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PRE-DESIGN INVESTIGATION SUMMARY
FOCUSED FEASIBILITY STUDY
Stuart-Olver-Holtz
Henrietta, New York

Shaw Project 839447 (formerly 784222)

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Prepared for:

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Executive Summary

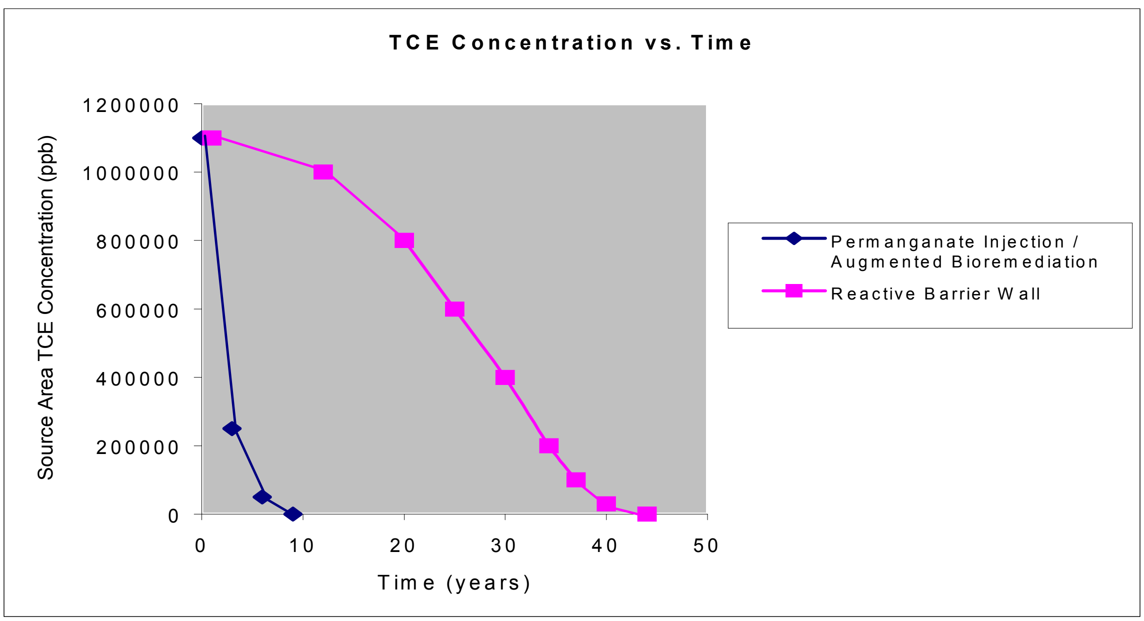
In 1996, GZA GeoEnvironmental issued the *Feasibility Study Report, Stuart-Olver-Holtz Site* for the New York State Department of Environmental Conservation. The purpose of the feasibility study was to identify and evaluate technologies to remediate areas of contamination at the Stuart-Olver-Holtz site identified in the Remedial Investigation Report. Based on the recommendations in the feasibility study, a Record of Decision was issued by the New York State Department of Environmental Conservation in March 1997. The selected remedy was Site Wide Alternative 5. Site Wide Alternative 5 consists of excavation or isolation of contaminated surface soils, a short-term source area extraction system, a downgradient contaminated overburden groundwater collection trench system, and passive pretreatment of contaminated groundwater by a zero valence iron wall with eventual discharge to the local publicly owned treatment works.

In September 1999, IT Corporation submitted the *Remedial Design Work Plan* for Stuart-Olver-Holtz, based on the 1997 Record of Decision. This work plan recommended further investigation to better define the source area and to determine if any unknown sources existed. In conjunction with the *Pre-Design Investigation Sampling and Analysis Work Plan* (February 2000), IT Corporation submitted an *Addendum to the Remedial Design Work Plan* (March 2000) for a field pilot test of permanganate injection (Perm-Ox). Perm-Ox is an *in situ* chemical oxidation technology that is used to destroy chlorinated ethenes in groundwater. The purpose of the pilot test was to determine if permanganate injection would be a more viable and cost effective remedial alternative for the overburden groundwater than the current alternative in the Record of Decision.

The pilot test was performed in June and July 2000. The pilot test concluded that permanganate injection is a feasible remedy for chlorinated ethenes in the overburden groundwater. When permanganate injection is combined with an augmented *in situ* bioremediation system, it provides a feasible and cost-effective remedial alternative for all chlorinated volatile organic compounds in the overburden groundwater. The permanganate injection destroys the chlorinated ethenes, while the bioremediation system destroys the chlorinated ethanes.

In addition to conducting the permanganate injection pilot test, IT Corporation reevaluated the overburden groundwater alternative presented in the Record of Decision based on the data collected during the pre-design investigation study.

Although both remedial systems listed above would reduce volatile organic compound contamination in the overburden, a significant difference in implementation time and cost between the two alternatives exists. The estimated time required to implement the passive groundwater treatment alternative (#1) is over 40 years while the estimated time required to implement the permanganate injection/augmented bioremediation system alternative (#2) is 9 years. The reactive barrier wall system does not directly address the source area but relies on transport of volatile organic compounds from the source area to the reactive wall. The change in source area volatile organic compound concentrations over time would be characteristic of a natural degradation process. In contrast, the permanganate injection/augmented bioremediation system actively addresses volatile organic compounds in the source area and within the contaminant plume. Volatile organic compound concentrations in the source area would rapidly decline as the active treatment was implemented. The reactive barrier wall system requires significantly more time to implement than the permanganate injection/augmented bioremediation system because of the rate limiting transport of volatile organic compounds to the reactive barrier. The difference in time required to implement these two alternatives can be demonstrated graphically as follows:



This report contains an analysis of the estimated cost to implement the proposed overburden groundwater actions. The estimated cost to implement the bedrock groundwater action, surface soil action, and the Stuart-Olver-Holtz sump contents removal is based upon the estimated costs presented in the 1996 feasibility study. The costs presented in the 1996 feasibility study were adjusted to 2001 dollars using Engineering New Record's 1996 Annual and May 2001

Construction Cost Index. The total net present worth of the selected alternative (#2) using a permanganate injection/augmented bioremediation system to address the overburden groundwater is $4,090,430. In contrast, the total net present worth of a site-wide alternative (#1) using a reactive barrier wall to address the overburden groundwater is $7,130,476.

TABLE OF CONTENTS:

TABLES:

FIGURES:

APPENDICES:

LIST OF ACRONYMS:

ASP	Analytical Services Protocol
AST	Aboveground Storage Tank
bg	Below Ground
cm/day	Centimeters per Day
COCs	Constituents of Concern
COD	Chemical Oxygen Demand
COPC	Chemicals of Potential Concern
1,1-DCE	1,1-Dichloroethene
1,2-DCE	Total 1,2-Dichloroethene
DOC	Dissolved Organic Carbon
DUSR	Data Usability Summary Report
EPA	Environmental Protection Agency
ID	Inner Diameter
IDW	Investigation Derived Waste
IP	Interface Probe
IRM	Interim Remedial Measure
IT Corporation	IT Corporation, Inc.
$\mu g/L$	Micrograms per Liter
$\mu g/m^3$	Micrograms per Cubic Meter
m/s	Meters per Second
m^2/s	Square Meters per Second
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MIBK	Methyl Isobutyl Ketone
MSL	Mean Sea Level
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAVD	North American Vertical Datum
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OD	Outside Diameter
ORP	Oxidation Reduction Potential
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene, Perchloroethene
PGC	Portable Gas Chromatograph
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works
PQL	Practical Quantitation Limit
PRG	Preliminary Remediation Goals
PRP	Potentially Responsible Party
QA/QC	Quality Assurance/Quality Control
RA	Risk Assessment
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision

ROI	Radius of Influence
SAP	Sampling and Analysis Plan
SDG	Sample Delivery Group
SCG	Standard Criteria and Guidance
SJB	SJB Services Inc
SOH	Stuart-Olver-Holtz
SOP	Standard Operating Procedure
SVOC	Semivolatile Organic Compound
SWA-5	Site Wide Alternative 5
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TCE	Trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
TOC	Total Organic Compounds
TOGS	Technical and Operational Guidance Series
1,1,1-TCA	1,1,1-Trichloroethane
USCS	Unified Soil Classification System
USDOT	United States Department of Transportation
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

In March 1997, the New York State Department of Environmental Conservation (NYSDEC) issued a Record of Decision (ROD) for the Stuart-Olver-Holtz (SOH) site (NYSDEC Site # 8-28-079). The selected remedy was Site Wide Alternative Number 5 (SWA-5) from the SOH Feasibility Study (FS) Report (*Feasibility Study Report, Stuart Olver-Holtz Site, Henrietta, NY, October 1996)***.** SWA- 5 consists of a short-term source area extraction system, a downgradient contaminated overburden groundwater collection trench system, and passive pretreatment of contaminated groundwater by zero valence iron with eventual discharge to the local Publicly Owned Treatment Works (POTW). In addition, SWA-5 also includes the isolation and/or excavation and off-site disposal of contaminated surface soils, the construction of minor drainage improvements, and restoration of the excavated areas. Bedrock groundwater contamination will be addressed by institutional controls.

During preparation of the *Remedial Design Work Plan* for SOH (September 1999), it was determined that additional site characterization was needed to design the prescribed remedial alternatives in the ROD, and that a more viable and cost-effective remedial alternative for the chlorinated ethenes in the overburden groundwater might exist. In February 2000, IT Corporation submitted a *Pre-Design Investigation Sampling and Analysis Plan* to further delineate the source area and determine if additional source areas exist. In March 2000, IT Corporation submitted an *Addendum to the Remedial Design Work Plan* to include a field pilot test of *in situ* permanganate oxidation. In June 2002, Shaw performed a soil gas survey under the confines of the SOH building to further delineate potential source areas.

1.1 Purpose of Investigation

The purpose of the pre-design investigation was to explore the viability of an alternative remedial action for destroying chlorinated ethene contamination present in the overburden groundwater, to further delineate the known sources of volatile organic compound (VOC) contamination, and to investigate other potential VOC sources.

Analytical results from soil borings installed during previous investigations suggested that several additional soil borings were necessary to further define existing source areas and locate other potential source areas. In May and June 2000 additional soil borings were installed on-site, and in February 2001 a drain line tracer test (smoke test and video survey) was conducted. These tasks were directed at delineating the known source area and identifying additional sources. In December 2000 groundwater samples were collected and analyzed from 27 on-site monitoring wells to assess current site-wide groundwater quality. Prior to December 2000, the most recent site-wide data was collected in 1996 as part of the Remedial Investigation (RI) fieldwork. In addition to the soil borings and groundwater monitoring program, surface soil samples were collected from the on-site drainage ditch.

Analytical results from the year 2000-2001 investigations listed above indicated the potential for additional source areas under the confines of the existing SOH building. In June 2002, a soil gas survey was conducted by Shaw to further identify additional source areas under the confines of the SOH building.

Based on data presented in the 1996 RI/FS, it was determined that *in situ* chemical oxidation may be a viable and cost-effective alternative for remediation of the chlorinated ethenes at the SOH site. In March 2000 IT Corporation submitted *an Addendum to the Remedial Design Work Plan* for the field pilot testing of permanganate injection (Perm-Ox). Perm-Ox uses permanganate to chemically oxidize and destroy chlorinated ethenes in the groundwater. At the time the FS was prepared in 1996, *in-situ* chemical oxidation was an innovative technology and not widely used. Since then, *in-situ* chemical oxidation has been proven as an effective remedial alternative for VOC contamination at numerous hazardous waste sites. The results of the pilot test and an evaluation against the SWA-5 groundwater remedial action are presented herein. If *in-situ* chemical oxidation is shown to be a viable remediation tool, a significant cost savings for the NYSDEC is expected.

1.2 Site Description and History

The SOH site is located at 39 Commerce Drive, in the Town of Henrietta, Monroe County, New York (**Figure 1-1**, Site Location Map). The site is identified as Town tax map number 161.15-5 and occupies approximately 3.8 acres in a mixed commercial-industrial area. A manufacturing building occupies the eastern half of the site. The remaining area consists of a paved parking lot, driveways and grass covered areas. Immediately to the west of the site is a swale that receives drainage from the SOH site (**Figure 1-2**, Site Map).

The site is bounded on the east by several small businesses, on the west by Pullman Manufacturing, on the south by Ruby Gordon, Inc., and on the north side by Commerce Drive and several commercial properties. The site is located within the Red Creek drainage basin. Red Creek is located about a half mile north and west of the site and flows into the Erie Canal about 2 miles north of the site. The westernmost portion of the site is located within the 100-year floodplain of Red Creek.

Operational/Disposal History

The SOH site was developed from farmland in 1962 as Electro Chemical Products, Inc., which evolved into Stuart-Olver-Holtz, Inc. SOH operated a specialty finishing business that included painting, conversion coating and metal plating of parts on a contractual basis. In 1974, a fire occurred at the site that destroyed a portion of the facility and resulted in the uncontrolled release of plating and coating solutions into the environment. In 1980, SOH applied for (but did not obtain) a permit to operate a solvent recovery unit at the facility and began accumulating drums of waste solvents for processing. The NYSDEC issued an enforcement order requiring SOH to remove the waste solvent drums, some of which had been observed to be leaking. In August 1983, SOH removed approximately 200 drums from the site, but more than 100 drums remained. The accumulation of drums had been a recurring problem at this facility. Efforts by the NYSDEC to have SOH complete an environmental cleanup of the site were not successful. The site was subsequently listed as a Class 2 inactive hazardous waste disposal site.

In 1986, SOH filed for Chapter 11 bankruptcy. Chapter 11 proceedings allowed for the transfer of the SOH manufacturing facility to Metalade, Inc. and resulted in an approved plan for business reorganization. Metalade established SOH Acquiring, Inc. to hold the title to the facility. Metalade then leased the facility back from this holding company. Environmental assessments of the site made in conjunction with this property transfer confirmed the presence of soil and groundwater contamination at the site. Metalade conducted manufacturing operations similar to those performed by SOH. A separate parcel of the property is still owned by the original principals of SOH. SOH, however, was dissolved as a corporation.

