TIME	DEPTH	SIZE AND TYPE OF EQUIPMENT:	
			REFERENCE ELEVATION:	DEPTH OF BOREHOLE:
			THICKNESS OF OVERBURDEN:	DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	HNu Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
			0.0	
5				
			0.0	
10				
			0.0	
15				
				Sample collection SS-2 at 16:00
20				
25				
30				
40				

BORING LOG

Boring No.: **SS-3**

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/17/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra

WATER LEVELS			
DATE	TIME	DEPTH	

DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:
LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
			0.0	
5				
			0.0	
10				
			0.0	
15				
				Sample collection SS-3 at 15:45, SS-3-MS at 15:50, SS-3-MSD at 15:55
20				
25				
30				
40				

BORING LOG

Boring No.: SS-4

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/17/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra
DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

WATER LEVELS		
DATE	TIME	DEPTH

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
			0.0	
5				
			0.0	
10				
			0.0	
15				
20				Sample collected SS-4 at 15:25
25				
30				
40				

AECOM

BORING LOG

Boring No.: SS-5

PROJECT: Crystal Cleaners

PAGE 1 OF 1

PROJECT No.: 106774

CONTRACTOR: AZTECH

DATE: 03/17/2009

LOCATION: Corning, NY

DRILLERS NAME:

ET REP.: Vipul Mehra

WATER LEVELS		
DATE	TIME	DEPTH

DESIGNATION OF DRILL RIG: Geo Probe

SIZE AND TYPE OF EQUIPMENT:

REFERENCE ELEVATION:

DEPTH OF BOREHOLE:

THICKNESS OF OVERBURDEN:

DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
			0.0	
5				
			0.0	
10				
			0.0	
15				
				Sample collected SS-5 at 15:10, SS-5-Dup at 15:20
20				
25				
30				
40				

AECOM

BORING LOG

Boring No.: **SS-6**

PROJECT: Crystal Cleaners
PAGE 1 OF 1
PROJECT No.: 106774
CONTRACTOR: AZTECH
DATE: 03/17/2009
LOCATION: Corning, NY
DRILLERS NAME:
ET REP.: Vipul Mehra

WATER LEVELS		
DATE	TIME	DEPTH

DESIGNATION OF DRILL RIG: Geo Probe
SIZE AND TYPE OF EQUIPMENT:
REFERENCE ELEVATION:
DEPTH OF BOREHOLE:
THICKNESS OF OVERBURDEN:
DISPOSITION OF BOREHOLE:

LABORATORY ANALYSES:

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
5				
10				
			20.0	
15				
				Sample collected SS-6 at 14:45
20				
25				
30				
40				

BORING LOG

GEO-1

PROJECT: Crystal Cleaners, NY	CONTRACTOR:	PAGE 1 OF 3
PROJECT No.: 106774	LOCATION: Corning, NY	DATE:
SURFACE ELEVATION:	DATUM: DRILLER:	ET REP.: Celest Foster

WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH		CASING	SAMPLER	CORE	TUBE
			TYPE	Steel	split spoon		
			I.D.	6-inch	1 3/8 inch		
			WT./Fall	--	140 lbs.		

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
			0	30-35" crushed stone 20-25" crushed stone
1				
2				14-24" light brown fine sand, light brown gravel/medium stone, with trace of light gray clay
3	S1 8:06	33"	0	
4				24-34 gravel, fine sand
5				Poor recovery
6			0	Yellow orange gravel/medium stone, trace of fine sand, trace of crushed stone
7	S2 8:15	23"	0	
8				
9			0	
10				
11	S3 8:35	17"	0	Light brown gravel/some clay, trace of medium sand
12				
13			0	
14				Wet at 14"
15			0	
16				Light gray gravel, trace of medium sand, trace of silt
17	S4 8:45	23"	0	
18				
19			0	
20				

AECOM

BORING LOG

GEO-1

PROJECT: Crystal Cleaners, NY

PROJECT No.: 106774

PAGE 2 OF 3

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
20				0-23" light gray gravel, trace of fine sand, trace of silt
21				
22	S5 8:52	26"	0	
23				
24				23-26 light gray gravel,trace of fine sand, trace of silt
25				
26				Driller soft at 27'
27				0-5" soft
28	S6 9:02	44"	0	5-44 light gray clay
29				
30				
31				
32	S7 9:23	5'	0	Light gray clay, dry
33				
34				
35				*Sample
36				
37	S8 9:40	5'	0	Light gray clay, dry
38				
39				
40				

BORING LOG

GEO-1

PROJECT: Crystal Cleaners, NY

PROJECT No.: 106774

PAGE 3 OF 3

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
40				
41				
42	S9 9:53	5'	0	Light gray clay, dry
43				
44				
45				
46				
47	S10 10:15	48"	0	Refusal at 46.5 ft bgs, light gray clay
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				

BORING LOG

GEO-2

PROJECT: Crystal Cleaners, NY	CONTRACTOR:	PAGE 1 OF 2
PROJECT No.: 106774	LOCATION: Corning, NY	DATE:
SURFACE ELEVATION:	DATUM: DRILLER:	ET REP.: Celest Foster

WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH		CASING	SAMPLER	CORE	TUBE
			TYPE	Steel	split spoon		
			I.D.	6-inch	1 3/8 inch		
			WT./Fall	--	140 lbs.		

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1			0	0-2" top soil (fine sand/silt)
2				2-10" light brown fine soil/silt
3	S1 11:32	16"	0	10-16" light gray gravel, trace medium sand, 15" wet fine sand
4				
5				
6			0	Gravel, trace medium sand,fine sand, wet
7	S2 11:40	10"	0	Light brown gravel, trace medium sand/fine sand, wet
8				
9			0	
10				
11	S3 11:47	11.5"	0	Light brown gravel, trace medium sand/fine sand, wet
12				
13			0	
14				
15			0	
16				Light brown gravel, trace medium sand/fine sand, wet
17	S4 11:57	17"	0	
18				
19			0	
20				

AECOM

BORING LOG

GEO-2

PROJECT: Crystal Cleaners, NY

PROJECT No.: 106774

PAGE 2 OF 2

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
20	S5 12:11	38"	0	0-21" light gray GR/CL 21-33" light gray CL/some GR/TR silt 33-38" light gray CL, some gravel, trace of silt
25	S6 12:35	48"	0	Light gray CL, some gravel, trace of silt, glacial til, dry
30				End of boring, geoprobe would not advance further
35				
40				

AECOM

BORING LOG

GEO-3

PROJECT: Crystal Cleaners, NY	CONTRACTOR:	PAGE 1 OF 2
PROJECT No.: 106774	LOCATION: Corning, NY	DATE:
SURFACE ELEVATION:	DATUM: DRILLER:	ET REP.: Celest Foster

WATER LEVELS			DRILLING AND SAMPLING				
DATE	TIME	DEPTH		CASING	SAMPLER	CORE	TUBE
			TYPE	Steel	split spoon		
			I.D.	6-inch	1 3/8 inch		
			WT./Fall	--	140 lbs.		

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
1			0	0-3" light brown top soil, light brown silt, fine sand, medium sand
2				3-4" blackaspalt
3	S1 14:10	14.75"	0	
4				4-14.75" light brown GR/medium sand, trace of silt, trace CS
5				
6			0	GR, light brown trace CS, some medium sand
7	S2 14:15	2"	0	
8				
9			0	
10				
11	S3 14:20	2"	0	GR, some medium sand, trace CS, trace fine sand
12				
13			0	
14				
15			0	
16				
17	S4 14:30	10.5"	0	GR, some medium sand, trace CS, trace fine sand
18				
19			0	Water measured at 19.25 ft bgs
20				

BORING LOG

GEO-3

PROJECT: Crystal Cleaners, NY

PROJECT No.: 106774

PAGE 2 OF 2

Depth (ft)	Sample Number & Time	Rec. (feet)	PID Readings (ppm)	SAMPLE DESCRIPTION, REMARKS, AND STRATUM CHANGES
20	S5 12:11	38"	0	0-21" light gray GR/CL 21-33" light gray CL/some GR/TR silt 33-38" light gray CL, some gravel, trace of silt
25	S6 12:35	48"	0	Light gray CL, some gravel, trace of silt, glacial til, dry
30				End of boring, geoprobe would not advance further
35				
40				

Well No. MW-1

Project: Crystal Cleaners
Location: Corning, NY
Page 1 of 1

Earth Tech Project No.: 106774
Subcontractor: LAWES

Surface/Casing Elevation: 938.60 Ft
Driller: Kevin / Ufur
Well Permit No.:

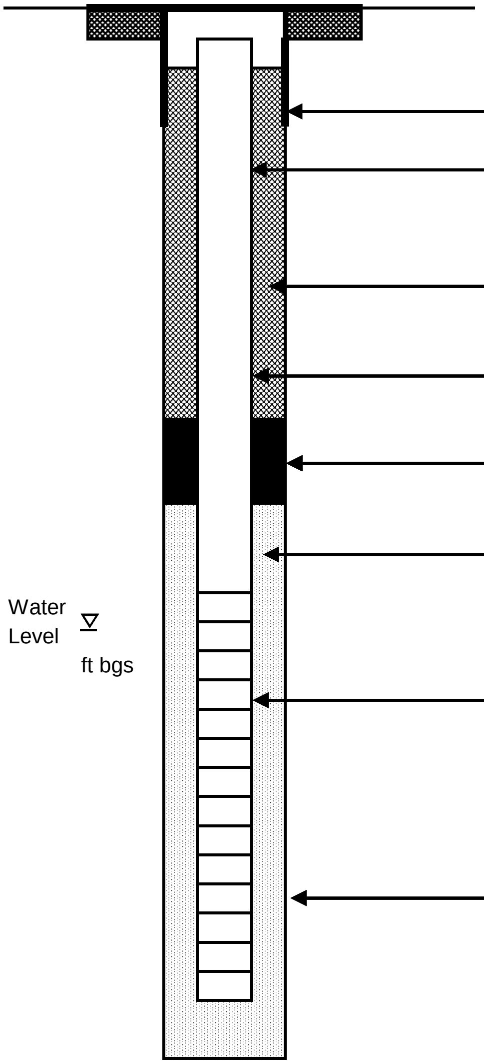
Top of PVC: 938.07 Ft
Earth Tech|AECOM Rep.: Vipul M

Datum: NGVD 1988
Date of Completion: 10/27/09

Water Levels

Date	Time	Depth
10/28/09	12:30	15.31

Locking protective flushmount (8") with concrete pad



Ground Surface 938.6 ft

Well casing 938.6 ft

Borehole diameter 4.25 inches

Riser Pipe from 0.0 ft to 20.0 ft
Diameter 2" inches
Type PVC

Cement-bentonite grout from 0.0 ft to 16.0 ft

Riser Pipe from 0.0 ft to 20.0 ft

Bentonite seal from 16.0 ft to 18.0 ft

Filter pack from 18.0 ft to 31.0 ft

Sand Size #1

Well screen from 20.0 ft to 30.0 ft

Diameter 2" inches
Slot size 0.1 inches
Type PVC

Borehole diameter 4.25 inches

Bottom Cap at 30.0 ft

Bottom of Borehole at 31.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

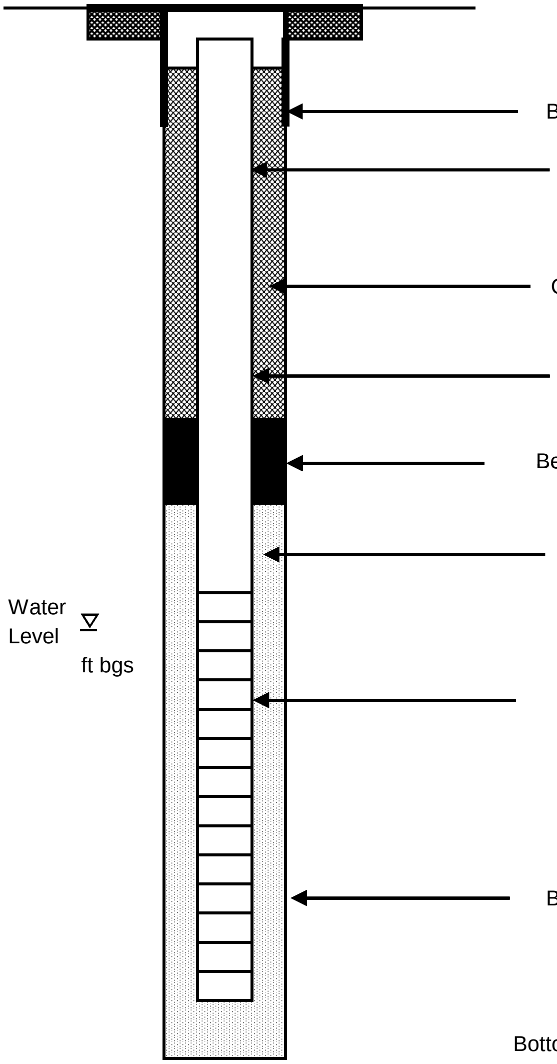
(NOT TO SCALE)

AECOM

Well No. MW-2

Project: Crystal Cleaners	Location: Corning, NY	Page 1 of 1		
Earth Tech Project No.: 106774	Subcontractor: LAWES	Water Levels		
Surface/Casing Elevation: 934.79 Ft	Driller: Kevin / Ufur	Date	Time	Depth
	Well Permit No.:	10/28/09	14:30	14.19
Top of PVC: 934.48 Ft	Earth Tech|AECOM Rep.: Vipul M			
Datum: NGVD 1988	Date of Completion: 10/26/09			

Locking protective flushmount (8") with concrete pad



Ground Surface 934.79 ft

Well casing 934.79 ft

Borehole diameter 4.25 inches

Riser Pipe from 0.0 ft to 20.0 ft
Diameter 2" inches
Type PVC

Cement-bentonite grout from 0.0 ft to 14.0 ft

Riser Pipe from 0.0 ft to 20.0 ft

Fine sand (00) 14.0 ft to 16.0 ft
Bentonite seal from 16.0 ft to 18.0 ft

Filter pack from 18.0 ft to 31.0 ft

Sand Size #1

Well screen from 20.0 ft to 30.0 ft

Diameter 2" inches
Slot size 0.1 inches
Type PVC

Borehole diameter 4.25 inches

Bottom Cap at 30.0 ft

Bottom of Borehole at 31.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

Well No. MW-3

Project: Crystal Cleaners
Location: Corning, NY
Page 1 of 1

Earth Tech Project No.: 106774
Subcontractor: LAWES

Surface/Casing Elevation: 932 Ft
Driller: Kevin / Ufur
Well Permit No.:

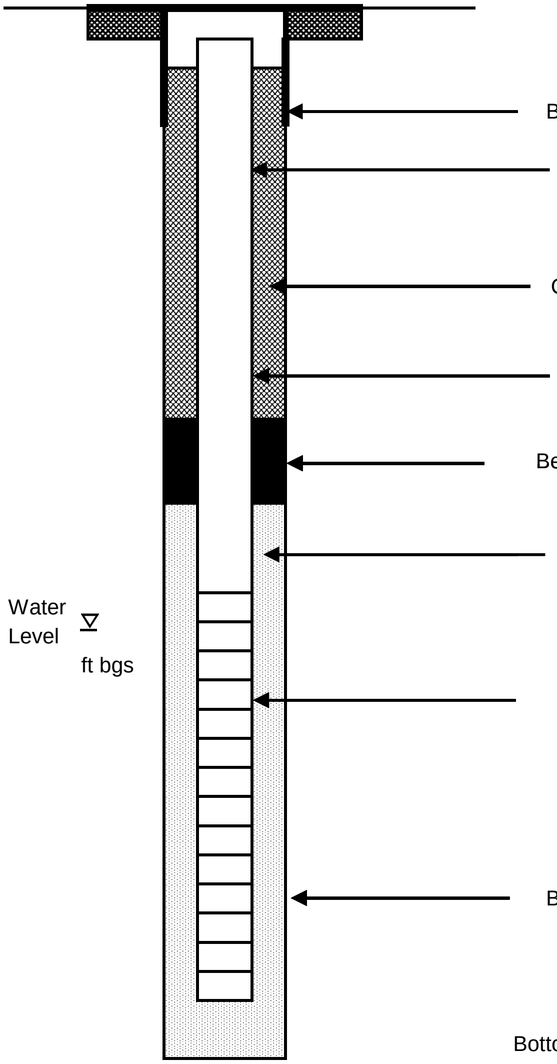
Top of PVC: 931.72 Ft
Earth Tech|AECOM Rep.: Vipul M

Datum: NGVD 1988
Date of Completion: 10/28/09

Water Levels

Date	Time	Depth
10/29/09	9:30	11.60

Locking protective flushmount (8") with concrete pad



Ground Surface 932.00 ft

Well casing 932.00 ft

Borehole diameter 4.25 inches

Riser Pipe from 0.0 ft to 25.0 ft
Diameter 2" inches
Type PVC

Cement-bentonite grout from 0.0 ft to 23.0 ft

Riser Pipe from 0.0 ft to 20.0 ft

Bentonite seal from 21.0 ft to 23.0 ft

Filter pack from 23.0 ft to 36.0 ft

Sand Size #1

Well screen from 25.0 ft to 35.0 ft

Diameter 2" inches
Slot size 0.1 inches
Type PVC

Borehole diameter 4.25 inches

Bottom Cap at 35.0 ft

Bottom of Borehole at 36.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

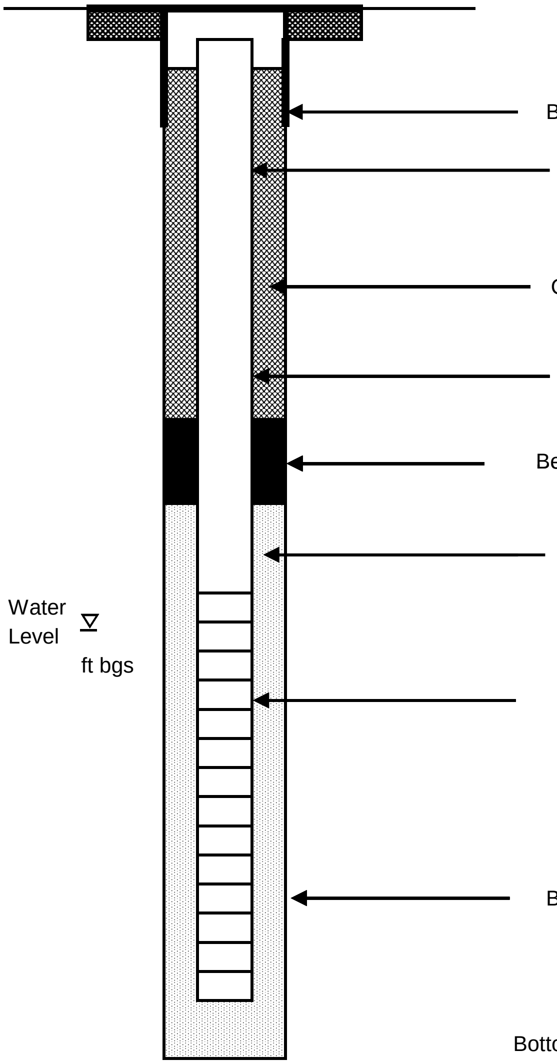
(NOT TO SCALE)

AECOM

Well No. MW-4

Project: Crystal Cleaners	Location: Corning, NY	Page 1 of 1		
Earth Tech Project No.: 106774	Subcontractor: LAWES	Water Levels		
Surface/Casing Elevation: 932.98 Ft	Driller: Kevin / Ufur	Date	Time	Depth
	Well Permit No.:	10/29/09	15:00	12.25
Top of PVC: 932.62 Ft	Earth Tech|AECOM Rep.: Vipul M			
Datum: NGVD 1988	Date of Completion: 10/27/09			