Adjoining the property to the south is Ruby Gordon, Inc., a retail furniture and warehousing enterprise. Ruby Gordon applied for a NYSDEC permit to discharge groundwater collected from their basement sumps to a nearby surface drainage ditch. Due to the proximity to the SOH site and the presence of VOCs in the drainage ditch, Ruby Gordon was directed by the NYSDEC to analyze its sump water for the presence of VOCs. VOCs were detected in the sump discharge. VOC groundwater contamination at Ruby Gordon was determined to be caused by contamination migrating from the SOH property. Ruby Gordon continues to discharge groundwater pumped from their basement sumps to the local POTW. Prior to discharging, the water is treated to comply with discharge limitations set by the POTW.

1.3 Remedial History

During April 1985 and March 1986 the NYSDEC conducted inspections of the SOH facility. Several chemical containers and drums in the southwestern portion of the site were unprotected outside the SOH building during those inspections. Container and drum contents were reported as 1,1,1-trichloroethane, etching waste, methylene chloride, waste thinner, nickel stripping solution, plating waste paint and other solvents. The inspections also revealed the presence of three large dumpsters containing electroplating sludge outside the SOH building.

In 1987, a site assessment was conducted by SOH. Based on the results of this investigation and the prior inspections, the following conclusions were reached:

- Groundwater flow in the overburden aquifer is generally toward the west/northwest.
- VOCs were discovered in soil samples collected from the southwestern portion of the site, particularly in the vicinity of the drum storage area.
- VOCs were detected in groundwater at the southwestern portion of the site.
- VOCs were detected in the two existing on-site production wells.

In April 1991, Ruby Gordon Inc. conducted hydrogeologic investigations of the Ruby Gordon property to determine whether SOH was the source of contaminants detected in their basement sumps. This study concluded that contaminants found in water from the three basement sumps were attributable to contaminated groundwater migrating from the SOH site.

Summary of Remedial Investigation/Feasibility Study and Subsequent Work Plans
The NYSDEC has completed an RI/FS at the site. A final RI report, entitled *Remedial Investigation Report, Stuart-Olver-Holtz Site, Henrietta, New York (*September 1996*)* was prepared describing the field activities and findings of the RI. The purpose of the RI was to define the nature and extent of contamination resulting from activities at the site.

The RI was conducted in two phases. Field work for the first phase was conducted between October 1994 and December 1994. Field work for a supplemental phase was conducted between June 1995 and October 1995. The RI included the following activities:

- Geophysical survey
- Soil vapor survey
- Air sampling during intrusive activities

- Test pit excavations
  - Installation and sampling of soil borings and monitoring wells
  - SOH building bedrock production well assessment and sampling
  - Drainage swale, surface water and sediment sampling
  - Surface soil sampling
  - Catch basin/sump sampling
  - Private well survey

The RI identified a probable source area where levels of contamination in overburden groundwater were much greater than the NYSDEC's standard criteria and guidance (SCG) for groundwater. The most significant concentrations of the contaminants of concern occurred in the vicinity of the Metalade loading docks at monitoring well OW-7S. Elevated concentrations of similar contaminants were also detected in the vicinity of OW-6S, where drums were historically staged. Shallow groundwater may also have migrated to this area from the OW-7S source area due to a hydraulic gradient reversal induced by the basement sumps at the Ruby Gordon facility. Contaminant levels in the northwest overburden groundwater plume near the SOH property were also elevated, with well OW-3S containing VOC levels well above groundwater SCGs.

There were isolated areas where the surface soil contaminant concentrations exceeded NYSDEC soil SCGs, presumably due to chemical spills that occurred over the years of operation. Groundwater collected from the shallow bedrock beneath the site also showed some contamination at levels of concern.

Based on the results of the RI, a comparison of the concentration of on-site contaminants to NYSDEC SCGs, and an evaluation of potential human and environmental exposure routes, areas were identified that warranted remediation by the NYSDEC. A feasibility study report titled *Feasibility Study Report, Stuart-Olver-Holtz Site, Henrietta, New York* (October 1996), was prepared to evaluate remedial options for site cleanup. The FS screened multiple technologies to remediate the site. Based on this screening, five site wide remedial alternatives were developed and evaluated. Based on this evaluation, SWA-5 was recommended as the preferred alternative for remediation of the site. SWA-5 includes the following components:

- **Overburden Groundwater Actions**

- Install a shallow groundwater collection trench system along the north and west property boundaries to collect and contain contaminated groundwater.
- Install and operate a passive groundwater pretreatment system. The system consists of subsurface vaults containing zero valence iron filings for destruction of chlorinated VOCs. Pretreated groundwater would discharge by gravity to the sanitary sewer for final treatment at the local POTW.
- Install and operate groundwater extraction wells for removal of contaminants from the source area near OW-7S.
- Install and operate a shallow groundwater collection trench adjacent to the Ruby Gordon basement to intercept contaminated groundwater.
- Conduct periodic, long-term overburden groundwater monitoring.
- Construct drainage improvements between Ruby Gordon and the SOH site to minimize groundwater recharge to the Ruby Gordon basement.
- Recommend deed restrictions on future use(s) of the site.

- **Bedrock Groundwater Actions**
  - Implement institutional controls to reduce the potential for exposure to contaminated bedrock groundwater. This would include: disconnecting the SOH interior bedrock wells, conducting bedrock groundwater monitoring, and recommending deed restrictions of future use(s) of groundwater.
- **Surface Soil Action:**
  - Excavate the on-site and off-site surface soils that are above SCGs and haul off-site for disposal. Regrade and restore the excavated areas. Isolation of on-site contaminated surface soils could be done in-lieu of excavation.
- **SOH Sump Contents:**
  - Remove and provide off-site disposal for accumulated sediments from onsite sumps, catch basins, and related piping.
  - Evaluate, upgrade or decommission drainage lines or connections.

In March 1997 NYSDEC issued a Record of Decision for the SOH site (NYSDEC Site # 8-28-079) selecting SWA-5 as the remedial action for SOH.
In September 1999, IT Corporation submitted the *Remedial Design Work Plan* for SOH, based the 1997 ROD. This work plan recommended further investigations to better define the source area and determine if any unknown sources existed.

In February 2000, IT Corporation submitted a *Pre-Design Investigation Sampling and Analysis Work Plan* to further delineate the source area and investigate the potential for other source areas. In conjunction with the work plan, an *Addendum to the Remedial Design Work Plan*, was submitted in March 2000 for a field pilot test of permanganate injection (Perm-Ox), an *in situ* chemical oxidation technology that could be used to destroy chlorinated ethenes in the groundwater. The *Pre-Design Investigation Sampling and Analysis Work Plan* and *Remedial Design Addendum* were approved by the State for implementation. Field work began in May 2000.

2.0 POST RI/FS FIELD INVESTIGATION ACTIVITIES

2.1 Introduction

The SOH pre-design investigation was conducted to further characterize the nature and extent of contamination in groundwater, subsurface soil and surface soil, and to identify additional areas that contribute to groundwater contamination or pose an unacceptable risk to human health and the environment. In addition, an *in situ* chemical oxidation field pilot test was conducted with permanganate. The field investigation was conducted from May 2000 through February 2001. **Table 2-1** presents the rational for selecting each sampling point. A summary of sampling and analyses activities is presented below:

Table 2-2: These sampling activities were conducted in May and June 2000.

- Collection and analysis of 70 subsurface soil samples for one or more of the following:
  - Target compound list (TCL) VOCs
  - TCL semivolatile organics
  - TCL pesticides and polychlorinated biphenyls (PCBs)
  - Target analyte list (TAL) metals and cyanide

Table 2-3: These sampling activities were conducted in November 2000 and February 2001.

- Collection and analysis of 15 sediment/surface soil samples in November 2000 for:
  - TCL semivolatile organics (SVOCs)
  - TAL metals and cyanide

- Collection and analysis of 3 sediment samples collected from pits and manhole inside and around the facility for TCL VOCs. **Table 2-3** presents a summary of the analysis performed. These sampling activities were conducted in February 2001.

Table 2-4: These sampling activities were conducted in December 2000.

- Collection and analysis of groundwater samples collected from 27 monitoring wells for one or more of the following:
  - TCL VOCs
  - TAL metals and cyanide
  - Inorganic anions
  - Specific conductivity
  - Total Organic Carbon (TOC)
  - Dissolved Organic Carbon (DOC)
  - Alkalinity

Table 2-4: These sampling activities were conducted in July, September and October 2000.

- Collection and analysis of groundwater samples in up to 10 injection and observation wells for one or more of the following:
  - TCL VOCs
  - Chemical Oxygen Demand (COD)
  - Iron and Manganese
  - Chlorides

Appendix H presents the Sub-Slab Investigation (Soil Gas Survey) with results summarized in Tables 1 and 2. These sampling activities were conducted on June 17-18, 2002.

- Collection and analysis of soil gas samples in 50% of the 28 geoprobe locations containing the highest PID readings for VOCs against EPA Method TO-14.
- Collection and analysis of soil samples in 25% of the 28 geoprobe locations containing the highest PID readings against EPA method 8260.

The methodology used to complete each of the above-referenced activities is described in detail in the following sections. This chapter has been organized to discuss the methodologies and rationale for each of the following major components of the SOH Pre-Design Investigation:

- Soil Borings and Monitoring Well Installation
  - OW-7 Source Area Borings
  - Alignment Borings
  - Perm-Ox Well Installation
  - Temporary Monitoring Well Installation
- Surface Soil/Sediment Sampling
- Groundwater Sampling
- Topographic and Location Survey
- Sodium Permanganate Pilot Test
- Sub-Slab Investigation (Soil Gas Survey)
- Line Tracer Tests and Building Survey
- SAP,QAAP and Data Base Management

The field activities were performed in accordance with the following approved work plans:

- *Remedial Design Work Plan, Stuart-Olver-Holtz, September 1999* (Design Work Plan).
- *Pre-Design Investigation Sampling and Analysis Plan, Stuart-Olver-Holtz, February 2000* (Sampling and Analysis Plan (SAP)).
- *Remedial Design Work Plan Addendum Perm-Ox Pilot Test, March 2000* (Design Work Plan Addendum).
- *Geoprobe Investigation Work Plan Letter, Stuart-Olver-Holtz, Henrietta, New York, June 13, 2002* (Sub-Slab Investigation – Soil Gas Survey Work Plan).

2.2 Soil Boring and Monitoring Well Installation

During the implementation of the field activities, a total of 32 borings were installed inside and outside the Metalade Facility and in the alignment of the collection trench proposed in SWA-5. A total of 11 soil borings were converted into wells, the remaining 21 soil borings were abandoned by pressure grouting from the bottom to the boring surface.

All soil borings were installed using 4 ¼” inside diameter (ID), 8-inch outside diameter (OD) hollow stem augers. During the installation of the test borings, soil samples were collected continuously using a 2-inch diameter by 24-inch long split-barrel soil sampler (split-spoon). A

150-pound hammer free falling over 30-inches was typically used to drive the split spoon sampler. The borings were completed to bedrock until auger refusal.

Drill cuttings, which were assumed to be non-hazardous, were drummed and transported to an on-site staging area for future disposal at a NYSDEC approved disposal facility.

Field sampling equipment and drilling equipment was decontaminated between each sampling point according to the protocols outlined in the SAP.

2.2.1 OW-7 Source Area Borings

The OW-7S source area investigation was conducted to locate the source of VOC contamination previously identified during the 1996 RI/FS. A total of 20 soil borings were installed in the area of OW-7S during the period of May 1 through June 19, 2000 by SJB Services Inc. (SJB) under the supervision of IT Corporation. A total of 15 borings (SB-1 through SB-12, and SB-15) were installed outside the facility around OW-7S following a pre-determined grid pattern. Five soil borings (SB16 through SB-20) were installed inside the Metalade facility. These borings are referred to as “outside” and “inside” borings, respectively. Proposed soil borings SB-13 and SB-14 could not be installed due to access restrictions. Soil boring locations are shown in **Figure 2-1.**

Soil borings were completed to refusal, which occurred between 29 feet and 44 feet below grade. Samples were collected continuously during boring installation using a standard 2-inch split-spoon driven with a 150-pound hammer. Due to poor recovery, a 300-pound hammer was occasionally used (SB1, SB6X and SB15). The content of each split-spoon was broken into four 6-inch segments depending on the percentage of soil recovered. The segments were labeled from the top of the spoon to bottom: “A”, “B”, “C” and “D”, respectively. The geology of each sample was described according to Unified Soil Classification System (USCS) and organic vapors were measured (headspace readings) using a photoionization detector (PID). If only 50-percent soil was recovered, the sample was split into 2 sections, “A” and “B”. Any split spoon with less than 25-percent soil recovery was monitored for organic vapors and discarded.

All soils were described on a borehole log with respect to their geologic properties and USCS classifications. Blow Counts, PID readings, and other field information were also recorded on these logs which are presented in **Appendix B**.

The soil samples containing the highest VOC readings were sent to Mitkem Corporation, Warwick, Rhode Island (Mitkem) for laboratory analysis. The samples were analyzed for TCL

Volatiles according to ASP Method 95-1 and Total Organic Carbon (TOC) according to EPA method 9060. **Table 2-2** summarizes the samples collected and the analysis performed.

The sample containers were preserved in accordance with the SAP and packed on ice in an insulated cooler. Quality control samples were collected at a frequency of one per 20 samples collected and included matrix spike/matrix spike duplicates (MS/MSDs) and field duplicates.

2.2.2 Alignment Borings

A total of 4 borings were installed in the proposed groundwater collection trench described in SWA-5 to further define the subsurface conditions for the completion of the design of the containment wall/collection trench. The borings (B1/PZ-3, B2, B3/PZ-2 and B4/PZ-1) are referred to as "alignment borings" and were installed between May 25 and 30, 2000 by SJB under the supervision of IT Corporation (**Figure 2-1).** The soil borings were installed to refusal and sampled continuously following the protocol outlined in **Section 2.2.1**; soil samples were screened with a PID for VOC readings but were not submitted for chemical analysis. The borehole logs are presented in **Appendix B**.

Three soil borings were converted to piezometers (B4/PZ-1, B3/PZ-2 and B1/PZ-3) to determine the variation of hydraulic head in the area. The piezometers were installed using two-inch diameter PVC with 0.020-inch slotted well screen and PVC casing. Construction details are presented in the borehole logs in **Appendix B**.