Locking protective flushmount (8") with concrete pad



Ground Surface 932.28 ft

Well casing 932.28 ft

Borehole diameter 4.25 inches

Riser Pipe from 0.0 ft to 25.0 ft
Diameter 2" inches
Type PVC

Cement-bentonite grout from 0.0 ft to 21.0 ft

Riser Pipe from 0.0 ft to 20.0 ft

Bentonite seal from 21.0 ft to 23.0 ft

Filter pack from 23.0 ft to 36.0 ft

Sand Size #1

Well screen from 25.0 ft to 35.0 ft

Diameter 2" inches
Slot size 0.1 inches
Type PVC

Borehole diameter 4.25 inches

Bottom Cap at 35.0 ft

Bottom of Borehole at 36.0 ft

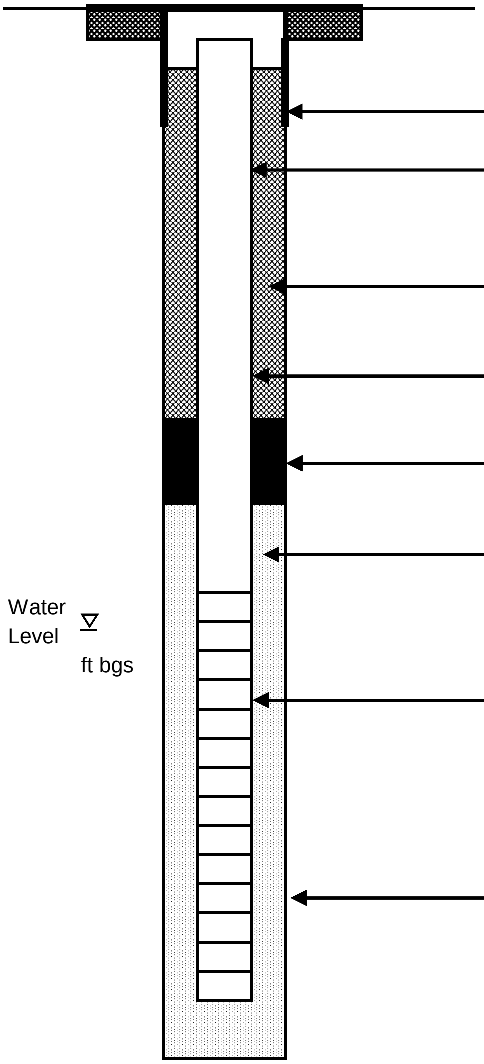
Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)

Well No. MW-5

Project: Crystal Cleaners	Location: Corning, NY	Page 1 of 1		
Earth Tech Project No.: 106774	Subcontractor: LAWES	Water Levels		
Surface/Casing Elevation: 933.26 Ft	Driller: Kevin / Ufur	Date	Time	Depth
Top of PVC: 932.55 Ft	Well Permit No.: Earth Tech|AECOM Rep.: Vipul M	10/29/09	10:30	19.62
Datum: NGVD 1988	Date of Completion: 10/28/09			

Locking protective flushmount (8") with concrete pad



Ground Surface 933.26 ft

Well casing 933.26 ft

Borehole diameter 4.25 inches

Riser Pipe from 0.0 ft to 45.0 ft
Diameter 2" inches
Type PVC

Cement-bentonite grout from 0.0 ft to 43.0 ft

Riser Pipe from 0.0 ft to 45.0 ft

Bentonite seal from 41.0 ft to 43.0 ft

Filter pack from 43.0 ft to 56.0 ft

Sand Size #1

Well screen from 45.0 ft to 55.0 ft

Diameter 2" inches
Slot size 0.1 inches
Type PVC

Borehole diameter 4.25 inches

Bottom Cap at 55.0 ft

Bottom of Borehole at 56.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

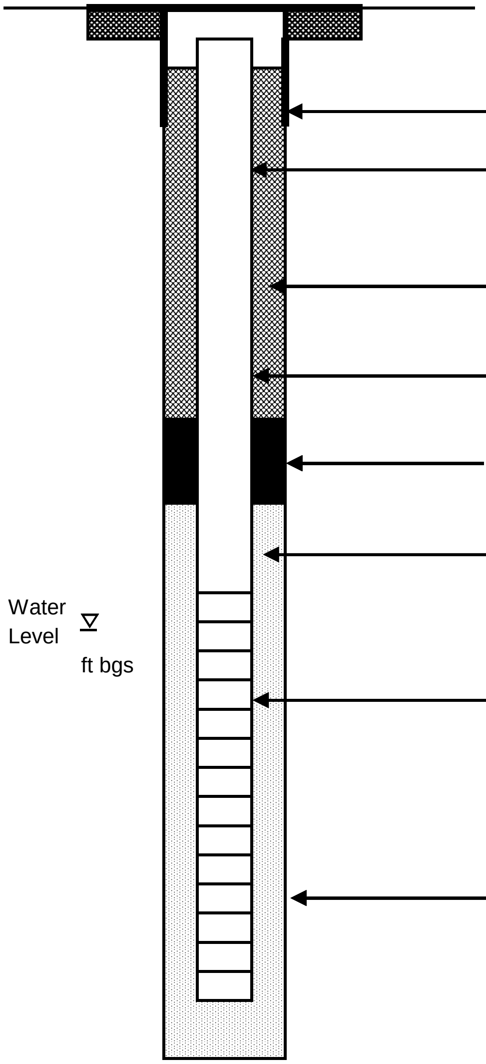
(NOT TO SCALE)

AECOM

Well No. MW-6

Project: Crystal Cleaners	Location: Corning, NY	Page 1 of 1		
Earth Tech Project No.: 106774	Subcontractor: LAWES	Water Levels		
Surface/Casing Elevation: 933.40 Ft	Driller: Kevin / Ufur	Date	Time	Depth
	Well Permit No.:	10/29/09	11:30	20.48
Top of PVC: 932.85 Ft	Earth Tech|AECOM Rep.: Vipul M			
Datum: NGVD 1988	Date of Completion: 10/26/09			

Locking protective flushmount (8") with concrete pad



Ground Surface 933.40 ft

Well casing 933.40 ft

Borehole diameter 4.25 inches

Riser Pipe from 0.0 ft to 45.0 ft
Diameter 2" inches
Type PVC

Cement-bentonite grout from 0.0 ft to 39.0 ft

Riser Pipe from 0.0 ft to 45.0 ft

Bentonite seal from 39.0 ft to 41.0 ft

Fine sand (00) 41 ft to 43 ft
Filter pack from 43.0 ft to 56.0 ft

Sand Size #1

Well screen from 45.0 ft to 55.0 ft

Diameter 2" inches
Slot size 0.1 inches
Type PVC

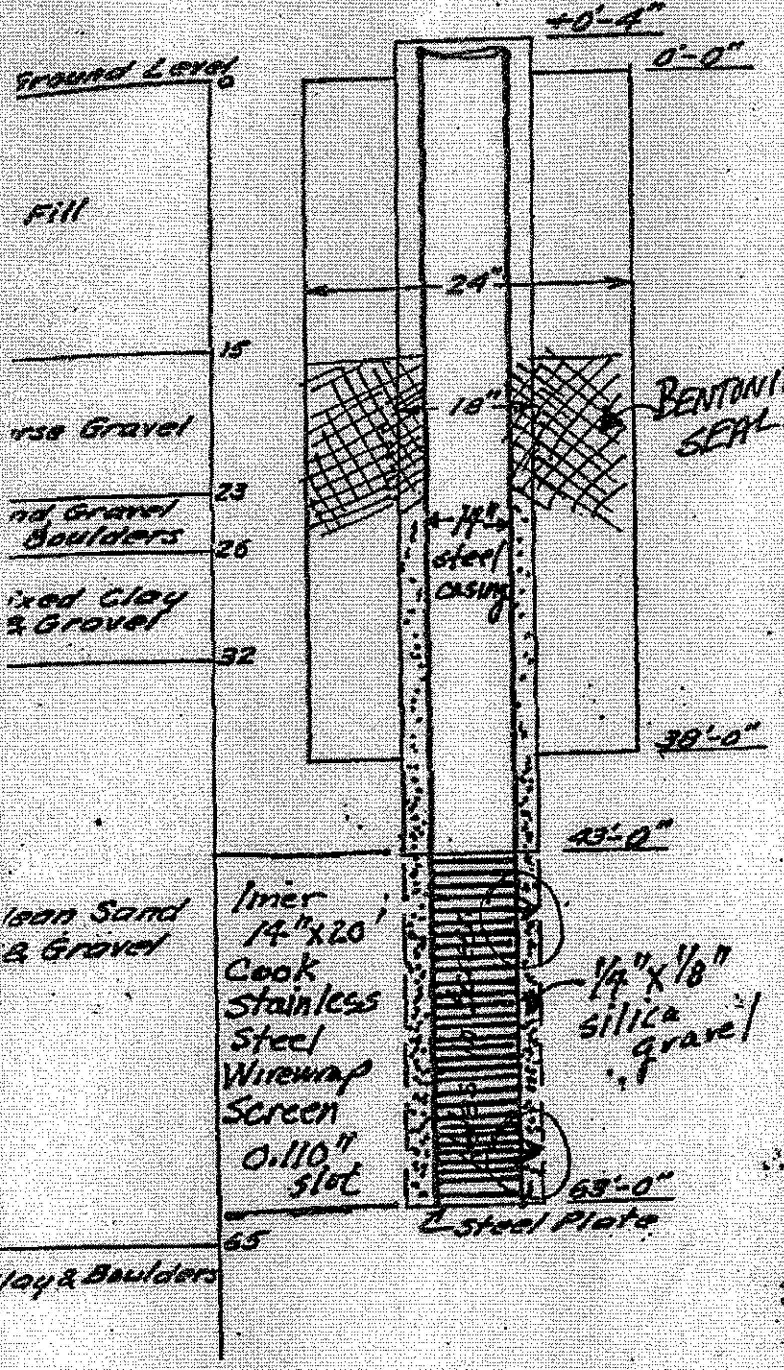
Borehole diameter 4.25 inches

Bottom Cap at 55.0 ft

Bottom of Borehole at 56.0 ft

Note: All measurements based on ground surface at 0.0 feet. (+) above grade. (-) below grade.

(NOT TO SCALE)



Pit: 38' of 24" welded
43'-4" of 18" welded

Screen: 20' of 18" Everdur

Cone: None

Pump* 11/14/56

Type	~~GLE~~ RKLMC	Shop No.	11848A
Setting	54'-10" to S.F.	Size	~~15~~" 12"
Suction	6'-8" of 6"	Stages	5
Basket	–	Impellers	Bronze
Discharge	8"x10" Cpld.	Head	TUF 825
Tubing	2½"	Press. B. P.	105#
Shafting	1½"	Air Line	61'-6"

*New Pump Installed #04968-2

Motor

Make	U.S.	Type	Hollowshaft
Volts	440	Cycle	60
Phase	3	Amp.	121
H. P.	100	R. P. M.	1800
Frame	982 A	Form	Vertical
Model	CFU	Serial	246445

Well*

Started	8-15-42	Static Level	15'
First Test	9-12-42	Production	708
Final "	7-9-43	Pumping Level	20
Accepted	7-9-43	Guarantee	700
Clear Depth	64'-5"	B.P. Press.	105#

*Liner Installed - 1995, Nov.

Driller: J. O. Emerson

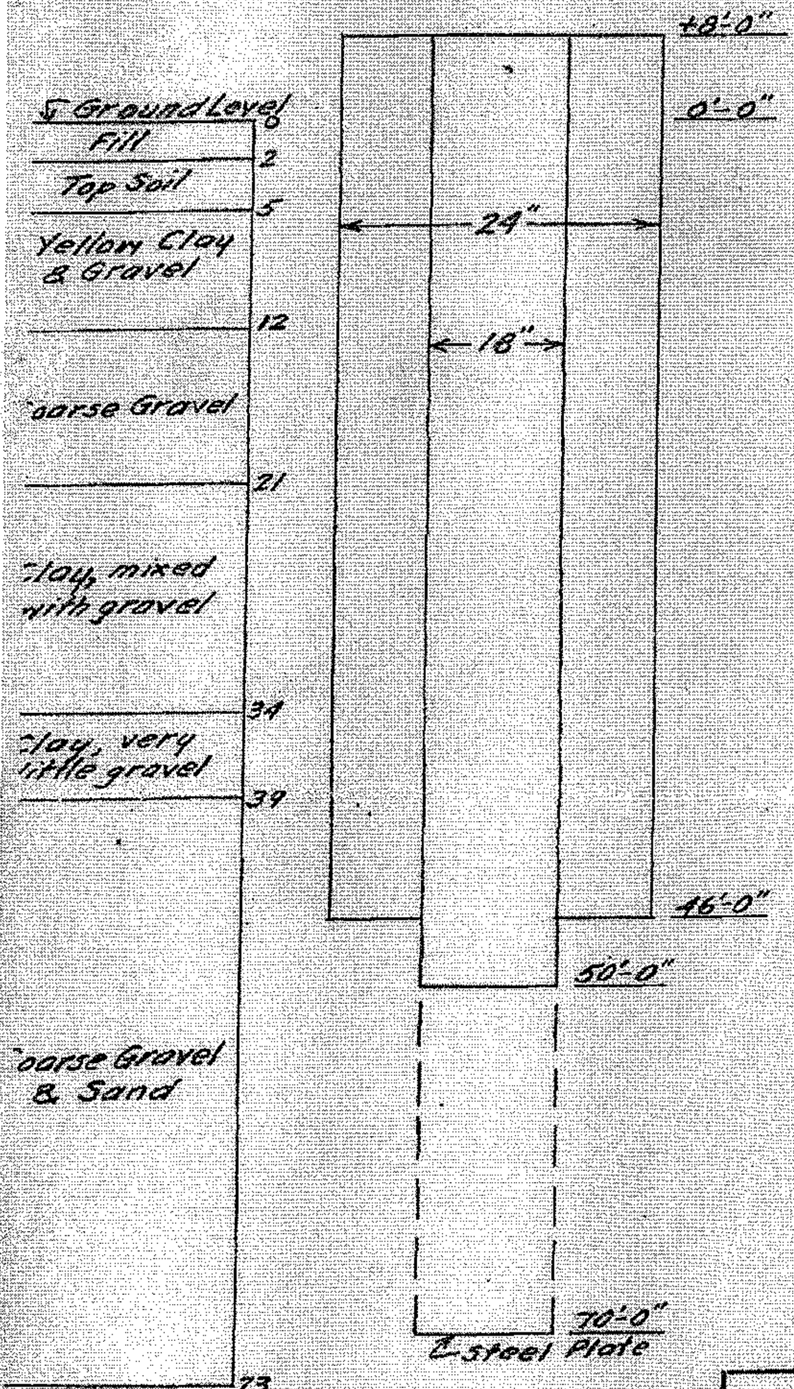
Installer: J. O. Powell

LAYNE-NEW YORK CO., INC. NEW YORK.
WATER SUPPLY CONTRACTORS

CITY OF CORNING
CORNING, N.Y.

DRAWN BY R.K.H. APPROVED BY W.A

WELL NO. 2 DRAWING NO.



Material

Pit: 54' of 24" welded
58' of 18" welded

Screen: 20' of 18" Everdur

Cone: None

Pump: 11/21/56

Type ~~CLE~~ RKLMC Shop No. 11847A
Setting 64'-10" to S.F. Size ~~15"~~ 12"
Suction 9'-8" of 6" Stages 5
Basket - Impellers Bronze
Discharge 8"x10' Cpld. Head TUF825
Tubing 2½" Press. B. P. 105#
Shafting 1½" Air Line 74'-6"

Motor

Make U.S. Type Hollowshaft
Volts 440 Cycle 60
Phase 3 Amp. 121
H. P. 100 R. P. M. 1800
Frame 982A Form Vertical
Model CFU Serial 247356

Well

Started 6-30-42 Static Level 7'-2" 15
First Test 8-10-42 Production 700 100
Final " 7-2-43 Pumping Level 22' 3
Accepted 7-2-43 Guarantee 700
Clear Depth 78' from B.P. Press. 105#

Driller: J. O. Emerson
Installer: J. O. Powell

LAYNE-NEW YORK CO., INC. NEW YORK, N.
WATER SUPPLY CONTRACTORS

CITY OF CORNING
CORNING, N.Y.

DRAWN BY R.K.H. APPROVED BY W.A.N.
WELL NO. 1 DRAWING NO.

AECOM

WELL NO. MW-1

WELL SAMPLING FORM	PROJECT Crystal Cleaners	PROJECT No. 106774-2.1	SHEET 1 OF 1 SHEETS
LOCATION 343 West Pulteney St., Corning, NY		DATE WELL STARTED December 2, 2009	DATE WELL COMPLETED December 2, 2009
CLIENT NYSDEC		NAME OF INSPECTOR Vipul Mehra - AECOM, Dan P - YEC	
DRILLING COMPANY None		SIGNATURE OF INSPECTOR	

THREE WELL VOLUME : 7 Gallons WELL TD: 29.9 ft PUMP INTAKE DEPTH: 25 ft

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	pH	Conduct. (ms/cm)	DO (mg/L)	ORP (mV)	Turbidity (ntu)	
9:16	15.92								Before Purging
9:30	15.95	300	11.06	7.79	740	2.76	143.6	122.1	Pump On
9:45	15.95	300	11.66	7.54	734	2.2	132.4	29.6	
10:00	15.95	300	11.87	7.54	736	1.55	126.3	14.3	
10:15	15.95	300	11.88	7.54	733	1.47	115.5	6.7	
10:20	15.95	300	11.93	7.55	735	1.4	109	5.0	
10:30	15.95	300	11.94	7.54	735	1.39	106.8	3.7	
10:35									MW-1 collected @ 10:35
11:15	15.96		11.49	7.58	731	1.37	112.6	4.6	

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, MNA, and TAL Metals

AECOM

WELL NO. MW-2

WELL SAMPLING FORM

PROJECT: Crystal Cleaners
PROJECT No.: 106774-2.1
SHEET 1 OF 1 SHEETS
LOCATION: 343 West Pulteney St., Corning, NY
DATE WELL STARTED: December 2, 2009
DATE WELL COMPLETED: December 2, 2009
CLIENT: NYSDEC
NAME OF INSPECTOR: Vipul Mehra - AECOM, Dan P - YEC
DRILLING COMPANY: None
SIGNATURE OF INSPECTOR:

THREE WELL VOLUME : 7.5 Gallons
WELL TD: 29.88 ft
PUMP INTAKE DEPTH: 25 ft

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	pH	Conduct. (ms/cm)	DO (mg/L)	ORP (mV)	Turbidity (ntu)	
12:30	14.54								Before Purging
12:35	14.58	280	12.63	7.67	986	3.7	115.4	20.2	Pump On
12:50	14.58	280	12.87	7.49	996	2.88	115.4	3.5	
13:05	14.58	280	12.87	7.49	996	2.89	113.9	2.8	
13:15	14.58	280	12.91	7.47	998	2.88	111.5	2.0	
13:25									MW-1 collected @ 10:35
13:50	14.55	280	12.63	7.47	992	3.01	110.9	3.4	

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, MNA, and TAL Metals

WELL NO. MW-3

WELL SAMPLING FORM	PROJECT Crystal Cleaners	PROJECT No. 106774-2.1	SHEET 1 OF 1 SHEETS
LOCATION 343 West Pulteney St., Corning, NY		DATE WELL STARTED December 2, 2009	DATE WELL COMPLETED December 2, 2009
CLIENT NYSDEC		NAME OF INSPECTOR Vipul Mehra - AECOM, Dan P - YEC	
DRILLING COMPANY None		SIGNATURE OF INSPECTOR	