2.2.3 Sodium Permanganate Injection Pilot Test Well Installation

As part of the permanganate injection field pilot test, a total of 4 injection wells were installed in the source area near OW-7S (**Section 2.5**). The injection wells (IPZ-1 through IPZ-3, and IW-1) were installed between June 26 and 29, 2000 by SJB under the supervision of IT Corporation (**Figure 2-2**). The injection wells were all installed so that the screen interval was located between 14 to 24 feet below ground surface. The injection wells were constructed with 2-inch diameter Schedule 80 PVC, 0.020-inch slotted screen according to the work plan specification. Installation details are presented on the Borehole Logs in **Appendix B.**

Boring IW-1 was sampled according to the protocols described in **Section 2.1.1**. No soil samples were collected during the installation of IPZ-1 through IPZ-3. After installation, all injection wells were developed by pumping a minimum of 10 well volumes, or pumping for a period of 1 hour, whichever occurred first, using a submersible well pump. The purge water was disposed in vegetated areas on site.

2.2.4 Temporary Monitoring Well Installation

As part of the permanganate injection field pilot test, a total of 4 post-injection monitoring wells (TW-1 through TW-4) were installed in the source area near OW-7S to monitor the progress of the permanganate injection (**Figure 2-2)**. The wells were installed on September 18 and 19, 2000 by SJB under the supervision of IT Corporation.

No soil samples were collected during the post-injection monitoring well installations. The monitoring wells were constructed with 2-inch diameter PVC, 0.020 slotted well screen with the screen interval located between 14 to 24 feet below ground surface. Construction details are included on the Borehole Logs in **Appendix B**.

Because the wells were installed several weeks after the injection of permanganate, a neutralizing solution consisting of equal parts of 3-percent hydrogen peroxide, white vinegar and water was prepared for decontamination purposes. All field equipment was decontaminated between well installation using the neutralizing solution as necessary when evidence of sodium permanganate (purple color) was observed.

On September 19, 2000, all four wells were developed by pumping a minimum of 10 well volumes, or for a period of 1 hour, using a submersible well pump. Water that presented evidence of sodium permanganate (purple tint) was collected and returned to the well when necessary; all other purge water not containing sodium permanganate was disposed of in vegetated areas on site.

2.3 Surface Soil Sampling

A total of 15 *s*urface soil samples (DD-1 through DD-15) were collected on November 30, 2000 at a depth of 0 to 6 inches below grade (**Figure 2-1)**. The surface soil investigation was completed in the adjacent offsite drainage swale to further define the limits of surface soils above NYSDEC SCGs. The samples were collected in 5 transects crossing the swale with 3 samples per transect. Sediment was sampled according to the SAP and analyzed for TCL semi-volatile organics TAL metals and cyanide. Surface soil samples were collected according to the protocol outlined in the SAP. Quality control samples included field blanks (rinsate samples), MS/MSD, and a field duplicate. Surface soil sample collection logs are provided in **Appendix B.**

2.4 Sump/Catch Basin Sediment Sampling

On February 15, 2001, IT Corporation collected a total of 3 sediment samples at the site. These samples were collected from the bottom of a sump/separator located near the loading dock (Sewer sample-01), an inside sump located in the south west area of the facility (Sewer sample-02), and from a sanitary sewer discharge manhole located in the north eastern part of the facility between the building and Commerce Drive (Sewer sample-04). The samples were sent to Mitkem for TCL Volatiles analysis according to ASP Method 95-1. Sampling locations are presented in **Figure 2-1** as samples “01”, “02” and “04”**.**

2.5 Groundwater Sampling

Groundwater samples were collected from 27 monitoring wells, injection wells and piezometers, (**Table 2-4**) between December 13 and 20, 2000 (**Figure 2-2**). The groundwater investigation was completed to determine the present groundwater quality. Groundwater was sampled according to the SAP and analyzed for TCL volatile organics, TAL metals, TOC, dissolved organic carbon, bromide, fluoride, specific conductance, chloride, sulfate, alkalinity, nitrate, nitrite, phosphates, total dissolved solids and pH.

Before sampling, standing well volumes were calculated as described in the SOH SAP. The wells were purged using a twelve-volt direct current submersible pump or a 120-volt alternating current 2-inch diameter Grundfos Redi-Flo2 submersible pump. Specific conductance, pH, turbidity, dissolved oxygen, oxidation-reduction potential and temperature were measured at the start of purging operations and after each purged well volume. Stabilization of these parameters within +/- 10 percent from successive purge volumes indicated when groundwater within the well was at equilibrium with the aquifer. Groundwater samples were collected immediately following purging using a disposable polyethylene bailer. The sampling equipment was decontaminated between each monitoring well following the protocol described in the SAP.

During the groundwater sampling event, purge water was discharged to the ground surface except for the Perm-OX injection wells. The purge water from these wells was containerized in a 16-gallon container and neutralized with a solution of equal parts vinegar, hydrogen peroxide and water prior to discharge to the ground surface.

The sample containers were preserved in accordance with the SAP and packed on ice in an insulated cooler. A trip blank (analyzed for VOCs only) accompanied each cooler that contained aqueous samples for VOC analyses. Quality control samples were collected at a frequency of 1 per 20 samples collected and MS/MSDs and field duplicates.

2.6 Topographic and Location Survey

A site survey to determine the elevation and coordinates of field sampling points, sumps and catch basins was completed between April and December 2000 by a licensed New York Land Surveyor. The locations and inverts of accessible sewer lines and basins, the location of utilities on-site and in the right-of-ways were also determined. New York State Plane Coordinate System (NAD 83-96 format) and North American Vertical Datum (NAVD 1988) were used as horizontal and vertical datum, respectively.

The site survey and site drawings, obtained from the current owner of the site, were used to develop a site basemap. Mapping was completed in AutoCAD format.

2.7 Permanganate Field Pilot Test

In July 2000, IT Corporation conducted a Perm-Ox field pilot test, an *in situ* chemical oxidation remedial technology. The pilot test was used to determine the suitability of *in situ* chemical oxidation of ethene VOCs by the addition of a permanganate solution. The objectives of the pilot test were:

- Determine the degree and rate of reaction of injected permanganate with the VOC ethenes present in the groundwater.
- Determine the radius of influence and migration rate of permanganate in the overburden groundwater.
- Assess the effectiveness of permanganate as a full scale remediation alternative.

To achieve the pilot test objectives 4 injection wells and 4 post-injection monitoring wells were installed in the loading dock area of the Metalade facility. The loading dock area near OW-7R and OW-7S was previously identified in the 1996 RI/FS as the source area of groundwater contamination. The installation of the pilot test wells is discussed in **Sections 2.2.3 and 2.2.4**.

Permanganate may be delivered to the subsurface as either a potassium ($KMnO_4$) or sodium ($NaMnO_4$) salt. For the purposes of this pilot test, sodium permanganate was used.

2.7.1 Baseline Groundwater Sampling

On July 17, 2000, baseline groundwater samples were collected from injection wells IW-1, IPZ-1, IPZ-2 and IPZ-3; and monitoring wells OW-7R and OW-7S, to establish pre-injection conditions. The groundwater samples were analyzed on-site for pH, dissolved oxygen, specific conductivity, and oxidation reduction potential. Off-site analysis of the samples included VOC analysis (EPA 8260), chemical oxygen demand (COD) (SM 5220C), total iron (SM 6010), manganese (SM 6010), and chloride (SM 4500).

2.7.2 Permanganate Injection

During the week of July 17, 2000, 720 gallons of 40% sodium permanganate solution was injected at the loading dock source area through wells IW-1, IPZ-2, and IPZ-3. Because of tight geological conditions in the loading dock area, gravity injection was unsuccessful. However, under a minimum pressure injection system (3 to 5 pounds per square inch (psi)), permanganate was successfully delivered to the subsurface at a rate of 0.5 gallons per minute. Because of the high density of utility conduits in the injection area, some short-circuiting of the permanganate was observed. This was overcome by using multi-well injection, instead of one well for the total mass.

During the injection of permanganate, daily measurements of several field parameters were monitored. Daily measurements of temperature, pH, oxygen reduction potential, and conductivity were recorded at 5 wells (IPZ-1, IPZ-2, IPZ-3, OW-7S, and OW-7R).

2.7.3 Post Injection Field Monitoring and Groundwater Sampling

To determine the efficiency and radius of influence of the permanganate injection system, field measurements of color, pH, and oxygen reduction potential were collected periodically for several weeks. In addition to these measurements additional groundwater sampling and analysis was conducted. The first round of post-injection groundwater samples were collected on September 11 and 22, 2000 (approximately 8 weeks post injection), from IPZ-2, TW-1, TW-2, TW-3, TW-4, OW-7S and OW-7R. Samples were analyzed for VOCs by EPA Method 8260, COD, iron, manganese, and chloride. The second round of post-injection groundwater samples were collected approximately 12 weeks post injection on October 20, 2000. Collected groundwater samples were analyzed for VOCs, COD, iron, manganese, and chloride.

2.8 Line Tracer Tests and Building Survey

On January 30 and February 15, 2001, a Smoke Test Investigation was conducted at the facility by Larsen Engineers. The investigation had the following objectives:

- Confirm interior and exterior pathways of abandoned, uncapped, combined or cross-connected storm and sanitary sewer lines identified at the SOH site
- Link interior sewer pathways with confirmed public sanitary and storm sewer lines located adjacent to the SOH facility
- Identify any potential migration pathways

The smoke test investigation work scope consisted of constructing a description of the facility condition with floor trench and vaults identified, a smoke injection survey, and recording a video of underground lines when possible. Details on the methodology used during the smoke test investigation can be found in the *Stuart Olver-Holtz, Inc Drain System Investigation / Field Report and Preliminary Findings* included in **Appendix C.**

2.9 Sub-Slab Investigation (Soil Gas Survey)

On June 17 and 18, 2002, a geoprobe investigation was conducted beneath the SOH building slab. The purpose was to identify any potential additional source areas located under the SOH building. A total of 28 borings were advanced within the building. As per the Work Plan letter dated June 13, 2002. The drilling was performed by Aquifer Drilling and Testing, Inc., under the supervision of Shaw personnel.

Fifty (50) percent of the soil gas samples containing the highest PID readings were submitted for lab analysis for VOCs according to EPA TO-14. Similarly, twenty-five (25) percent of the soil samples containing the highest PID readings were submitted for lab analysis according to EPA Method 8260. A Full Category B Analytical Service Protocol Report was subsequently provided by Mitkem Corporation and is included in the Investigation Report Appendix. See **Appendix H** for the entire investigation report.

All excess soil and associated sampling waste were contained in a 55 gallon drum which was properly labeled and staged at the site. Subsequent disposal was performed in late September 2002. Field sampling equipment was properly decontaminated between samplings according to protocols outlined in the Work Plan letter dated June 13, 2002. See **Appendix H** for the entire Sub-Slab Investigation Report dated August 16, 2002, as prepared by Shaw.

2.10 Quality Control

2.10.1 Sampling and Analysis Plan

A SAP and Quality Assurance/Quality Control (QA/QC) Plan were prepared detailing the scope and investigative methods to be employed in completing the field investigation. The SAP and QA/QC Plan were prepared as a single, stand-alone document titled *Pre-Design Investigation Sampling and Analysis Plan* (April 2000). The SAP was submitted for approval to the NYSDEC project manager prior to the commencement of fieldwork.

The SAP included descriptions of the numbers and types of environmental samples to be collected from each of the study areas. The SAP also included sampling depths, sampling methodology, sample container requirements and holding times, sample packaging and shipping instructions, sample documentation, and operating procedures for field sampling and decontamination.

The QA/QC Plan, which was included as **Section 3** of the SAP, included a description and rationale for the collection of field blanks, trip blanks, blind duplicate samples, and MS/MSD samples. The QA/QC plan also included instructions for the calibration of field instruments.

2.10.2 Data Usability Summary Report

Third party validation was performed by EcoChem Inc. of Seattle, Washington. The adherence of laboratory analytical performance to the methods used was evaluated during the data validation process. The NYSDEC Guidance for the Development of Data Usability Summary Reports (NYSDEC 1997), Region II Standard Operating Procedure HW-6, Rev#11 (USEPA 6-96), and Region II Standard Operating Procedure HW-2, Rev.#11 (USEPA 1-92) were used as guidelines for data qualifications.

The data validation consisted of a systematic review of the analytical results, associated quality control methods and results, and all of the supporting data. A Data Usability Summary Report (DUSR) was prepared for each sample delivery group (SDG) containing surface and subsurface soil samples and the July and December 2000 water samples results.

During the validation process environmental samples analysis data were evaluated for precision, accuracy, and representativeness by reviewing the quality control sample results and instrument calibrations. The validation procedure concluded that a number of the sample analysis results, in each laboratory analytical report, include a ‘qualifier’, or ‘flag’, corresponding with the analytical result. The qualifiers used and their definition are included in **Appendix E** with the DUSR reports.

2.10.3 QA/QC Samples and Results

QA/QC measures were taken to ensure sample integrity and to maintain confidence in the resultant data. QA/QC samples were collected in accordance with the approved Work Plan. The results of the QA/QC samples were reviewed during the data usability review and reported in the DUSRs.

2.10.4 Database Management

The data was reported with validator qualifiers only. An electronic copy of the validated data was entered into an Access Database. The database was then used to generate result tables and provide data for the concentration contour maps. Because of elevated concentrations of certain compounds, detection limits were often higher than the contract requirements. As a guideline when modeling data, 50-percent of the detection limit was typically used. It is important to note that modeling results calculated with 50-percent of detection values are considered conservative and might indicate false contamination in some areas.

3.0 RESULTS OF PRE-DESIGN INVESTIGATION SAMPLING PROGRAM

3.1 Introduction to Analytical Results

This section presents a discussion of all sampling data collected at the Site between May 1, 2000 and June 18, 2002. Analytical data from previous investigations is presented in **Appendix F**.

Soil sampling results are compared to the NYSDEC Recommended Soil Cleanup Objectives presented in Technical and Administrative Guidance Memorandum 4046 (TAGM 4046 Objectives). Groundwater Analytical results are compared to NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values (TOGS 1.1.1 Standards).