THREE WELL VOLUME : 11.2 Gallons WELL TD: 34.9 ft PUMP INTAKE DEPTH: 30 ft

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS Temp. (ºC)	pH	Conduct. (ms/cm)	DO (mg/L)	ORP (mV)	Turbidity (ntu)	REMARKS
15:00	12.04								Before Purging
15:05	12.04	300	14.30	7.37	2184	3.52	116.8	306.7	Pump On
15:15	12.04	300	14.27	7.19	2173	0.77	121.9	285.6	
15:25	12.04	300	14.34	7.17	2162	0.59	122.2	243.7	
15:35	12.04	300	14.33	7.17	2146	0.59	118.6	205.1	
15:45	12.04	300	14.34	7.16	2132	0.59	115.7	206.5	
15:55	12.04	300	14.30	7.17	2111	0.59	113.2	195.3	
16:05	12.04	300	14.31	7.17	2084	0.60	110.1	167.8	
16:10									MW-3 collected @ 16:10
16:20									MW-3 DUP collected @ 16:20
16:30	12.04	300	14.30	7.17	2104.00	0.59	112.4	140	

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, MNA, and TAL Metals

AECOM

WELL NO. MW-4

WELL SAMPLING FORM

PROJECT: Crystal Cleaners

PROJECT No.: 106774-2.1

SHEET 1 OF 1 SHEETS

LOCATION: 343 West Pulteney St., Corning, NY

DATE WELL STARTED: December 3, 2009

DATE WELL COMPLETED: December 3, 2009

CLIENT: NYSDEC

NAME OF INSPECTOR: Vipul Mehra - AECOM, Dan P - YEC

DRILLING COMPANY: None

SIGNATURE OF INSPECTOR:

THREE WELL VOLUME : 11.55 Gallons WELL TD: 34.88 ft PUMP INTAKE DEPTH: 30 ft

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	pH	Conduct. (ms/cm)	DO (mg/L)	ORP (mV)	Turbidity (ntu)	
14:45	11.28								Before Purging
14:50	11.28	300							Pump On
15:10	13.05	300	12.93	7.69	1352	0.87	53.4	160.1	
15:20	13.05	300	13.19	7.59	1421	0.61	37.6	37.1	
15:30	13.06	300	13.23	7.57	1470	0.82	29.2	17.7	
15:40	13.06	300	13.24	7.55	1495	1.03	27.8	8.4	
15:50	13.06	300	13.26	7.55	1503	1.04	28.1	6.4	
16:00	13.06	300	13.28	7.55	1507	1.07	28.6	4.2	
16:10									MW-4 collected @ 16:10
16:30	12.55	300	13.68	7.44	1468	0.93	30.4	12.8	

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, MNA, and TAL Metals

AECOM

WELL NO. MW-5

WELL SAMPLING FORM	PROJECT Crystal Cleaners	PROJECT No. 106774-2.1	SHEET 1 OF 1 SHEETS
LOCATION 343 West Pulteney St., Corning, NY		DATE WELL STARTED December 3, 2009	DATE WELL COMPLETED December 3, 2009
CLIENT NYSDEC		NAME OF INSPECTOR Vipul Mehra - AECOM, Dan P - YEC	
DRILLING COMPANY None		SIGNATURE OF INSPECTOR	

THREE WELL VOLUME : 17.82 Gallons WELL TD: 54.95 ft PUMP INTAKE DEPTH: 50 ft

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	pH	Conduct. (ms/cm)	DO (mg/L)	ORP (mV)	Turbidity (ntu)	
8:30	18.50								Before Purging
8:45	18.61	300							Pump On
9:00	18.64	300							Turbidity too high for readings
9:10	18.64	300	12.75	7.73	1040	1.04	-90.8	1179.0	
9:20	18.64	300	12.67	7.55	1028	0.82	-110.6	912.0	
9:30	18.64	300	12.56	7.52	1034	0.44	-124.6	870.0	
9:40	18.64	300	12.59	7.52	1032	0.35	-130.9	726.0	
9:50	18.64	300	12.64	7.52	1027	0.43	-133.5	462.0	
10:00	18.64	300	12.61	7.52	1023	0.45	-133.8	326.8	
10:10	18.64	300	12.59	7.52	1022	0.48	-133.8	181.1	
10:20	18.64	300	12.58	7.52	1021	0.49	-133.5	144.0	
10:30	18.64	300	12.58	7.52	1022	0.49	-133.4	97.0	
10:45									MW-5 collected @ 10:45
11:00	18.60	300	12.61	7.52	1020	0.51	-129.5	80.1	

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, MNA, and TAL Metals

AECOM

WELL NO. MW-6

WELL SAMPLING FORM	PROJECT Crystal Cleaners	PROJECT No. 106774-2.1	SHEET 1 OF 1 SHEETS
LOCATION 343 West Pulteney St., Corning, NY		DATE WELL STARTED December 3, 2009	DATE WELL COMPLETED December 3, 2009
CLIENT NYSDEC		NAME OF INSPECTOR Vipul Mehra - AECOM, Dan P - YEC	
DRILLING COMPANY None		SIGNATURE OF INSPECTOR	

THREE WELL VOLUME : 17.07 Gallons WELL TD: 54.7 ft PUMP INTAKE DEPTH: 50 ft

Time	Depth to Water (ft)	Purge Rate (ml/min)	FIELD MEASUREMENTS						REMARKS
			Temp. (ºC)	pH	Conduct. (ms/cm)	DO (mg/L)	ORP (mV)	Turbidity (ntu)	
11:40	19.82								Before Purging
12:05	19.84	300							Pump On
12:15	19.84	300	12.49	7.52	1085	0.69	-70.3	1040.0	
12:25	19.84	300	12.46	7.50	1083	0.52	-93.2	730.0	
12:40	19.84	300	12.41	7.50	1084	0.43	-102.2	447.1	
12:50	19.84	300	12.39	7.49	1082	0.37	-117.2	410.0	
13:00	19.84	300	12.37	7.49	1082	0.35	-122.4	367.1	
13:10	19.84	300	12.39	7.49	1082	0.36	-128.6	296.0	
13:20	19.84	300	12.31	7.49	1082	0.37	-133.1	90.0	
13:30									MW-6 collected @ 13:30
14:00	19.84	300		7.48	1077	0.46	-140.3	23.2	

Pump Type: Bladder pump with dedicated tubing for sampling

Analytical Parameters: VOCs, MNA, and TAL Metals

Non Hazardous Manifest/Bill Of Lading

All Correspondence and Invoices to:
Environmental Waste Minimization, Inc.
& Rapid Response, Inc.
14 Brick Kiln Court
Northampton, PA 18067
Phone 484-275-6900
Fax 484-275-6970

Document # 20117

Job/Project # 103584

THIS SECTION TO BE COMPLETED BY GENERATOR:

COMPANY NAME/ADDRESS
NYSDEC/CRYSTAL CLEANERS
343 PULTENEY STREET
CORNING, NY 14830

IN CASE OF EMERGENCY OR SPILL CONTACT
RAPID RESPONSE INC

24 HOUR EMERGENCY PHONE #
877-460-1038

QUANTITY	SIZE/TYPE	DESCRIPTION	APPROVAL CODE	WEIGHT/VOLUME
6	55DM	SOIL DOT/RCRA NON REGULATED	0911-284 SPT	3600P
11	55DM	PURGE WATER DOT/RCRA NON REGULATED	0911-285 LWT	4000P
1	55DM	PPE, DOT/RCRA Non Regulated		150P

I Hereby certify that the above named waste(s) are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the DOT and the EPA.

GENERATOR'S SIGNATURE

PRINT NAME [illegible]

DATE 12-04-09

THIS SECTION TO BE COMPLETED BY HAULER / TRANSPORTER:

COMPANY NAME ENVIRONMENTAL WASTE MINIMIZATION INC

ADDRESS 14 BRICK KILN CT NORTHAMPTON, PA 18067

PHONE NO. (484 275 6900

VEHICLE I.D. NO. T-139

STATE PA

BOX NUMBER-IN

BOX NUMBER-OUT

COMMENTS

I Hereby certify that the above described waste(s) were accepted for transportation at the producer's site for delivery to the waste facility. Both as listed hereupon.

DRIVER'S SIGNATURE

PRINT DRIVER'S NAME Scott Stanczewski

DATE 12-04-09

THIS SECTION TO BE COMPLETED BY RECEIVER AT DISPOSAL FACILITY: (ONCE SIGNED, A COPY MUST BE FORWARDED TO EWMI AND GENERATOR).

FACILITY NAME ENVIRONMENTAL RECOVERY CORPORATION

ADDRESS 1076 OLD MANHEIM PIKE LANCASTER, PA 17601

PHONE NO. 717-393-2627

COMMENTS

I Hereby certify that the above described wastes were delivered to this Facility, that the Facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

PRINT NAME

DATE

Environmental Waste Minimization, Inc.
EWMI
Tel (484) 275-6900 (484) 275-6970 Fax
www.ewmi-info.com

RAPID RESPONSE, INC.
An Affiliate of EWMI
24/7/365 877-460-1038
www.rri-hazmat.com

DAILY RECORD

Project #: 103584
Date: 12-04-09 **Day:**
Customer: NYSDEC - Crystal Cleaners
Customer Contact: Vipul Mehea
Job Location: Corning, NY
Customer Phone: 973-568-9260
Customer Fax:

NAMES	CODE	START	O.S. START	O.S. FINISH	FINISH	TOTAL HOURS
Scott S		8:00	8:45	10:00		
Erik B		↓	↓	↓		

QTY	MATERIALS / CONSUMABLES
2	PPE Level - (Circle One) Mod - D [✓ D] C B
	PPE Level - (Circle One) Mod - D D C B

SUBCONTRACTOR	CODE	START	O.S. START	O.S. FINISH	FINISH	TOTAL HOURS

EQUIPMENT	QTY
T-139	1
Drum cart	1

EQUIPMENT	QTY
	(ERC)

DISPOSAL/MANIFEST
20117

JOB DESCRIPTION / REMARKS

- Fixed leaking drums
- Marked, labeled, & loaded drums

Weather:
Temperature: °F
Signature: Customer Vipul Meh.
EWMI / RRI: Scott [illegible]
Date: 12-04-09
Date: 12-04-09

Original – Customer Copy

Indoor Air Sampling

To avoid potential interferences and dilution effects, occupants should make a reasonable effort to avoid the following for 24 hours prior to and during sampling:

- Opening any windows, fireplace dampers, openings or vents;
- Operating ventilation fans unless special arrangements are made;
- Smoking in the building;
- Painting;
- Using a wood stove, fireplace or other auxiliary heating equipment (e.g., kerosene heater);
- Operating or storing automobile in an attached garage;
- Allowing containers of gasoline or oil to remain within the house or garage area, except for fuel oil tanks;
- Cleaning, waxing or polishing furniture, floors or other woodwork with petroleum- or oil-based products;
- Using air fresheners, scented candles or odor eliminators;
- Engaging in any hobbies that use materials containing volatile chemicals;
- Using cosmetics including hairspray, nail polish, nail polish removers, perfume/cologne, etc.;
- Lawn mowing, paving with asphalt, or snow blowing;
- Applying pesticides;
- Using building repair or maintenance products, such as caulk or roofing tar; and
- Bringing freshly dry-cleaned clothing or furnishings into the building.

Pick up
at 0530
3/4/09

H01

AIR SAMPLING RECORD

Inspector VM

Date 3/3/09

Site Name Crystal Cleaners

Sample ID and Type (indoor air, ~~outdoor air, vapor probe*~~) First Floor
*** purge 3 system volumes (about 0.1 liter total) prior to sampl**
Sample Location (sketch and/or description)

Canister # 4108 **Regulator #** 4495

Planned Sample Duration 24 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1910	-28 inch Hg	0 3
In Process#1*	0700 (3/4/09)	-17	
In Process #2**			
In Process #3**			
End	17:46	-8	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: corner of the living room

Photo of Sample taken? ____ [✓ Y]/[✓ N] 4'

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ____________ **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM SC

Date 3/3/09

Site Name Crystal Cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) Sub-slab

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 3334 **Regulator #** 4751

Planned Sample Duration 24hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1905 1905	-26 inch Hg	3.9
In Process #1*	0700 (3/4/09)	-17.5	
In Process #2**			
In Process #3**			
End	17:40	-8.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes: Slab 6" thick

42, 43

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ____ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ______ **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name crystal Cleaners

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4116 **Regulator #** 4744

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	840	-30 inch Hg	
In Process #1**			
In Process #2**			
In Process #3**			
End	0812	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

69, 68, 70.

Photo of Sample taken? [✓ Y]/N

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? 0.1 **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name Crystal Cleaners

Basement - Duplicate

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3657 **Regulator #** 3652

Planned Sample Duration 24hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	0840	-30	0.1
In Process #1*			
In Process #2**			
In Process #3**			
End	08'.12	-8.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ____ Y/[✓ N] (required for some subsurface vapor points)

PID or other readings in area? 0.1 **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name Crystal Cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-4
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4459 **Regulator #** 4760

Planned Sample Duration 24hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	0855	-30 inch	Good
In Process #1**			
In Process #2**			
In Process #3**			
End	8:15	-8	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N 71, 72

Helium Leak Test? ____ Y/[✓ N] (required for some subsurface vapor points)

PID or other readings in area? 0.0 **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name Crystal cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) First Floor
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3073 **Regulator #** 4733

Planned Sample Duration 24 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	0850	-30 inch Hg	0.1
In Process #1*			
In Process #2**			
In Process #3**			
End	0810	-8.0	good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N 70

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? 0.1 **Note time, type of readings and results**

Time	Time of Reading	Result

H03

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/13/09

Site Name Crystal cleaners

First Floor

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Indoor Air sample
First Floor

Canister # 4113

Regulator # 3100

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1015	-30 inch Hg.	~~0.1 ppm~~ 0 ppm
In Process #1			
In Process #2**			
In Process #3**			
End	09:35	-4.0	Good

*write "undisturbed" or note any problems with sample set-up
** At least one in process inspection must be conducted

General Notes:

Photo of Sample taken? ______ [✓ Y] N 72, 73 78, ~~79 (Basement)~~ ~~80~~

Mihir's & Priyal's camera
↓ Fuji
1788~~7~~

Helium Leak Test? ________ Y [✓ N] (required for some subsurface vapor points)

PID or other readings in area? 0 ppm Note time, type of readings and results

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC **Date** 3/3/09

Site Name Crystal Cleaners

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3349 **Regulator #** 3058

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1020	-28~~0~~ inches Hg	0.1 ppm
In Process #1		~~-20~~	
In Process #2**			
In Process #3**			
End	09:33	-20	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: Air Draft from crawl space noticed, water stain on floor, damp basement.

79 —

Photo of Sample taken? ____ [✓ Y]/N 78, 79, 80 (Basement) MIMNs & (Priya's camera) 1786

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? 0.1 ppm **Note time, type of readings and results**

Time	Time of Reading	Result

H04

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air Sample

*** purge 3 system volumes (about 0.1 liter total) prior to sample** First Floor

Sample Location (sketch and/or description)

Canister # 3322 **Regulator #** 4512

Planned Sample Duration 24hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	16:10	above -30.0	Good
In Process #1			
In Process #2**			
In Process #3**			
End	16:12	-10.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N 1764-1765, 1800-1801, 1799

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result
15:20	15:20	0.1 ppm

AIR SAMPLING RECORD

Inspector Mihir Cholcshi, Prizal Pandya **Date** 03/~~08~~39/09

Site Name Crystal Cleaners, Corning, NY

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 2687 **Regulator #** 4732

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	16:15	-29.0	Good
In Process #1			
In Process #2**			
In Process #3**			
End	15:20	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N 17~~60~~59 - 1763

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result
15. 22	15:22	0.1 ppm

H05

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/3/09

Site Name crystal cleaner

First Floor

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4779 **Regulator #** 4770

Planned Sample Duration ______

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1345	-29 inch Hg	
In Process #1**			
In Process #2**			
In Process #3**			
End	13:47	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: Kept in Dinning

Photo of Sample taken? _____ [✓ Y]/N

Helium Leak Test? _____ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? 0.2 **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/3/09

Site Name Crystal cleaner

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-3
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3006

Regulator # 3490

Planned Sample Duration 24 hr.

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1402	-30 inch	0.3 ppm
In Process #1**			
In Process #2**			
In Process #3**			
End	13:39 ~~13:45~~	-12.0 ~~-2.0~~	Good ~~Good~~

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ______ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ~~ppb Rae~~ **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC **Date** 3/3/09

Site Name Crystal Cleaners

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4372 **Regulator #** 3773

Planned Sample Duration ____________

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1340	-28	0 ppm
In Process #1			
In Process #2**			
In Process #3**			
End	13:45	-2.0	ppm

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: hole in the floor exposed soil
56, 57, 58, 59

Photo of Sample taken? ______ [✓ Y]/N

Helium Leak Test? ________ Y/N (required for some subsurface vapor points)

PID or other readings in area? 0 ppm **Note time, type of readings and results**

Time	Time of Reading	Result

H07

AIR SAMPLING RECORD

Inspector VM, PGP

Date 03/26/09

Site Name Crystal Cleaners, NY

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # ~~3954~~ 3162 **Regulator #** 3954

Planned Sample Duration ____________

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	15:35	-29.0	Good
In Process #1**			
In Process #2**			
In Process #3**			
End	15:30	-0.0	good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, PGP

Date 03/26/09

Site Name Crystal Cleaners

First Floor

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4565

Regulator # 4201

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	15:30	-27.0	Good
In Proce[illegible]#1*			
In Process #2**			
In Process #3**			
End	15:30	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
	15:25	0.0 ppm

H08

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name Crystal Cleaners.

Sub-Slab

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 2587

Regulator # 3376

Planned Sample Duration ~~24~~ 8 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	0945	-30 inch Hg	7.9 ppm
In Process #1**			
In Process #2**	15:35	-8	Good
In Process #3**			
End	16:30	-8	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: 5" subslab 73, 74

Photo of Sample taken? ____ [✓ Y]/N 1803

Helium Leak Test? ________Y/N (required for some subsurface vapor points)

PID or other readings in area? 0.3 ppm **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM SC

Date 3/4/09

Site Name Crystal cleaner

First Floor

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4069

Regulator # 3238

Planned Sample Duration ~~24~~ 8 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	0945	-28 inch Hg	0.2 ppm
In Process #1*			
In Process #2**	~~8~~ 15:35	-8	Good
In Process #3**			
End	16:33	-8	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

Same room as the SS

General Notes:

Photo of Sample taken? [✓ Y]/[✓ N] 75 1802, 1.~~1801~~

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ________ **Note time, type of readings and results**

Time	Time of Reading	Result

H09

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/3/09

Site Name Crystal Cleaners

First Floor

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4447 **Regulator #** 3938

Planned Sample Duration 24hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1235	-28 inch	0.4
In Process #1	1207	-7 inch	
In Process #2**			
In Process #3**			
End			

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: 63 In the living room, on chair

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ____________ **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/3/09

Site Name Crystal Cleaners

Sub-Slab

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4462 **Regulator #** 3739

Planned Sample Duration 24 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1233	-26 inch Hg	4.0 ppm
In Process #1	1158	-1.0	
In Process #2**			
In Process #3**			
End			

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: Slab is app 4-5" thick
64 — 68.

Photo of Sample taken? ______ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? 0.2 ppm **Note time, type of readings and results**

Time	Time of Reading	Result

H09

AIR SAMPLING RECORD

Inspector VM, PGP

Date 03/26/09

Site Name Crystal Cleaners, NY

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 4172 **Regulator #** 3997

Planned Sample Duration 24 hrs.