3.2 Geological Evaluation

The available geological information was reviewed to identify coarser and/or more permeable layers within the till units that could have contributed to the distribution of contaminants across the site. Such units are often referred to as “sand stratum” in the 1996 RI/FS boring logs and were identified in several boreholes installed in 2000 (SB-2, SB-3, SB-4, SB-5, SBX-6, SB-8, SB-11, SB-16 and SB-18). These layers of sand and gravel were observed at various depths, often between 7 to 12 feet and 16 to 22 feet below grade, but were not identified with consistency across the site. These stringers are likely playing a role in the distribution of contaminants across the site.

3.3 Subsurface Soil Samples Analytical Results

Seventy (70) subsurface soil samples were collected from SB-1 through SB-12, and SB-15 through SB-20 and analyzed for one of the following: VOCs, TOC, SVOCs and PCBs. The samples were collected to further delineate and characterize the source area by the Metalade loading dock identified in 1996. This information was also used for the design of the Perm-Ox field pilot test.

3.3.1 VOCs Results in Subsurface Soil Samples

Based on the soil and groundwater data collected in 1996, the RI report concluded that the area adjacent to the well cluster OW-7 (the Metalade loading dock) was a source area for groundwater contamination. The analytes detected at the highest concentrations in this area were trichloroethene (TCE) at 1,500 µg/kg in OW-7S (28-30 feet) and 1,1,1-trichloroethane (1,1,1-TCA) at 210 µg/kg in OW-7S (8-10 feet). However, sufficient data was not collected in 1996 to fully characterize and delineate the source area for completion of the remedial design. To complete the characterization and delineation, a total of 70 subsurface soil samples were collected from 24 soil borings (**Figure 2-1)**. VOCs were detected in 61 of the 63 subsurface soil samples analyzed for VOCs. Thirty five samples reported concentrations of a least 1 VOC analyte above TAGM 4046 Objectives. The analytes detected above TAGM 4046 Objectives include 1,1,1-TCA, TCE, 1,1-dichloroethane (1,1-DCA), 1,2 dichloroethene (total) (1,2-DCE (total)), acetone, methylene chloride, tetrachloroethene (PCE), and xylene.

VOCs were detected above the NYSDEC TAGM 4046 at various depths and concentrations in the soil borings located outside and inside the facility. Most of the samples analyzed reported elevated VOC concentrations at approximately 16 to 24 feet, 30 feet, and 38 to 40 feet below ground surface. TCE was the most prevalent VOC found in the soil samples, with detected concentrations ranging from 1 µg/kg to 110,000 µg/kg. The highest concentration was detected at SB-3 (16-18) C. Analytical results also reported elevated VOC concentrations in soil borings located inside the facility. Elevated concentrations of 1,1,1-TCA were detected in SB-18 (18-20) A and SB-18 (22-24) A at 20,000 µg/kg and 1,100,000 µg/kg, respectively. Elevated concentrations of acetone and PCE were detected in SB-20 (16-18) A (2,100 and 73,000 µg/kg, respectively). These concentrations are at least an order magnitude greater than the VOC concentrations detected in the soil samples collected during the 1996 RI. Based on the spatial distribution of the contaminants and concentrations found, the data seems to indicate the presence of a secondary source area within the building close to soil boring SB-20. **Table 3-1A** presents the analytical results for detected VOCs in subsurface soil samples and complete results are presented in **Appendix D**. **Table 3-9** and **Figure 3-1A** presents the analytical results for detected VOCs in the shallow subsurface soil samples. Further, based on the June 2002 Sub-Slab Investigation, it appears that a secondary source area is located between SB-16 and SB-19 (see **Section 3.9** and **Appendix H** for further information).

Upon review of the data, a direct correlation has been established between TCE concentrations in subsurface soil sample samples and the PID readings collected in the field (**Table 3-2**). Using the least squares method, the following correlation was established:

$$Y = 2.60X$$
$$R^2 = 0.82$$

Where Y = TCE Concentration (µg/kg)
X = PID Reading
R^2 = Correlation Coefficient

3.3.2 SVOCs and PCBs in Subsurface Soil Samples

Metals and PCBs were not detected in SB-1 Cuttings, the only soil sample analyzed for these parameters. Sample SB-1 Cuttings was collected as a grab sample from the cuttings of SB-1 when evidence of product was observed on the soil during drilling activities. SB-1 Cuttings were analyzed for VOCs, SVOCs and pesticide/PCBs. These results are in concurrence with SVOC and PCB data presented in the 1996 RI. Detected metal and PCB analytes are presented in **Table 3-1B** and the complete results are presented in **Appendix D**.

3.3.3 TOC Results

To provide data for the design of the proposed permanganate injection remedial system, 7 of the 70 subsurface soil samples collected were analyzed for TOC. The detected results ranged between 0.5 percent (SB-1(16-18)D) and 30.9 percent (SB-6(10-12)A). The average TOC value is 0.9 percent (the TOC result of 30.9 percent from SB-6 (10-12) A was not used for the calculation of the average TOC value).

3.4 Surface Soil Sampling Analytical Results

A total of 15 surface soil samples were collected from DD-1 through DD-15 and analyzed for SVOCs and Metals, which were identified as chemicals of concern in the 1996 RI/FS. Surface soil sampling was performed to further define the extent of surface soil impacts in the adjacent off site right-of-way drainage swale.

3.4.1 SVOC Analytical Results in Surface Soil Samples

SVOCs were detected in all 15 surface soil samples collected. Surface soil sampling locations and results are presented on **Figure 3-1.** Fourteen (14) surface soil samples report SVOC concentrations above the TAGM 4046 Objectives. The analytes detected above TAGM 4046 Objectives include acenapthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphtalene, phenanthrene, phenol, and pyrene. **Table 3-3** presents SVOC results for detected compounds; complete analytical results are presented in **Appendix D**.

The most prevalent SVOC detected above the TAGM 4046 Objectives is benzo(a)pyrene, which was detected at concentrations ranging from 84 µg/kg to 110,000 µg/kg. Benzo(a)anthracene, benzo(b)fluoranthene and chrysene were also detected above the TAGM 4046 Objectives in DD-4, DD-8 and DD-12. In samples DD-9 and DD-13 almost all detected SVOCs were found at an elevated concentration.

The 1996 FS identified total PAHs as the chemical of concern for SVOCs in the surface soil. The current data concurs with this conclusion, as total PAH concentrations for most of the surface samples averaged 1,000 µg/kg with the exception of DD-4, DD-8 and DD-12 which report total PAH concentrations above 10,000 µg/kg. Total PAH concentrations in DD-9 and DD-13 exceed 500,000 µg/kg. Total PAH results for surface soil samples are presented in **Figure 3-1**.

3.4.2 Metal Analytical Results in Surface Soil Samples

Metal analytes were detected in all 15 surface soil samples collected. Twelve (12) soil samples reported metal concentrations above the TAGM 4046 Objectives. The analytes detected above TAGM 4046 Objectives include cadmium, calcium, magnesium, and zinc for most of the samples. Mercury was detected above TAGM 4046 Objectives in DD-11 and DD-13. Chromium, lead, manganese were also detected above Objectives in DD-13.

The 1996 FS identified arsenic, cobalt, and lead as chemical of concerns for metals in surface soil. The data from the current investigation reported 3 of these metals were detected in all soil samples at concentrations below TAGM 4046 Objectives with the exception of lead in DD-13. Results for metal analytes are presented in **Figure 3-1** (for arsenic, cobalt and lead only).

3.5 Sump/Catch Basin Sediment Sampling Results

To further characterize sediments in the manholes, catch basins, and sumps located inside and outside the facility, 3 sediment samples were analyzed for VOCs.

3.5.1 VOC Analytical Results in Sump/Catch Basin Sediment Samples

VOC analytes were detected at concentrations above the TAGM 4046 Objectives in all 3 sediment samples collected. The sediment sampling locations are presented in **Figure 2-1** and the analytical results are presented in **Table 3-4**. The analytes detected above TAGM 4046 Objectives include 1,1,1-TCA, 1,1-DCA, 2-butanone, acetone, PCE, vinyl chloride and xylene (total).

Sample 01, was collected in a separator catch basin/manhole that is the discharge point for several facility drainpipes. The manhole is approximately 4 feet in diameter and an estimated 10 feet of sediment is present at the bottom of the manhole. 1,1,1- TCA, 1,1-DCA, 2-butanone, acetone, PCE, vinyl chloride, and xylene were all detected above TAGM 4046 in Sample 01.

Sample 02 was collected in a sump, located in the southwestern part of the facility where floor drains appear to be discharging. The depth of the sump is not known. 1,1,1- TCA and 1,1-DCA were the only VOCs detected, however, they were both detected above TAGM 4046 Objectives.

Sample 04 was collected in a manhole connected to the city sanitary sewer. Three VOCs (1,1,1-TCA, 1,1-DCA and 2-butanone) were detected above TAGM 4046 Objectives.

3.6 Hydrogeological Evaluation

Subsurface water level measurements were recorded on December 13, 2000. **Table 3-5** presents the depth to water measured, ground elevation, water table elevation and PID readings collected during gauging activities. As reported in the 1996 RI, groundwater is present in the overburden soil deposit and in the bedrock formation and will be referenced as ‘overburden groundwater’ and ‘bedrock groundwater’ for this report.

Depth-to-water levels collected from the shallow wells (typically screened above 25 feet below ground surface) are presented on **Figure 3-2**. The general overburden groundwater flow direction across the Site is to the north-northwest. The overburden groundwater elevation in the area of OW-7S (source area) is approximately 523 feet (5 feet below ground surface). Across the Site, the average overburden groundwater elevation is 522.26 feet (8 feet below ground surface). The general top of bedrock groundwater elevation is 518 feet (10 feet below ground surface). The gradient across the site generally varies between 0.013 feet/feet (calculated with OW-LS (MW-2) and B3/PZ-2) and 0.033 feet/feet (calculated with OW-LS (MW-2) and MW-5S).

A localized southwesterly groundwater flow direction can be observed in the southwestern part of the SOH property. The change in groundwater direction in that area of the site is induced by three sump pumps located in the basement of the Ruby Gordon Property near the northwest corner. According to the 1996 RI, the pumps start when groundwater elevation reaches 521.00 feet.

The depth-to-water levels collected from the deep wells (typically screened below 30 feet below ground surface) are presented in **Figure 3-3**. The general top of bedrock groundwater flow direction is also to the north-northwest and the gradient across the site is approximately 0.002 feet/feet (between OW-2R and OW-3R).

3.7 Groundwater Sampling Results

To characterize the current groundwater conditions at the site, a total of 27 groundwater samples were collected between December 14 and 19, 2000. Twenty-two (22) samples were collected from the overburden groundwater and 5 samples were collected from the bedrock groundwater. The groundwater samples were analyzed for TCL volatile organics, TAL metals, TOC, dissolved organic carbon, bromide, fluoride, specific conductance, chloride, sulfate, alkalinity, nitrate, nitrite, phosphates, total dissolved solids and pH.

Groundwater samples were also collected from selected wells in July, September, and October 2000 during the implementation of a permanganate pilot test. Groundwater samples collected in July were used as a baseline to establish the efficiency of the pilot test, the September and October events were used to monitor the pilot test progress. The results of the groundwater samples collected for the pilot test will be discussed in **Section 4.0.** This data is included in the data summary tables.

This section of the report will discuss the analytical results of the samples collected between December 14 and 19, 2000. The results will be presented first for overburden groundwater, then for the bedrock groundwater.

3.7.1 Overburden Groundwater

A total of 22 groundwater samples were collected and analyzed for TCL volatile organics, TAL metals, TOC, dissolved organic carbon, bromide, fluoride, specific conductance, chloride, sulfate, alkalinity, nitrate, nitrite, phosphates, total dissolved solids and pH.

3.7.1.1 VOC Results in Overburden Groundwater

VOCs were detected in 21 of the 22 groundwater samples collected in December 2000. Twenty-one (21) groundwater samples reported at least one VOC result above the TOGS standards. The majority of the samples reported the following analytes above TOGS standards: 1,1,1-TCA; 1,1-DCA; 1,1-dichloroethene (1,1-DCE); 1,2 DCE (total); cis-1,2 DCE, methylene chloride; PCE; TCE; and vinyl chloride. 1,1,2-TCA, 2- butanone, acetone, benzene, chlorochloromethane, carbon tetrachloride, chloroform, chloroethane and toluene were also found in PZ-2 and TW-2. The monitoring well locations are presented in **Figure 3-4A.** The results of detected VOCs in overburden groundwater samples are presented in **Table 3-6A**. Complete analytical results are included in **Appendix D.**

The most prevalent VOCs detected above TOGS Standards were 1,1,1-TCA; 1,1-DCA; 1,1-DCE; cis-1,2 DCE; 1,2-DCE (total); methylene chloride; and TCE. These compounds were detected in most of the groundwater samples collected. Analytical results from groundwater samples collected from IPZ-2 and TW-2 indicated the presence of several other VOCs at elevated concentrations. IPZ-1 and TW-1 reported the highest TCE concentrations during the December sampling program at 600,000 µg/L and 640,000 µg/L, respectively.

The highest TCE concentrations in overburden groundwater was detected in IPZ-2 (1,200,000 µg/L) during the July 2000 sampling event, before the beginning of the permanganate pilot test. The 1996 RI had identified the area of OW-7S as the source area for the site. The 2000 investigation seems to indicate that the potential source of chemical is located closer to IPZ-2 than to OW-7S. Further discussions about the TCE source can be found in **Section 4.**

The 1996 FS identified 1,1,1-TCA; 1,1-DCA; 1,1-DCE; 1,2-DCA; 1,2-DCE (total); methylene chloride; TCE; PCE; and vinyl chloride as chemicals of concern for VOCs in overburden groundwater. The current investigation concurs with this conclusion; however, concentrations found during the current investigation are approximately an order-of-magnitude higher than those reported in the 1996 RI. The analytical results for these VOCs are presented in **Figures 3-4A** and **3-4B** (source area).

Figure 3-5 presents current TCE concentration across the Site. The concentration contour lines were generated using Surfer, version 7.0 (Golden Software), using the Krigging model. However, because of the large amount of data with elevated detection limits, 50 percent of the detection limit was used for results flagged with a “U”. Therefore, the contour generated must be considered conservative. As shown, TCE concentrations are the highest in the source area near OW-7S, diminishing in an almost radial pattern as distance increases from the source area, presenting single digit concentration at the periphery of the site. A plume of elevated TCE concentration is also observed in the southwestern part of the site, following the groundwater isocontour map presented in **Figure 3-2**. The general trends of these isoconcentration maps concur with the 1996 RI.