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	11:55	-30.0 in. Hg	Good
In Process #1*			
In Process #2**			
In Process #3**			
End	11:28	-4.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result ppm
	11:57	0.0

H10

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description) First Floor

Canister # 4809 **Regulator #** 2758

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1635	-30.0	Good
In Process #1			
In Process #2**			
In Process #3**			
End	16:03	-8.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N 1766-1770, 1797, 1798

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result ppm
17:00	17:00	0.2

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Sub-Slab

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 3434 **Regulator #** 30858

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	17:00	-29.0	Good
In Process #1			
In Process #2**			
In Process #3**			
End	16:02	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____[✓ Y]/N 1771-1776, 1796

Helium Leak Test? ________Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result (ppm)
16:47	16:47	2.8

AIR SAMPLING RECORD

Inspector VM, PGP

Date 03/26/09

Site Name Crystal Cleaners

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3460 **Regulator #** 3744

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	14:58	-30	Good
In Process #1			
In Process #2**			
In Process #3**			
End	13:06	-6.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
~~10~~ 15:00	15:00	0

AIR SAMPLING RECORD

Inspector VM, PGP

Date 03/26/09

Site Name Crystal Cleaners

Basement - Duplicate

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3439 3514 **Regulator #** 3439

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	14:58	-28	Good
In Process #1*			
In Process #2**			
In Process #3**			
End	13:05	-5.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
15:00	15:00	0

H11

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air Sample
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description) Basement

Canister # 3210 **Regulator #** 4747

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	09:05	-30.0	Good
In Process #1		~~-4.0~~	
In Process #2**			
In Process #3**			
End	08:30	-4.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N 1738, 1739, 1786 ~~1785~~

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air Sample

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description) First floor

Canister # 4428 **Regulator #** 4044

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	09:10	-30.0	Good
In Process #1		-20	
In Process #2**			
In Process #3**			
End	08:32	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1784

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result

H12

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air Sample

*** purge 3 system volumes (about 0.1 liter total) prior to sample** Basement

Sample Location (sketch and/or description)

Canister # 2897 **Regulator #** 3687

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure (in Hg)	Condition*
Start	13:00	-30.0	Good
In Process #1			
In Process #2**			
In Process #3**			
End	12:51	-8.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N 1749, 1750, ~~17~~ to 1757, 1793

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result
12:52	12:52	0.1 ppm

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air Sample

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description) First Floor

Canister # 4362 **Regulator #** 4030

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	13:10	-26.0	Good
In Process #1			
In Process #2**			
In Process #3**			
End	12:50	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N 1758, 1757, 1792

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result
12:50	12:50	0.4 ppm (Background)

H13

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*) __

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 4285 **Regulator #** 3778

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	11:30	-29.0	good
In Process #1			
In Process #2**			
In Process #3**			
End	11:20	-8.0	good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? _____[✓ Y]/N ~~1744~~, 1740, 1741, 1742, 1743, 1744

Helium Leak Test? ________Y/[✓ N](required for some subsurface vapor points) 17, 89

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air Sample
*** purge 3 system volumes (about 0.1 liter total) prior to sample** First Floor
Sample Location (sketch and/or description) B

Canister # 3427 **Regulator #** 3546

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	11:35	-30.0	Good
In Process #1			
In Process #2**			
In Process #3**			
End	11:30	-4.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____[✓ Y]/N 1745, 1746, 1791

Helium Leak Test? ________Y/[✓ N](required for some subsurface vapor points)

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector Mihir Chokshi, Priyal Pandya **Date** 03/03/09

Site Name Crystal Cleaners, Corning, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air Sample

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description) First Floor
A

Canister # 3339 **Regulator #** 3976

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	11:40	-29.5	Good
In Process #1			
In Process #2**			
In Process #3**			
End	11:22	-4.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? [✓ Y]/N 1747, 1748, 1790

Helium Leak Test? Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ppb Rae **Note time, type of readings and results**

Time	Time of Reading	Result

H14

AIR SAMPLING RECORD

Inspector ~~Crystal Cleaners~~ VM SC

Date 3/3/09

Site Name Crystal Cleaners

First Floor

Sample ID and Type (indoor air, outdoor air, vapor probe*) ______

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 3504

Regulator # 3375

Planned Sample Duration 24 hr.

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1555	-28 mm Hg.	0.3
In Process #1			
In Process #2**			
In Process #3**			
End	1505	-1.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y] N 54, 55

Helium Leak Test? ________ Y/ [✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? 0.3 **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/3/09

Site Name crystal cleaners

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*) _

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 3009 **Regulator #** 4749

Planned Sample Duration 24hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1545	-28 inch pH	0.2 ppm
In Process#1*			
In Process #2**			
In Process #3**			
End	1507	-2.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes: Damp soil at the bottom of the sump, indoor air sample taken near the sump

Photo of Sample taken? ____ [✓ Y]/N ~~54, 53, 56, 55~~ 51, 52, 53

Helium Leak Test? _______ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? 0.2 ppm **Note time, type of readings and results**

Time	Time of Reading	Result

H15

AIR SAMPLING RECORD

Inspector VM, PGP

Date 03/26/09

Site Name Crystal Cleaners, NY

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3632 **Regulator #** 4526

Planned Sample Duration ________

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	16:40	-26.0	Good
In Process #1*			
In Process #2**			
In Process #3**			
End	15:30	-4.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ____ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
16	16:38	0.0 ppm

H16

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name crystal cleaners

Basement

Sample ID and Type (indoor air, outdoor air, vapor probe*) ____________
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3232 **Regulator #** 4055

Planned Sample Duration 24hr

Pressure Readings and Times:

	Time	Pressure ("Hg)	Condition*
Start	11:09	-26.0	Open.
In Process #1**			
In Process #2**			
In Process #3**			
End	8:50	-6.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: spillage staining on the floor.

Photo of Sample taken? ______ [✓ Y]/N

Helium Leak Test? ______ Y/[✓ N](required for some subsurface vapor points)

PID or other readings in area? 0 **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name Crystal cleaners

First Floor

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3644

Regulator # 4742

Planned Sample Duration 24 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1114	-30 in of Hg	0 ppm
In Process #1**			
In Process #2**			
In Process #3**			
End	09:50	-8.0	

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: 2 Boxes of Boiler Guard (12 x 1 Gall), Manuf. LAIDLAW

Photo of Sample taken? [✓ Y]/N

Helium Leak Test? Y/[✓ N] (required for some subsurface vapor points)

PID or other readings in area? 0 ppm **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name Crystal Cleaner

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-5

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 4782 **Regulator #** 2815

Planned Sample Duration 24 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	10·13	-30 in Hg	0.1 ppm
In Process #1**			
In Process #2**			
In Process #3**			
End	09:05	-6.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes: Front of the bank

Photo of Sample taken? ____ [✓ Y] N 76

Helium Leak Test? ____ Y [✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ____________ **Note time, type of readings and results**

Time	Time of Reading	Result

H17

AIR SAMPLING RECORD

Inspector VM, PGP

Date 03/26/09

Site Name Crystal Cleaness, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Sub-Slab

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description) Furnas Room

Canister # 4816 **Regulator #** 3023

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	9:35	-30.0	Good
In Process #1**	12:56	-26.0	Good
In Process #2**			
In Process #3**			
End	8:16	-6.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
~~12:30~~ 9:30	0.0 ppm	0.0 ppm

AIR SAMPLING RECORD

Inspector VM, PGP **Date** 03/26/09

Site Name Crystal Cleaners, NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Indoor Air
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description) Furnace room

Canister # 2885 **Regulator #** 4035

Planned Sample Duration ________

Pressure Readings and Times:

	Time	Pressure In. Hg	Condition*
Start	9:40	-30.0	Good
In Process #1*	12:57	-27.0	Good
In Process #2**			
In Process #3**			
End	8:33	-8.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ____ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
	9:30	0.0 ppm

AIR SAMPLING RECORD

Inspector VM, PAP **Date** 03/26/09

Site Name Crystal Cleaners, NY

Sub-Slab

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3145 **Regulator #** 3449

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	**Pressure** in Hg	**Condition***
Start	10:05	-30.0	Good
In Process #1*	12:55	-28.0	Good
In Process #2**			
In Process #3**			
End	8:27	-6.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ______ [✓ Y]/N

Helium Leak Test? ______ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	**Time of Reading**	**Result** ppm
	9:50	2.5

AIR SAMPLING RECORD

Inspector VM, PaP

Date 03/26/09

Site Name Crystal Cleaners, NY

Indoor Air

Sample ID and Type (indoor air, outdoor air, vapor probe*)
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 2899 **Regulator #** 3693

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure In Hg	Condition*
Start	10:10	-30	Good
In Process#1**	12:55	-27 ~~-28~~	Good
In Process #2**			
In Process #3**			
End	8:19	-6.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____[✓ Y]/N

Helium Leak Test? ________Y/[✓ N](required for some subsurface vapor points)

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
	10:00	0.0

Trip Blank AIR SAMPLING RECORD

Inspector VM, PGP **Date** 03/03/09

Site Name Crystal Cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) Trip Blank
* purge 3 system volumes (about 0.1 liter total) prior to sample
Sample Location (sketch and/or description)

Canister # 3537 **Regulator #** ________

Planned Sample Duration ________

Pressure Readings and Times:

	Time	Pressure	Condition*
Start			
In Proces[illegible]#1*			
In Process #2**			
In Process #3**			
End			

*write "undisturbed" or note any problems with sample set-up
** At least one in process inspection must be conducted

General Notes:

Photo of Sample taken? _____ **Y/N**

Helium Leak Test? ________ **Y/N (required for some subsurface vapor points)**

PID or other readings in area? ________ **Note time, type of readings and results**

Time	Time of Reading	Result

AIR SAMPLING RECORD

Inspector ~~V,M~~ VM, PGP **Date** 03/27/09

Site Name Crysta Cleaners NY

Sample ID and Type (indoor air, outdoor air, vapor probe*) Trip Blank.