3.7.1.2 Metal and Cyanide Analytical Results in Overburden Groundwater

Metal analytes were detected in all of the 22 groundwater samples collected. All groundwater samples reported concentrations above TOGS 1.1.1 standards for at least one metal analyte. The metal analytes detected above TOGS 1.1.1 standards include antimony, chromium, iron, lead, magnesium, manganese, mercury, selenium and sodium. Iron, lead and magnesium were detected above TOGS 1.1.1 standards in almost all groundwater samples with the exception of OW-7S (iron only). Other analytes detected above TOGS 1.1.1 standards include antimony (OW-5S, OW-8S and PZ-2), mercury and selenium (IPZ-2 and IPZ-3) and nickel (TW-2). The results of detected metal in overburden groundwater samples are presented in **Table 3-6A.**

The elevated concentrations of sodium and manganese in the source area might be related to the sodium permanganate used in the pilot test. However, the background concentration of iron, magnesium, manganese and sodium across the site appears to be naturally elevated.

The 1996 FS identified aluminum, cobalt, lead, manganese, nickel and vanadium as chemicals of concern for metals in overburden groundwater. The current investigation did not report aluminum, cobalt and vanadium above TOGS 1.1.1 standards in any groundwater samples. Lead was detected above standards in IPZ-2 and OW-1 and nickel in TW-2. Manganese was detected at concentrations above TOGS 1.1.1 standards in IPZ-1, IPZ-2, IPZ-3, IW-1, OW-5S, OW-6S, PZ-1, PZ-3, TW-1, TW-2, TW-3, OW-1S and OW-2S which seems to indicate a site-wide distribution.

3.7.1.3 Wet Chemistry and Miscellaneous Results in Overburden Groundwater

The analytical results reported in this section include specific conductance, fluoride, DOC, TOC, chloride, nitrate/nitrite, total phosphate, sulfates, alkalinity, total dissolved solids, pH, COD and bromide.

An analytical summary of detected compounds is presented in **Table 3-6B** and complete results are included in **Appendix D**.

3.7.2 Bedrock Groundwater Results

Groundwater samples were analyzed for TCL volatile organics, TAL metals, total organic carbon, dissolved organic carbon, bromide, fluoride, specific conductance, chloride, sulfate, alkalinity, nitrate, nitrite, phosphates, total dissolved solids and pH.

3.7.2.1 VOCs Results in Bedrock Groundwater

VOCs were detected in 3 of the 5 groundwater samples collected in December 2000. Only OW-7R reported VOC concentrations above TOGS 1.1.1 standards. The analytes detected above TOGS 1.1.1 standards include 1,1,1-TCA; 1,1-DCA; 1,1-DCE; cis-1,2-DCE; 1,2-DCE (total); methylene chloride; TCE, and vinyl chloride. The results of detected VOCs in bedrock groundwater samples are presented in **Table 3-7A**.

The 1996 FS identified 1,1,1-TCA; 1,1-DCA; 1,1-DCE; 1,2-DCA; 1,2-DCE (total); methylene chloride; TCE; PCE, and vinyl chloride as chemicals of concern for VOC in bedrock groundwater. Results from the current investigation are within the same order of magnitude. The analytical results for these VOCs are presented in **Figure 3-6**.

3.7.2.2 Metal Results in Bedrock Groundwater

Metals analytes were detected in all 5 bedrock groundwater samples collected and all groundwater samples reported concentrations above TOGS 1.1.1 standards for at least one metal analyte. The analytes detected above TOGS 1.1.1 standards include iron in all samples; magnesium in OW-3R and OW-4R; manganese in OW-2R, OW-3R and OW-4R; and sodium in OW-4R. The results of detected metals in bedrock groundwater samples are presented in **Table 3-7A**.

As for the bedrock groundwater results, the concentrations of iron, manganese and sodium, appear to be naturally elevated across the site.

The 1996 FS identified aluminum, cobalt, lead, manganese, nickel and vanadium as chemicals of concern for metals in bedrock groundwater. None of these analytes were detected above TOGS 1.1.1 standards in the current investigation, with the exception of manganese (as discussed above).

3.7.2.3 Wet Chemical Results in Bedrock Groundwater

The analytical results presented in this section include specific conductance, fluoride, DOC, TOC, chloride, nitrate/nitrite, total phosphate, sulfates, alkalinity, total dissolved solids, pH, COD, and bromide.

An analytical summary of detected compounds is presented in **Table 3-7B** and complete results are included in **Appendix D**.

3.8 Drain-Line Tracer and Building Survey

A smoke test investigation was conducted at the site on January 30 and February 15, 2001. During the investigation, smoke was injected at 6 different locations and underground lines were video recorded to assess pipe conditions. Larsen Engineering's report detailing methodology and conclusions is included in **Appendix C**.

Two (2) below grade vaults were identified during the underground line survey. The 2 vaults are located in the northeastern portion of the facility, which according to the as-built sewer plan, are within the Plating Room and the Buffing Room areas. The vault in the plating room was approximately 6 feet by 8 feet in length and was covered by rotting plywood, which prevented safe assessment of the depth of the vault. The vault in the Plating Room appeared to be laden with an unknown liquid and no samples could be collected, because of safety concerns. The vault identified in the Buffing room is accessed via a manhole and is approximately 8 feet wide by 16 feet in length and 6 feet in depth. At the time of the investigation, the vault was filled with an orangish-brown liquid that was sampled at the time of the survey (Buffing Vault). The sample was sent to Mitkem and analyzed for VOCs, metals and pH. The analytical results are presented in **Tables 3-8A** and **3-8B** and report elevated concentrations of VOCs (1,1-DCE; 1,1,1-TCA; and toluene) and metals (antimony, cadmium, copper, iron, lead, nickel, selenium, sodium, thallium and zinc) which were all detected above TOGS 1.1.1 Standards.

A separator/sump of approximately 4 feet diameter was identified in the shipping/receiving room near the loading docks. Water and sediment was observed to a depth of 10 feet below grade. A total of 4 pipes were observed to drain in the direction of the separator which drains into a public sanitary sewer. Approximately 10 to 12 feet of sediment had accumulated in the separator/sump and the type of bottom (concrete or soil) of the separator could not be determined. Analytical results of the sediment collected in this separator (Sample-01) indicated elevated levels of VOCs, suggesting that the separator may have been used as a dry well and may have been a point of discharge for TCE in the overburden.

Several drain pipes and sewer lines were identified during the survey and their location on the as-built plan was confirmed. The lines connected to 2 of the 6 injection points were video recorded. The inspected pipes were generally described as severely corroded with potential of minor cracking. No evidence of severe pipe failure was noted for any of the lines that were video recorded. Video record of the other four injection points could not be performed due to plugging of the pipes or due to the presence of excessive water in the lines.

Many of the sanitary/storm sewer lines within the SOH facility were unable to be directly linked to a dedicated public sanitary or storm sewer. Therefore, no conclusive evidence was found as to whether these sewer lines exist within the building structure and are choked with sediments or whether these sewer lines have been cut from their identified manhole drainage connection. However, the smoke test confirmed that several sanitary sewer lines drain into a separator/sump structure located in the shipping and receiving area of the facility. The separator/sump structure empties into a dedicated (public) sanitary sewer line via an 8-inch pipe which was video recorded and described as severely corroded with minor cracking.

The complete Larsen Engineering report, which includes a map of underground drain and floor trenches found at the facility is included in **Appendix C.**

3.9 Sub-Slab Investigation – Soil Gas Survey

Based on the 1996 RI and recent pre-design investigations performed in the years 2000-2001, evidence of a secondary source under the SOH building slab created the need for additional investigation at that area of the site.

To characterize the soil conditions under the SOH building slab, a total of 28 soil borings were performed in a grid pattern within the building footprint on June 17 and June 18, 2002.

Fifty (50) percent of the soil gas samples containing the highest PID readings were submitted for lab analysis for VOCs. Similarly, twenty-five (25) percent of the soil samples containing the highest PID readings were submitted for lab analysis for VOCs. A summary of the drilling and sampling program as well as a detailed summary of the findings are contained in the full report as attached in **Appendix H.**

A brief summary of the report findings follows.

3.9.1 Sub-Slab Investigation Results

A total of thirteen (13) soil gas samples were selected for laboratory analysis based on field PID readings. Based on the laboratory analysis, total VOC concentrations ranged from 24.2 to 2,143.4 (mg/m^3) with the highest total VOC concentrations found in borings GP-1, GP-2 and GP-2Q.

A total of seven (7) soil samples were selected for laboratory analysis based on field headspace PID readings. Concentrations of 1,1-dichloroethene, 1,1,1-trichloroethane, and trichloroethene were detected at concentrations exceeding the respective recommended soil cleanup objectives listed in Technical Administrative Guidance Memorandum Section 4046 (TAGM 4046) in the soil samples submitted from borings GP-24, GP-26 and GP-28.

The Sub-Slab Investigation Report concludes that the highest soil gas and soil VOC concentrations were detected in the samples proximate to the existing pit and sump/separator located near the inside southwestern corners of the SOH building.

These findings support the findings of the subsurface soil investigation sampling program which was performed for the 1996 RI as described in **Section 3.3.1** of this Report. See **Figure 4** of the Sub-Slab Investigation Report found in **Appendix H** for total VOC concentrations within the SOH building footprint and **Figure 4-1** for the estimated extent of the VOC source area.

4.0 PERMANGANATE INJECTION PILOT TEST

4.1 Baseline Groundwater Sampling

Prior to the injection of permanganate, six groundwater samples were collected from injection well IW-1, IPZ-1, IPZ-2, IPZ-3, OW-7R and OW-7S to establish pre-injection site conditions. The results from these samples are the baseline for comparison of post-injection samples to determine the viability and efficiency of the permanganate injection system.

TCE was the dominant VOC constituent detected in IW-1, IPZ-1, IPZ-2, and OW-7S with concentrations ranging from 68,000 ug/L in OW-7S to 1,200,000 ug/L in IPZ-2. Although TCE was also detected in IPZ-3 and OW-7R, it was not the predominant VOC. 1,2-DCE and methylene chloride were also detected in the groundwater samples at lower concentrations. In addition to chlorinated ethenes, chlorinated ethanes were also detected in OW-7R and IPZ-3 with 1,1,1-TCA concentrations ranging from 1,200 ug/L and 100,000 ug/L, respectively, and 1,1-DCA concentrations ranging from 2,900 ug/L to 110,000 ug/L, respectively.

The high TCE concentration measured in IPZ-2 (1,200,000 ug/L) suggests a possible TCE source area in close proximity to this well, potentially beneath the adjacent facility (**Figure 4-1**). This concentration is approximately 10-times the soil TCE concentrations detected in soil boring SB-3 located proximate to this area.

Well IPZ-3 contained primarily 1,1-DCA (110,000 ug/L) and 1,1,1-TCA (100,000 ug/L). Because these compounds are not degradation products of TCE, this area more likely represents contamination due to a separate source or migrations of a separate source material from a different area of the site. The results of the Sub-Slab Investigation performed in June 2002 support that this separate source is likely the existing pit located near the southwest building corner.

The analytical results from the well couple (OW-7S and OW-7R) reported moderate concentrations of TCE and DCE, which implies a downgradient proximity to a TCE source area with corresponding ongoing naturally occurring bioremediation.

Baseline oxidation reduction potential (ORP) measurements (**Table 4-1**), ranging from –236 to –46 millivolts (mv), indicates the presence of natural reducing conditions throughout the pilot test area. Lower ORP values correlate with a reducing (anaerobic) environment. Typically, these areas are characterized by high concentrations of VOC constituents and limited aerobic microbial activity (**Table 4-1**).

Naturally occurring soluble metals concentrations were variable across the pilot test area. Only iron and manganese were monitored during the pilot study and ranged in concentrations from 20 to 187 mg/L for iron and <1 to 7.5 mg/L for manganese. The background COD values were also variable, ranging from 0.35 to 2.9 mg/L. Chloride concentrations observed prior to the $NaMnO_4$ injection varied only slightly, from 0.3 to 0.9 mg/L.

4.2 Sodium Permanganate Injection

During the week of July 17, 2000, 720 gallons of 40 percent sodium permanganate solution was injected at the loading dock source area through wells IW-1, IPZ-2, and IPZ-3. Because of tight geological conditions in the loading dock area, gravity injection was unsuccessful. However, under a minimum pressure injection system (3 to 5 pounds per square inch (psi)), permanganate was successfully delivered to the subsurface at a rate of 0.5 gallons per minute. Because of the high density of utility conduits in the injection area, some short-circuiting of the permanganate was observed. This was overcome, by using multi-well injection, instead of one well for the total mass.

The VOC data obtained during the baseline sampling indicated VOC contamination approximately 6 times greater than originally anticipated. The amount of permanganate applied during the pilot study (approximately 3,300 pounds) was therefore insufficient to meet the full contaminant demand for the actual VOC mass encountered at the site. The oxidant demand for the actual contaminant levels would be more than 20,000 pounds of $NaMnO_4$, Therefore, the $NaMnO_4$ mass loading during the pilot study was approximately 15 percent of the mass required for full treatment based on the baseline TCE monitoring. Because the loading rate is greater than the amount of $NaMnO_4$ injected, 100 percent removal was not expected. Concentrations however, even with this partial application, were measurably decreased within the vicinity of the injection wells.

Although TCE is the most prevalent VOC in the source area, the suite of contaminants measured within the area varied in components and concentrations. Permanganate does not typically oxidize the more recalcitrant organics (such as the chlorinated ethanes) or methylene chloride to a large degree. While some co-oxidation may occur, more typically, concentrations of these not readily oxidizable compounds remain unchanged or increase (by desorption from soil). Therefore, it is not unexpected that chlorinated ethane concentrations within the source area would remain unchanged during the pilot test.