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 3666 **Regulator #** ________

Planned Sample Duration ________

Pressure Readings and Times:

	Time	Pressure	Condition*
Start			
In Process #1**			
In Process #2**			
In Process #3**			
End			

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ Y/[✓ N]

Helium Leak Test? ______ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ________ **Note time, type of readings and results**

Time	Time of Reading	Result

Ambient Air Sample **AIR SAMPLING RECORD**

Inspector VM SC **Date** 3/3/09

Site Name crystal cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-1

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 4016 **Regulator #** 3302

Planned Sample Duration 24hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1030	-28 inch Hg	0 ppm
In Process #1			
In Process #2**			
In Process #3**			
End	1015	-8	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

MiMA's &
(Priyal's camara)
↓ fuji
1788

Photo of Sample taken? ____ [✓ Y]/N 70, 71, 69

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ____________ **Note time, type of readings and results**

Time	Time of Reading	Result

Ambient Air Sample AIR SAMPLING RECORD

Inspector VM, SC

Date 3/3/09

Site Name Crystal cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-2 (4242 Key)

*** purge 3 system volumes (about 0.1 liter total) prior to sampl**

Sample Location (sketch and/or description)

Canister # 4158

Regulator # 3295

Planned Sample Duration 24 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1243	-28 inch Hg	0.1 ppm
In Process #1*			
In Process #2**			
In Process #3**			
End	13:10	~~8~~ -10.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes: 59, 58, 57

Photo of Sample taken? ______ [✓ Y]/N

1794

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ______________ **Note time, type of readings and results**

Time	Time of Reading	Result

Ambient Air Sample AIR SAMPLING RECORD

Inspector VM, SC

Date 3/3/09

Site Name Crystal cleaner

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-3
*** purge 3 system volumes (about 0.1 liter total) prior to sample** (6553)
Sample Location (sketch and/or description)

Canister # 3006 **Regulator #** 3490

Planned Sample Duration 24 hr.

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	1402	-30 inch	0.3 ppm
In Process #1*			
In Process #2**			
In Process #3**			
End	13:39 ~~13:45~~	-12.0 ~~-2.0~~	Good ~~Good~~

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? ~~ppb Rae~~ **Note time, type of readings and results**

Time	Time of Reading	Result

Ambient Air Sample AIR SAMPLING RECORD

Inspector VM, SC

Date 3/4/09

Site Name Crystal Cleaner

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-5
* purge 3 system volumes (about 0.1 liter total) prior to sample
Sample Location (sketch and/or description)

Canister # 4782 **Regulator #** 2815

Planned Sample Duration 24 hr

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	10.13	-30 inch	0.1 ppm
In Process #1*			
In Process #2**			
In Process #3**			
End	09:05	-6.0	Good

*write "undisturbed" or note any problems with sample set-up
** At least one in process inspection must be conducted

General Notes:

Photo of Sample taken? ______ [✓ Y]/N 76

Helium Leak Test? ________ Y/[✓ N] (required for some subsurface vapor points)

PID or other readings in area? ____________ **Note time, type of readings and results**

Time	Time of Reading	Result

6553

AIR SAMPLING RECORD

Inspector VM, PGP **Date** 03/26/09

Site Name Crystal Cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-1

*** purge 3 system volumes (about 0.1 liter total) prior to sample**

Sample Location (sketch and/or description)

Canister # 4133 **Regulator #** 3469

Planned Sample Duration 24 hrs

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	10:57	in Hg ~~120~~ -30.0	Good
In Process#1*	~~10:~~ 12:59	-29.0	Good
In Process #2**			
In Process #3**			
End	10:15	-5.0	Good

***write "undisturbed" or note any problems with sample set-up**

**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result ppm
	10:50	0.0

AIR SAMPLING RECORD

Inspector VM, PGP **Date** 03/26/09

Site Name Crystal Cleaners

Sample ID and Type (indoor air, outdoor air, vapor probe*) AMB-2
*** purge 3 system volumes (about 0.1 liter total) prior to sample**
Sample Location (sketch and/or description)

Canister # 3569 **Regulator #** 3490

Planned Sample Duration ________

Pressure Readings and Times:

	Time	Pressure	Condition*
Start	15:35	-28.0	Good
In Process #1*			
In Process #2**			
In Process #3**			
End	11:15	-4.0	Good

***write "undisturbed" or note any problems with sample set-up**
**** At least one in process inspection must be conducted**

General Notes:

Photo of Sample taken? ____ [✓ Y]/N

Helium Leak Test? ________ Y/[✓ N] **(required for some subsurface vapor points)**

PID or other readings in area? Mini Rae **Note time, type of readings and results**

Time	Time of Reading	Result
	~~15:36~~ 15:37	0.0 ppm

Summa Canister Sampling Field Data Sheet

Site: Crystal Cleaners (60134118)

Samplers: Celeste Foster (AECOM), Peter Lawler (YEC)

Date: 2/13 to 2/14/2010

Sample#	H01-IA-20100213	H01-SS-20100213	H02-IA-20100213	H02-SS-20100213	H52-SS-20100213	H02-OA-20100213
Structure	H01	H01	H02	H02	H02	H02
Summa Canister ID	2743	4017	3025	4786	3526	4431
Flow Controler ID	4179	2775	4491	2528	3469	4937
Additional Tubing Added	NA	Yes	NA	Yes	←	NA
How much (ft)?	NA	3	NA	3	←	NA
Purge Time (Start)	NA	1023	NA	1336	←	NA
Purge Time (Stop)	NA	1028	NA	1341	←	NA
Total Purge Time (min)	NA	5	NA	5	←	NA
Purge Volume (L)	NA	1	NA	1	←	NA
Purge PID (ppm)	NA	2	NA	2.5	←	NA
Pressure Gauge - Before Sampling (" Hg)	-29	-30	-29	-29	-30+	-30
Sample Time (Start)	1039	1041	1345	1346	1347	1350
Sample Time (Stop)	1015	1017	1307	1310	1309	1319
Total Sample Time (min)	1416	1416	1402	1404	1402	1409
Pressure Gauge - After Sampling (" Hg)	-6	-7	-5	-8	-5	-3
Background PID (ppm)	0.9-1.2 ppm	←	1	←	←	0
Sample Volume	6L	6L	6L	6L	6L	6L
Canitster Pressure Went to Ambient Pressure?	No	No	No	No	No	No
Weather 24 hours before and during sampling	20-30 degrees F, cloudy slight wind from N					

General Comments

1 canister and flow controller sent back unused

Summa Canister Sampling Field Data Sheet

Site: Crystal Cleaners (60134118)

Samplers: Celeste Foster (AECOM), Peter Lawler (YEC)

Date: 2/13 to 2/14/2010

Sample#	H03-SS-20100213	H03-IAB-20100213	H03-IAF-20100213	H04-SS-20100213	H04-IAB-20100213	H04-IAF-20100213
Structure	H03	H03	H03	H04	H04	H04
Summa Canister ID	3762	3927	4717	4018	4100	4436
Flow Controler ID	4940	4939	3470	4767	4729	3450
Additional Tubing Added	Yes	NA	NA	Yes	NA	NA
How much (ft)?	3	NA	NA	3	NA	NA
Purge Time (Start)	1416	NA	NA	1616	NA	NA
Purge Time (Stop)	1421	NA	NA	1621	NA	NA
Total Purge Time (min)	5	NA	NA	5	NA	NA
Purge Volume (L)	1	NA	NA	1	NA	NA
Purge PID (ppm)	1.4	NA	NA	0	NA	NA
Pressure Gauge - Before Sampling (" Hg)	-30	-28	-30	-29	-28	-28
Sample Time (Start)	1448	1440	1438	1641	1640	1638
Sample Time (Stop)	1407	1406	1405	1602	1601	1559
Total Sample Time (min)	1399	1406	1407	1401	1401	1401
Pressure Gauge - After Sampling (" Hg)	-8	-6	-8	-7	-6	-5
Background PID (ppm)	1	←	←	1.5	←	←
Sample Volume	6L	6L	6L	6L	6L	6L
Canitster Pressure Went to Ambient Pressure?	No	No	No	No	No	No
Weather 24 hours before and during sampling	20-30 degrees F, cloudy slight wind from N					

General Comments

1 canister and flow controller sent back unused

Summa Canister Sampling Field Data Sheet

Site: Crystal Cleaners (60134118)

Samplers: Celeste Foster (AECOM), Peter Lawler (YEC)

Date: 2/13 to 2/14/2010

Sample#	H05-SS-20100213	H05-IAB-20100213	H05-IAF-20100213
Structure	H05	H05	H05
Summa Canister ID	2588	4543	4452
Flow Controler ID	4102	4723	4055
Additional Tubing Added	Yes	NA	NA
How much (ft)?	3	NA	NA
Purge Time (Start)	1711	NA	NA
Purge Time (Stop)	1716	NA	NA
Total Purge Time (min)	5	NA	NA
Purge Volume (L)	1	NA	NA
Purge PID (ppm)	1.9	NA	NA
Pressure Gauge - Before Sampling (" Hg)	-30	-29	-27
Sample Time (Start)	1733	1732	1730
Sample Time (Stop)	1648	1647	1645
Total Sample Time (min)	1395	1395	1395
Pressure Gauge - After Sampling (" Hg)	-9	-6	-5
Background PID (ppm)	1.3	←	←
Sample Volume	6L	6L	6L
Canitster Pressure Went to Ambient Pressure?	No	No	No

Weather 24 hours before and during sampling: 20-30 degrees F, cloudy slight wind from N

General Comments

1 canister and flow controller sent back unused

Appendix D
Land Survey Results

CRYSTAL CLEANERS
CORNING, NY

WELL I.D.	NORTHING	EASTING	CASING	PVC	GROUND
MW-1	785130.13	686654.67	938.60	938.07	938.60
MW-2	784795.55	686778.57	934.79	934.48	934.79
MW-3	784498.23	686892.25	932.00	931.72	932.00
MW-4	784462.34	687455.15	932.98	932.62	932.98
MW-5	784016.66	687075.01	933.26	932.55	933.26
MW-6	784104.60	687770.92	933.40	932.85	933.40
HP-1	784795.10	686780.52			934.80
HP-2	784668.04	686487.39			937.19
HP-3	784659.16	686818.91			933.12
HP-4	784314.10	686622.71			934.85
HP-5	784522.67	686871.77			931.79
HP-6	784567.29	687101.41			932.00
HP-7	784555.38	687175.97			932.11
HP-8	784477.13	687063.92			933.12
HP-9	784482.70	687098.27			933.13
HP-10	784058.56	686834.99			933.45
HP-11	784325.86	687081.38			932.34
HP-12	784415.91	687416.45			933.03
HP-13	784014.81	687077.38			933.30
HP-14	784155.43	687487.90			933.24

HORIZONTAL VERTICAL DATUM: FROM PREVIOUS SURVEY
FIELD SURVEY: DECEMBER 3, 2009

Appendix E
Lab Data and DUSRs on CD