4.3 Post-Injection Field and Groundwater Monitoring

To determine the efficiency and radius of influence of the permanganate injection system, field measurements of color, pH, and oxygen reduction potential were collected periodically for several weeks (**Table 4-2**). These measurements were then complemented with additional groundwater sampling and analysis. The first round of post-injection groundwater samples was collected on September 11 and 22, (approximately 8-weeks post-injection) from IPZ-2, TW-1, TW-2, TW-3, TW-4, OW-7S and OW-7R. Samples were analyzed for VOCs, COD, iron, manganese, and chloride. The second round of post-injection groundwater samples were collected approximately 12 weeks post injection on October 20, 2000. Collected groundwater samples were analyzed for VOCs, COD, iron, manganese, and chloride.

4.3.1 Injection Wells (IW-1, IPZ-2 and IPZ-3):

During the September post-injection sampling, all 3 injection wells exhibited the characteristic purple color (un-reacted permanganate) and increased groundwater ORP (> 600 mv) levels associated with ongoing *in situ* treatment. The increase in ORP values indicates the switch from a reducing environment to a highly oxidizing one. Generally, ORP levels in excess of 500 mV correspond to the presence of excess oxidizer, which can be visually detected by the purple color.

In all 3 of the injection wells, permanganate was still visibly detected in January 2001 with elevated ORP values measured through December 2000. These parameters indicate that significant available and un-reacted permanganate mass persisted in the injection wells at least through January 2001. Therefore, it is likely that these wells continued to act as a source of permanganate by mass diffusion into the formation.

TCE concentrations in both IW-1 and IPZ-2 were reduced by approximately 100 percent during the pilot study. These decreased concentrations were maintained even 3 months after the initial oxidant injection indicating the continued presence of un-reacted permanganate. At this time, it is impossible to determine if rebound or recontamination of these wells would occur since significant permanganate mass remained in these wells at the time of the last sampling event. Other contaminants that were present even in the presence of the oxidizer included methylene chloride and 1,2-DCE. Between 25 to 90 percent reduction of these contaminants was achieved in these wells during the field study period (**Table 4-3**).

TCE and 1,2-DCE concentrations in IPZ-3 were reduced by at least 46 percent and 32 percent, respectively. However, the methylene chloride and 1,1,1-TCA concentrations appeared to increase during the pilot study. In general, corresponding concentrations of the less oxidizable compounds, 1,1-DCA and 1,1,1-TCA in the injection wells increased somewhat versus the concentrations detected prior to oxidant injection. These changes are consistent with observations at other pilot test sites where concentrations of these compounds are only slightly impacted or appear to increase. An increase in concentrations may occur as permanganate destroys some of the soils adsorptive capacity, releasing previously sorbed contaminants into the groundwater. Also, as oxidation of the ethenes, which were initially one or more orders of magnitude greater in concentration than the ethanes occurs, the laboratory results begin to quantify concentrations of less prevalent compounds previously masked by the higher detection limits resulting from large ethene concentrations.

Iron concentrations generally decreased, indicating a conversion (oxidation) to insoluble (ferrous) iron in these wells. This decrease was anticipated under the predicted oxidizing conditions. The corresponding manganese concentrations increased in these wells. This was also expected as the excess permanganate contained elemental manganese as detected by this analysis.

COD and chloride concentrations could not be effectively measured in these wells because the presence of color adversely impacts colorimetric techniques.

4.3.2 Proximate Wells (IPZ-1 and OW-7):

Well IPZ-1, located equidistant from the injection area (IW-1) and the catch basin, does not appear to have been impacted by the permanganate additions. While IPZ-1 is only 14 feet from IW-1 and about 20 feet from the center of the injection area, no permanganate was visually detected in this well, nor was the groundwater ORP measured at this well significantly altered by the injection of permanganate at the site.

ORP values measured in IPZ-1 following the permanganate injection increased slightly. However, the ORP measurements never attained values that indicate the presence of permanganate, though it is possible that the continued increase in ORP indicates that permanganate is migrating into the region surrounding IPZ-1. Because the total liquid volume added to IW-1 was 1,500 gallons, which is insufficient to displace sufficient groundwater to cause a significant impact, this increase in ORP value is more likely resultant from natural fluctuations and limited groundwater movement.

The groundwater contaminant concentrations measured in well IPZ-1 increased from the baseline sampling values. This well does not appear to have been within the permanganate treatment zone, as evidenced by VOC concentrations and ORP measurements during the pilot study. While concentrations of some compounds decreased slightly (1,2-DCE, 1,1-DCA, and 1,1,1-TCA), permanganate is not known to effectively treat aliphatic compounds and the reduction in 1,1-DCA and 1,1,1-TCA concentrations is likely not due to oxidation. The TCE and methylene chloride concentrations in this well increased over the time period during which groundwater sampling was conducted. The increase in concentrations of these constituents and decrease in 1,2-DCE, 1,1-DCA, and 1,1,1-TCA concentrations may indicate that desorption of contaminants due to oxidation of TOC increased groundwater contaminant concentrations in the vicinity of IPZ-1.

Treatment of TCE and 1,2-DCE appears to have occurred in well OW-7S (located 43 feet southwest and co-gradient of the injection zone) during the pilot study. However, no direct permanganate impact was observed at this well via either visual detection of permanganate or elevated groundwater ORP values. Also, the decrease in concentrations in both the overburden and bedrock intervals is generally greater than 30 percent, which is more than would normally be attributed to natural fluctuations in groundwater concentrations or laboratory methodology inconsistencies. Therefore, the decrease in contaminant mass in this well is likely a result of lower concentrations upgradient passing through this well and a slight preferential component of groundwater flow toward the southwest resulting from the apparent groundwater depression caused by the basement sumps in the Ruby Gordon facility. Further, it is likely that groundwater of lower contaminant concentrations migrated into the region surrounding the OW-7 couplet as part of this preferential flow pattern in this portion of the site.

Both of these wells show that the natural hydraulic gradient towards the northwest may not be substantial enough to overcome the hydraulic reversal caused by the Ruby Gordon sump pumps. The hydraulics of the Ruby Gordon sump pumps will have to be considered in the final permanganate injection scheme design.

4.3.3 Temporary Wells (TW-1, TW-2, TW-3, and TW-4)

Well TW-1 (located 8 feet northwest of IW-1) indicated slightly elevated ORP values after the permanganate injection. However, these ORP values are well below the average ORP threshold values where significant permanganate concentrations are observed. Elevated ORP values may act as a precursor or an indicator of permanganate presence and begin to increase prior to actual permanganate appearance. Based on the lack of visually observed permanganate, it is estimated that significant permanganate mass did not reach TW-1.

Contaminant concentrations in TW-1 did show a decrease in TCE, methylene chloride, and 1,1-DCA. Contaminant concentrations, as summarized in **Table 4-3**, show a successive decline in both the September and October sampling events. Given the natural groundwater direction is in the northwest direction, it is more likely that treated water moved along a preferential path from the injection zone into the vicinity of TW-1, than actual contaminant oxidation occurred in the well.

Measurement of TW-2 (located 12 feet southwest of injection well IPZ-3) indicated a strong ORP increase and visual detection of low levels of permanganate in the well in September 2000, clearly indicating that this location was within the treatment zone. However, the contaminant concentrations measured in this well increased from the September to October sampling events (see **Table 4-3**). It is possible that more highly contaminated water from an upgradient source zone as identified in the June 2002 Sub-Slab Investigation (**Appendix H**) may have migrated into the vicinity of TW-2 as permanganate concentrations declined. Also, if permanganate/TOC kinetics are more rapid than the permanganate /contaminant kinetics, it is possible that permanganate mass delivered to the area was sufficient only to effectively oxidize TOC in the region, reducing the adsorptive capabilities of the soil and increasing contaminant groundwater concentrations in the vicinity of TW-2.

Based on ORP values measured in TW-3 and TW-4, these wells were not impacted by the injection of permanganate at the site. These wells were located approximately 24 and 32 feet from IPZ-3, respectively. There was no evidence of permanganate presence in wells TW-3 and TW-4 and no contaminant treatment appears to have occurred in the vicinity of these wells. In fact, concentrations of virtually all contaminants detected in both wells appear to have increased during the pilot study (see **Table 4-3**). It is possible that groundwater from a second contaminant source zone (likely located within the facility) is migrating into the region surrounding these wells as further supported by the Sub-Slab Investigation.

4.4 Estimation of Radius of Influence

Based on the previous discussion and field observations during the injection phase, it is estimated that a maximum radius of influence (ROI) of 10 feet (color) to 20 feet (ORP) was achieved at this site. The site conditions, predominantly the compact till, limits the ROI for subsurface oxidant delivery. It is possible that alternative oxidant delivery techniques (increased pressure in shorter screened intervals, formational fracture emplacement, slow percolation through shallow trench/leaching field or use of multiple points of addition) or alteration of the injection parameters (pulsed additions, post addition water flush or air sparge) will alleviate the physical difficulties inherent in this formation.

4.5 Estimation of Volatile Organic Compound Removal

As discussed previously, contaminant reduction was extensive in the vicinity of IW-1 and IPZ-2, where TCE concentrations were decreased by two to three orders of magnitude. Based upon the analytical results alone, the observed contaminant concentration reduction may not be attributed to oxidation alone. For illustration, if all the concentration reductions were due to oxidation, the injection wells had an effective radius of influence of 10 feet with an estimated porosity of 0.30, treatment near IPZ-2, where TCE was reduced from 1,200,000 µg/L to 1,200 µg/L, may have resulted in the removal of about 70 pounds of TCE. The introduction of permanganate at IPZ-2 may have also resulted in the destruction of 35 pounds of methylene chloride. Although initial concentrations measured in IW-1 were lower than IPZ-2, significant mass destruction occurred at this well, also. The treatment at IW-1 may have resulted in the destruction of an additional 27 pounds TCE and 9 pounds methylene chloride. These calculations imply total mass removals of approximately 140 pounds of contaminant mass and the continued presence of un-reacted permanganate.

4.6 Permanganate Injection Viability

Field data from the pilot test has shown that permanganate is an effective oxidant for chlorinated ethenes and methylene chloride. Decreases of 99% TCE and >80% Methylene Chloride were observed in and proximate to the permanganate addition wells. Based upon the performance, permanganate injection (Perm-Ox) has been shown to be viable and effective.

The site conditions, notably the relatively tight formation, inhibit the development of large radii of influence. ROI of 10 feet (color) to 20 feet (ORP) were observed in the field pilot area, however the area is also a function of the site conditions and existing/historical utilities. Future applications should be conducted in multiple addition points with a close well spacing (25' on center) under relatively low injection pressures or infiltration galleries/leaching fields. Any further injections must also remain sensitive to short circuiting and preferential flow pathways during addition. The injection flow rate was not observed to change over time in the injection wells. This would indicate that formational plugging / clogging was not observed to a large extent.

Colorimetric measurements of un-reacted permanganate have been used as a tracer of permanganate travel. In general, significant VOC decreases were observed and sustained in the wells containing permanganate. Wells downgradient of the injection area showed more variable results – VOC concentrations decreased in some wells (OW-7) and increased in others

(IPZ-2). This diversity of impact shows that permanganate is an effective oxidizer, but highlights that the source and target areas must be known and adequately dosed for proper treatment. The concentrations present, particularly at IPZ-2, imply there may be additional, potentially upgradient source areas. The results of the Sub-Slab Investigation support this statement.

No major impacts to metals, chloride and COD were noted outside the pilot area, indicating impacts were confined to the pilot area. Thus, oxidant impacts are confined to the treatment area.

The groundwater contour map also shows that the off-site sump (in the Ruby Gordon's Furniture building) appears to exhibit some hydraulic impact to the extent of onsite contamination. Any future remedial scenarios must also remain cognizant of this potential impact and the potential for off-site migration caused by the existing sump pumps.

5.0 FOCUSED FEASIBILITY STUDY

In 1996, GZA GeoEnvironmental issued the *Feasibility Study Report, Stuart-Olver-Holtz Site* for the NYSDEC. The purpose of the FS was to identify and evaluate technologies to remediate areas of contamination at the SOH site identified in the Remedial Investigation Report. Based on the recommendations in the FS, a Record of Decision was issued by the NYSDEC in March 1997. The selected remedy was Site Wide Alternative 5 (SWA-5). SWA-5 consists of excavation or isolation of contaminated surface soils, a short-term source area extraction system, a downgradient contaminated overburden groundwater collection trench system, and passive pretreatment of contaminated groundwater by a zero valence iron wall with eventual discharge to the local POTW.

In September 1999, IT Corporation submitted the *Remedial Design Work Plan* for SOH, based on the 1997 ROD. This work plan recommended further investigation to better define the source area and to determine if any unknown sources existed. In conjunction with the *Pre-Design Investigation Sampling and Analysis Work Plan* (February 2000), IT Corporation submitted an *Addendum to the Remedial Design Work Plan* (March 2000) for a field pilot test of permanganate injection (Perm-Ox). Perm-Ox is an *in situ* chemical oxidation technology that is used to destroy chlorinated ethenes in groundwater. The purpose of the pilot test was to determine if permanganate injection would be a more viable and cost effective remedial alternative for the overburden groundwater than the current alternative in the ROD.

5.1 Summary of 1996 FS and Record of Decision

5.1.1 FS Remedial Action Objectives (RAOs)

As part of the FS process, overall remedial action objectives (RAOs) for the chemicals of potential concern **(Appendix G)** were established to meet the SCGs and be protective of human health and the environment. The objectives set forth in the FS and recorded in the Record of Decision are:

- Eliminate to the extent practicable the potential for direct human or animal contact with site contaminants.
- Reduce, control, or eliminate to the extent practicable the contamination present within the soils and water on site.
- Reduce, control, or eliminate to the extent practicable any further migration of contaminated groundwater from the site, including migration into the Ruby Gordon basement sumps.

- Provide, to the extent practicable, for attainment of groundwater SCGs in the area affected by the site.

5.1.2 Site Wide Remedial Alternatives

The FS evaluated 5 site wide alternatives that would be protective of human health and the environment, including a “No Further Action” alternative. The 5 site wide alternatives were:

- SWA-1 – No Action
- SWA-2 – Deep Perimeter Collection Trench/Soil and Sediment Off-site Disposal
- SWA-3 – Perimeter Extraction Wells/Off-site Soil and Sediment Disposal
- SWA-4 – Perimeter Extraction Wells/Off-site Soil and Sediment Disposal
- SWA-5 – Vertical Barrier Wall and Shallow Collection Trench with Zero Valence Iron Pretreatment/Off-Site Soil and Sediment Disposal

The FS evaluated all the site wide alternatives based on the 7 CERCLA screening criteria:

1. Overall Protection of Human Health and Environment
2. Compliance with SCGs, Applicable or Relevant and Appropriate Requirements (ARARs), and Other Regulations
3. Short Term Effectiveness
4. Long Term Effectiveness
5. Reduction in Mobility, Toxicity, and Volume
6. Implementability
7. Cost

The analysis of the alternatives was two tiered. The first tier was comprised of these threshold factors:

1. Overall protection of human health and the environment, and
2. compliance with SCGs, ARARs, and other regulations.

Any selected remedy must result in overall protection of human health and the environment. Similarly, the SCGs, ARARs, and other regulations must be complied with unless there is an overriding reason why compliance is not possible.

The second tier was comprised of the remaining five criteria. The relative merits and problems associated with meeting these factors must be balanced in arriving at a remedy. The issues associated with each of these seven criteria are briefly described below.

Overall Protection of Human Health and Environment
This criterion addresses the overall protection of human health and the environment by eliminating, reducing or controlling site risks posed through the exposure pathways. This includes direct contact risks and potential risks to ecosystems.

Compliance with SCGs, ARARs, and Other Regulations
This criterion evaluates how each alternative complied with SCGs, ARARs and other regulations. The three regulatory categories of ARARs that were considered are chemical-specific, location-specific, and action-specific.

Short-Term Effectiveness
The effectiveness of an alternative in protecting human health and the environment during construction and implementation was assessed under short-term effectiveness. This criterion encompassed concerns about short-term impacts, as well as the length of time required to implement the alternative. Factors such as cross media impacts, the need to transport contaminated material through populated areas, current site operations, and the potential disruption of neighborhoods and ecosystems were evaluated.

This criterion assumes a site-specific health and safety plan would be prepared, which would include the potential impacts of a particular remediation activity and contain measures to address the concerns.

Long-Term Effectiveness
The evaluation of an alternative under this criterion addressed the results of the remedial action in terms of residual risk and residual mass of contaminants of potential concern (COPCs) remaining in a particular media after the completion of the alternative.

Reduction in Mobility, Toxicity, and Volume
This criterion involved the following factors:

- Degree of expected reduction of contamination, in terms of concentration and mass
- The mass of contamination or the volume of impacted media that will be destroyed or contained.

This criterion also addressed changes in risks due to changes in mobility, toxicity, and volume.

Implementability

This criterion involved an evaluation of the alternative with respect to performance, reliability, and implementability. Performance and reliability focused on the ability of the alternative to meet specific goals or clean-up levels. The implementability of an alternative addresses construction and operation in regards to the site-specific conditions. Implementability also addresses the difficulties or impediments of implementing a particular treatment option at the site. It also focused on the time and effort required obtaining appropriate approvals, and addressing other administrative issues.

Cost

Capital and operation and maintenance costs were evaluated for each alternative under each scenario. These costs include design and construction costs, remedial action operating costs, other capital and short-term costs, costs associated with maintenance, and costs of performance evaluations, including monitoring. All costs were also calculated on a present worth basis.

Based on the detailed analysis using the CERCLA criteria described above, SWA–5 was recommended as the site wide alternative. SWA–5 includes the following components:

Overburden Groundwater Actions

- Install a shallow groundwater collection trench system along the north and west property boundaries to collect and contain contaminated groundwater.
- Install and operate a passive groundwater pretreatment system. The system consists of subsurface vaults containing zero valence iron filings for destruction of chlorinated VOCs. Pretreated groundwater would discharge by gravity to the sanitary sewer for final treatment at the local POTW.
- Install and operate groundwater extraction wells for removal of contaminants from the source area near OW-7S.
- Install and operate a shallow groundwater collection trench adjacent to the Ruby Gordon basement to intercept contaminated groundwater.
- Conduct periodic, long-term overburden groundwater monitoring.
- Construct drainage improvements between Ruby Gordon and the SOH site to minimize groundwater recharge to the Ruby Gordon basement.
- Recommend deed restrictions on future use(s) of the site.

Bedrock Groundwater Actions

- Implement institutional controls to reduce the potential for exposure to contaminated bedrock groundwater. This would include: disconnecting the SOH interior bedrock wells, conducting bedrock groundwater monitoring, and recommending deed restrictions of future use(s) of groundwater.

Surface Soil Action:

- Excavate the on-site and off-site surface soils that are above SCGs and transport off-site for disposal. Regrade and restore the excavated areas. Isolation of on-site contaminated surface soils could be done in-lieu of excavation.

SOH Sump Contents:

- Clean and dispose accumulated sediments from site sumps, catch basins, and related piping at one off-site facility.
- Evaluate, upgrade or decommission drainage lines or connections.

The ROD was issued for this remedy.

5.2 Re-Evaluation of Overburden Groundwater Actions

During the preparation of the remedial design workplan, it was determined that additional site characterization of the source area located near the Metalade loading dock was needed. It was also determined that the reactive barrier wall and shallow collection trench may not be the most viable and cost effective remedy for remedial treatment of the chlorinated VOCs in overburden groundwater at the SOH site. In March 2000, IT Corporation proposed a pilot test for an *in situ* chemical oxidation system using Perm-OX. The pilot test was performed in June and July 2000. The pilot test concluded that permanganate injection is a feasible remedy for chlorinated ethenes in the overburden groundwater. When permanganate injection is combined with an augmented *in situ* bioremediation system, it provides a feasible and cost-effective remedial alternative for all chlorinated VOCs in the overburden groundwater. The permanganate injection destroys the chlorinated ethenes, while the bioremediation system destroys the chlorinated ethanes. The following sections provide a re-evaluation and comparative analysis of the SWA-5 overburden groundwater remedy with the permanganate injection/bioremediation system.

5.2.1 Shallow Groundwater Collection Trenches/Extraction Wells and Passive Treatment Prior to POTW Discharge

The system of shallow groundwater collection trenches and extraction wells with passive groundwater pretreatment prior to discharge to the local POTW included in the ROD remedy was reevaluated based upon new data obtained during the pre-design investigation. The remedy presented in the ROD was evaluated based upon treating shallow groundwater containing TCE up to 140,000 µg/L, 1,1,1-TCA up to 24,000 µg/L, 1,1-DCA up to 10,000 µg/L, and vinyl chloride up to 11,000 µg/L. The passive groundwater pretreatment system would consist of vaults filled with zero valence iron. The zero valence iron would reduce the ethenes, and to a lesser degree the ethanes. Primary treatment of the ethanes would be accomplished at the local POTW. The data collected as part of the pre-design investigation shows TCE up to 1,200,000 µg/L, 1,1,1-TCA up to 290,000 µg/L, 1,1-DCA up to 120,000 µg/L, vinyl chloride up to 380 µg/L, and methylene chloride up to 680,000 µg/L. Methylene chloride was not detected in overburden groundwater above the SCGs during the 1996 FS. Because of the significantly higher VOC concentrations detected in the overburden groundwater during the pre-design investigation, the containment and pretreatment system was reevaluated.

The concept of passive groundwater treatment using zero valence iron involves the construction of a permeable wall containing iron filings across the path of a contaminant plume. An alternative method of construction incorporates either a funnel and gate arrangement or collection trenches and vaults (or sumps) filled with iron. The contaminant plume is either funneled toward the gate filled with iron or actively pumped from the collection trench/sump system. Under reducing conditions, zero valence iron degrades dissolved organic compounds to non-toxic products such as ethene, ethane, and chloride. The process is abiotic reductive dehalogenation, with the iron serving to lower the solution redox potential and as the electron donor in the reaction. The process is capable of degrading TCE, cis 1,2-DCE, 1,1,1-TCA, 1,1-DCA, and vinyl chloride; however, the process has no effect on methylene chloride.

IT Corporation contacted Environmental Technologies Inc. (ETI) regarding the application of a passive treatment system using zero valence iron at the Site. ETI has been granted exclusive rights for commercialization of this technology by the patent holder, the University of Waterloo. ETI also provided consultation to GZA GeoEnvironmental during their preparation of the 1996 FS regarding the use of zero valence iron for passive groundwater treatment. Based upon ETI's review of the new site data, they would not recommend the use of vaults or sumps for passive groundwater treatment. Because of residence time limitations associated with a trench and vault system and due to the higher concentrations of VOCs in the overburden groundwater, ETI recommends using a continuous permeable wall approximately 500 feet long by 20 feet deep containing zero valence iron granules. ETI estimated that a residence time of about 3 days would be required to reduce the VOC levels present in the shallow groundwater to less that 2.2

mg/L total VOCs. Based on an estimated groundwater flow velocity of 1.1 feet/day, a reactive barrier wall approximately 3.3 feet thick would provide the required residence time.

ETI recognizes the systems limitation with respect to methylene chloride treatment and recommends combining the reactive barrier wall with other *in situ* treatment technologies; however, these other treatment technologies are not identified in this report. Another limitation of the reactive barrier wall system is that it does not directly address the source area at the Site. This limitation directly impacts the estimated time of implementation of this technology. Essentially, the rate limiting process would be the transport of VOCs from the source area to the permeable wall.

Prior to final design of a reactive barrier wall system, ETI recommends performing a laboratory column test using groundwater obtained from the site to predict system performance and to obtain final design parameters. Also during final design, a treatment technology for methylene chloride would have to be identified and evaluated.

The estimated minimum time of implementation of this alternative is 40 years. The estimated present worth cost is $4,439,914. A detailed breakdown of this estimate is included in **Appendix A**.

5.2.2 Development of New Site Wide Alternative

In March 2000, IT Corporation proposed an *in-situ* chemical oxidation system using Perm-Ox as a potential alternative remedy for the chlorinated ethenes at the Site. A pilot test was performed in June and July 2000 that proved this technology to be a viable remedy for the chlorinated ethenes in the overburden groundwater. When the permanganate injection system is combined with an augmented *in-situ* bioremediation system, the combination provides a viable and cost-effective alternative for chlorinated VOCs (both ethenes and ethanes) in the overburden groundwater. The permanganate injection system destroys the chlorinated ethenes, while the bioremediation system destroys the chlorinated ethanes.

5.2.2.1 Permanganate Injection

Permanganate injection uses the permanganate ion to oxidize organic contaminants in the subsurface to non-toxic compounds. Permanganate, delivered either as potassium ($KMnO_4$) or sodium ($NaMnO_4$) salts, is a common oxidant widely used in the water treatment industry to remove and precipitate dissolved metals and in the sewage treatment industry to treat hydrogen sulfide odors. Permanganate ions will react with and oxidize a wide range of common organic compounds, relatively quickly and completely. In particular, permanganate ions react rapidly with the non-conjugated (i.e., nonaromatic) double bonds in chlorinated ethenes such as TCE, PCE, DCE isomers, and vinyl chloride.

Research at the University of Waterloo has demonstrated that injection of permanganate solutions into soils contaminated with chlorinated ethenes results in substantial *in situ* destruction of the VOCs. IT Corporation has completed numerous successful field trials of permanganate with the percent reduction of chlorinated ethenes ranging from greater than 60-percent to greater than 99 percent under both pilot and full scale addition scenarios.

Permanganate oxidizes the chlorinated ethenes to CO_2 and chloride ions. The balanced chemical equation for potassium permanganate ($KMnO_4$) oxidation of TCE (for example) is:

$$\textbf{TCE}: 2KMnO_4 + C_2HCl_3 \text{--->} 2CO_2 + 2MnO_2 + 2K^+ + 3Cl^- + H^+$$

Sodium permanganate ($NaMnO_4$) may also be used and has the advantage of being available as a 40 percent liquid solution. $NaMnO_4$ oxidation of TCE follows the same reaction pathways as $KMnO_4$, except that the reaction forms Na^+ ions rather than the K^+ ions:

$$\textbf{TCE}: 2NaMnO_4 + C_2HCl_3 \text{--->} 2CO_2 + 2MnO_2 + 2Na^+ + 3Cl^- + H^+$$

A disadvantage of using sodium permanganate is its higher cost.

The effectiveness of *in situ* oxidation treatment depends on the following three factors:

- The kinetics of the reaction between the permanganate and the contaminant compounds.
- The contact between the oxidant and the contaminants.
- Competitive reactions of permanganate with other reduced/oxidizable species.

If the contaminant being targeted for *in situ* chemical oxidation is reactive (i.e., chlorinated ethenes), and sufficient oxidant has been added to overcome the demand from other reduced species, the limiting factor of successful *in situ* oxidation is the transport of the oxidant to the areas where contaminants are present, not the reaction between the permanganate and the contaminants. The oxidation of contaminants by permanganate is an essentially instantaneous reaction. If the permanganate contacts the contaminant, it will react. Significant oxidation can be observed in as little as a few hours after addition. By contrast, travel times for the permanganate to migrate away from the injecting point may be on the order of a day to weeks, depending on the rate of groundwater flow.

The primary limitation to permanganate treatment is the ability to apply the permanganate *in situ* and to maintain efficient contact between the permanganate and the contaminants. Low permeability soils and highly heterogeneous soils may present a challenge to applying permanganate at a target location.

Based on the field data gathered during the pilot test, permanganate injection has been shown to be a viable and effective technology for the treatment of chlorinated ethenes (see **Table 4-3**). After finalizing the delineation of the source area, permanganate solution would be mixed on-site and injected in shallow injection wells, screened 14 to 24 feet below ground surface, to treat the overburden groundwater and saturated zone. Twenty-five (25) shallow wells would be installed along the western, northern, and portions of the southern property boundaries approximately 50 feet inside the property boundary. These boundary wells will be installed on 25-foot centers. This distance will allow all permanganate to react with contaminants prior to leaving the confines of the property. An additional 34 wells would be installed within the plume mass to destroy the migrating plume. To treat the source area, there are two options:

1. A total of twenty-one (21) wells would be installed within the delineated source area(s) at depths determined during the final design/installation (10 outside the building and 11 under the building slab);

or

2. An infiltration gallery would be installed within the delineated source area.

It is anticipated that only one injection of permanganate will be necessary. The time of implementation is estimated to be one-year, due to limited injecting rates and radius of influence anticipated. **Figure 5-1** shows the location of the proposed injection wells which has been revised based on the results of the June 2002 Sub-Slab Investigation.

5.2.2.2 Augmented Bioremediation

Although the permanganate injection system described above will not provide destruction of the more recalcitrant compounds that are present in the source area, most notably 1,1,1-TCA and 1,1-DCA, it will reduce the total chlorinated concentrations to a concentration amenable to biodegradation. Therefore, anaerobic biodegradation of the chlorinated ethanes and any residual chlorinated ethenes can be induced and accelerated through the addition of a carbon amendment.

The addition of a carbon amendment such as molasses, sodium lactate or glucose into an aquifer supplies a readily biodegradable source of carbon that can induce anaerobic conditions by depleting the oxygen, and thus enhancing and supporting the anaerobic biodegradation of chlorinated ethanes and ethenes. The proposed permanganate injection will reduce the available carbon sources and produce aerobic oxidizing conditions within the aquifer. The addition of molasses or some other carbon amendment will revert the aquifer to anaerobic conditions and serve to enhance natural attenuation of the residual VOCs. The following subsections discuss reductive dechlorination and the application of an augmented bioremediation technology.

Reductive Dechlorination

The primary mechanism for mass reduction of chlorinated ethenes and ethanes during natural attenuation is anaerobic biodegradation by a process called reductive dechlorination. During reductive dechlorination, chlorine atoms are sequentially removed and replaced by hydrogen atoms. This process results in the formation of a series of lesser-chlorinated daughter products with the release of inorganic chloride. For example, PCE is dechlorinated to sequentially form TCE, cis-1,2-dichloroethene with some trans-1,2-DCE, vinyl chloride, chloroethane, ethene and ethane. The primary biological daughter product of 1,1,1- TCA is 1,1-DCA, which is further reductively dechlorinated to chloroethane and then ethane. A few of the intermediate products of reductive dechlorination, including vinyl chloride and chloroethane, can be further degraded either anaerobically or aerobically. Chloroethane also abiotically degrades to ethanol. The ultimate end products are carbon dioxide, methane, water and inorganic chloride.

In the process of reductive dechlorination, the chlorinated compounds serve as electron acceptors, similar to the role oxygen plays in aerobic degradation. Since the majority of chlorinated compounds cannot be used as sole sources of carbon, other sources of carbon must be present in the subsurface to serve as carbon sources and electron donors to support reductive dechlorination. Such sources of carbon can be either naturally occurring (e.g. humic matter), or other organic contaminants or amendments (e.g. sugars, alcohols, ketones, butane or petroleum products). Another important environmental factor controlling the occurrence of reductive dechlorination is the presence of other chemicals that can be used as electron acceptors under anaerobic conditions (e.g. nitrate, sulfate, iron and manganese). High concentrations of these other electron acceptors are considered detrimental since high concentrations can inhibit reductive dechlorination due to competition.

Carbon Source

Prior to the design of a full scale augmented bioremediation system, a bio-optimization study will be performed to confirm the best carbon source for augmentation at the SOH site. For the purpose of this discussion and for development of cost estimates, molasses was chosen as the carbon source.

Molasses is a by-product of the sucrose production process. Molasses is a dark viscous liquid with a composition that varies depending on the source and grade. Molasses contains about 20 percent water and 30 to 60 percent sucrose, with the remaining percentage made up of other sugars, carbohydrates, and minerals.

A number of different organic compounds or mixtures have been tested as carbon sources to stimulate anaerobic reductive dechlorination. Other sources include organic acids such as benzoic acid, lactic acid, acetic acid, sugars (glucose, corn syrup, molasses), and oils (e.g. soybean oil) for *in situ* applications. Manure and other agricultural by-products have historically been used for above ground applications. All of these compounds or sources are readily biodegradable under aerobic and anaerobic conditions, available at low cost, and are easily obtained. Anaerobic biodegradation of these carbon sources yields hydrogen, which is the electron donor in the dechlorination reaction.

The use of molasses as the carbon source has the following advantages:

- The complex sugar mixture degrades to a mixture of organic acids and other organics that can be utilized by the naturally occurring microorganisms as the conditions shift from aerobic to anaerobic a condition created by the permanganate treatment
- Unlike lactic acid or other simple compounds, molasses also provides nitrogen and phosphorous, major nutrients required for biological degradation. These nutrients are only present in trace amounts at some monitoring well locations. Molasses also contains trace amounts of other microbial nutrients such as iron, calcium, and B vitamins
- Molasses contains sulfur, which has been reported to further enhance anaerobic processes. Sulfur also enhances the removal of metals (e.g., hexavalent chromium) from groundwater.

Previous Applications of Molasses Addition Technology

Molasses addition has been successfully employed at a number of sites impacted with chlorinated solvents and metals:

- Avco Lycoming Superfund site in Williamsport, Pennsylvania - molasses addition resulted in a 90 percent reduction in TCE concentrations, along with the concentrations of TCE, DCE and hexavalent chromium achieving cleanup goals at a number of monitoring wells within 18 months;
- Abandoned metal plating site in Emeryville California - within 18 months of initiating molasses addition, TCE concentrations were reduced from about 10,000 micrograms per liter (µg/L) to less than 20 µg/L and hexavalent chromium concentrations have been reduced by approximately 99 percent;
- Four demonstration projects at Department of Defense (DoD) facilities - Hanscom Air Force Base in Bedford, MA; Badger Army Ammunition Plant in Baraboo, Wisconsin; Treasure Island Naval Station in San Francisco, CA; and Vandenberg Air Force Base in Lompoc, CA; and,

- Joliet Army Ammunition Plant in Joliet, Illinois - successful treatment of explosives wastes in an aboveground slurry reaction.

Applicability of Molasses Addition Technology

While chemical oxidation may provide further oxidation of residual ethenes in select locations, these locations are anticipated to contain predominantly chlorinated ethanes (e.g., 1,1,1-TCA and 1,1-DCA), which will be unaffected by further permanganate treatment. A review of available technologies has indicated that enhanced bioremediation by anaerobic reductive dechlorination is the best available option for treating 1,1-DCA. Data from the site indicates that natural attenuation through reductive dechlorination has been occurring at the site as evidenced by the presence of daughter products. Molasses addition will consume any residual permanganate within the application area (if present), generate anaerobic conditions conducive to the use of 1,1-DCA and other VOCs as electron acceptors, and provide suitable electron donors and carbon sources to support reductive dechlorination.

Implementation of the Molasses Addition

Based on a review of the RI data and pre-design investigation data, several areas of the site will benefit from molasses addition. The proposed treatment schematic focuses on the source area located near the former Metalade loading dock and under the building slab near the sump and pit. Eight wells, used during the permanganate injection will be used for the injection of molasses, with an additional 5 to 10 wells within the plume, if necessary, to treat hot spots of chlorinated ethanes. Annual injections of molasses are anticipated to last for 8-years. To monitor the degradation and assess future molasses additions, semi-annual monitoring will be conducted.

Prior to the design of a full scale augmented bioremediation system, it is recommended that a bio-optimization study be performed to confirm that molasses is the best carbon source for augmentation.

Stoichiometric Requirement

To drive anaerobic reductive dechlorination, sufficient molasses must be added to deplete permanganate and oxygen and provide at least a 25- to 100-fold excess of carbon from molasses over carbon from VOCs.

The stoichiometric requirement for biological depletion of oxygen using a sucrose, glucose, and fructose as the sugar source is determined according to the following reactions:

Sucrose: $C_{12}H_{22}O_{11} + 12\ O_2 \ \ -> \ \ 12\ CO_2 + 11\ H_2O$

[342.30] : [12*32] = 0.89 lbs sucrose per lb O_2

Glucose: $C_6H_{12}O_6 + 6\ O_2 -> 6\ CO_2 + 6\ H_2O$

[180.16] : [6*32] = 0.94 lbs glucose per lb O_2

Fructose: $C_6H_{12}O_6 + 6\ O_2 -> 6\ CO_2 + 6\ H_2O$

[180.16] : [6*32] = 0.94 lbs fructose per lb O_2

Water saturated with oxygen contains approximately 8 mg/L of oxygen; therefore, the addition of approximately 8 mg/L of molasses will be required in order to obtain a weight ratio of approximately one-to-one.

The highest total VOC concentration among the wells selected for molasses addition is 110 mg/L. Therefore, an estimated 2,750 mg/L to 11,000 mg/L total sugar concentration (a 25- to 100- fold over the total VOC concentration) will be required to support reductive dechlorination of the dissolved mass. Subsequent additions will be required to treat the adsorbed mass. Therefore, the demand for sugar based on oxygen and permanganate will be small compared to the demand needed to support anaerobic reductive dechlorination. It is estimated that approximately 100 lbs of molasses will be required once per well to achieve a concentration of 500 to 1,000 mg/L at each injection point.

5.2.2.3 Ruby Gordon Interim Remedial Measures

Several passive remedial measures were analyzed by the IT Corporation to address the migration of onsite VOC's toward the basement sumps of the adjacent Ruby Gordon Furniture building. Subsequently, a letter dated May 7, 2002, was prepared for NYSDEC by IT summarizing and comparing four (4) Remedial Alternatives and their associated costs (**Appendix I**).

This letter also includes the analytical laboratory testing results of sampling from the Ruby Gordon sumps for the period of January 10, 2000 to September 26, 2000.

In summary, this letter identifies Alternative 3 (Bioaugmentation Wall) as the most cost effective IRM. This alternative can also be readily incorporated into the final overall Remedial design for this site. Refer to **Appendix I** for further details.

5.2.2.4 Remediation Phase Monitoring

During the implementation of the permanganate injection and the bioremediation augmentation remedy, a groundwater monitoring program will be implemented. The objectives of the monitoring program are:

1. To establish a baseline for groundwater quality prior to the commencement of the remediation activities.
2. To monitor the groundwater quality inside and outside the permanganate injection area to establish remediation progress.
3. To monitor groundwater quality off-site.

To achieve these goals, a total of seven monitoring wells will be installed across the site. Two monitoring wells will be installed at the property line (MW-12 and MW-13), three monitoring wells will be installed at random within the injection area outside the building (MW-14 through MW-16) and two monitoring wells will be installed inside the building (MW-17 and MW-18). The proposed monitoring well locations are presented in **Figure 5-1**.

To evaluate the dispersion of permanganate throughout the groundwater table, a baseline monitoring/sampling event will be performed prior to the permanganate injection. Groundwater samples will be collected from the existing wells MW-2, MW-5, OW-3S, OW-4S and OW-5S, OW-6S, OW-9S, OW-10S and OW-11S and the proposed wells MW-12 and MW-18 (**Figure 5-1**) for COD, VOC, iron and manganese analysis and the measurement of the following parameters: water level, ORP, pH, conductivity and colorimetry. During the permanganate injection phase the water levels, ORP, pH, conductivity and colorimetry parameters will be monitored on a daily basis in the wells onsite. Following the completion of the injection activities, the wells will be monitored quarterly for water levels, ORP, pH, conductivity and colorimetry and sampled bi-annually for COD, VOC, iron and manganese laboratory analysis.

The frequency of these monitoring events may be adjusted, if needed, during the implementation of the remedy based on the evaluation of the groundwater quality data.

5.2.2.5 Summary of Permanganate Injection/Augmented Bioremediation System

The proposed permanganate injection/augmented bioremediation system for the overburden groundwater is composed of the following elements.

- Permanganate injection for the destruction of chlorinated ethenes. Injection wells would be installed at the perimeter of the site on the northern, western and portions of the southwestern property boundaries, at the source area, and within the plume.

- Augmented bioremediation with a reductive agent such as molasses or sodium lactate for the destruction of chlorinated ethanes. Permanganate injection wells at the source area, and within the plume would be used for the reductive agent injection.
- A line of closely spaced injection wells would be installed onsite along the southern property line and upgradient of the Ruby Gordon sumps. The injection wells would receive potassium permanganate as well as a carbon amendment to provide a subsurface reductive zone. The close spacing of these wells including their ROI's would essentially act as an interceptor and provide passive treatment for VOC's migrating offsite toward Ruby Gordon.

The estimated time of implementation of this alternative is 9 years with a present worth cost of $2,182,587.

5.3 Comparative Analysis of Overburden Groundwater Remedial Alternatives

This section compares the relative performance of each of the remedial alternatives for the overburden groundwater using the specific evaluation criteria presented in **Section 5.1**. Comparisons are presented in a qualitative manner in order to identify substantive differences between the alternatives. As with the detailed evaluation performed in the 1996 FS, the following criteria were used for the comparative analysis:

1. Overall Protection of Human Health and the Environment
2. Compliance with SCGs, ARARs, and Other Regulations
3. Short-term Effectiveness
4. Long-term Effectiveness
5. Reduction in Mobility, Toxicity, and Volume
6. Implementability
7. Cost

5.3.1 Overall Protection of Human Health and the Environment

The comparative evaluation of overall protection of human health and the environment evaluates attainment of PRGs, as well as the analysis of other criteria evaluated for each alternative (specifically, short- and long-term effectiveness). The evaluation of this criteria focuses on such factors as the manner in which the remedial alternatives achieve protection over time, the degree to which site risks would be reduced, and the manner in which each source of COPCs would be eliminated, reduced, or controlled.

The permanganate injection/augmented bioremediation alternative will be protective of human health and the environment by destroying chlorinated VOCs and preventing further plume migration. This alternative will reduce the concentrations of chlorinated VOCs in the overburden groundwater to below cleanup levels and therefore meets the RAOs.

Passive groundwater treatment with zero valence iron will effectively treat VOCs with the exception of methylene chloride. Assuming that a supplemental technology for treating methylene chloride is identified during the final design, this alternative will be protective of human health and the environment. However, since the passive groundwater treatment system will not specifically address the source area, the time required to implement this alternative would be greater than 40 years.

5.3.2 Compliance with SCGs, and ARARs

The comparative evaluation of the compliance of each Alternative focuses on the following criteria:

- Published NYSDEC Standards, Criteria, and Guidance (SCGs)
- Other federal applicable relevant and appropriate requirements (ARARs)

Implementation of the passive groundwater treatment with zero valence iron will achieve chemical-specific ARARs on-site; however, a supplemental technology for treating methylene chloride must be identified during the final design and the time required to achieve this objective is estimated at over 40 years.

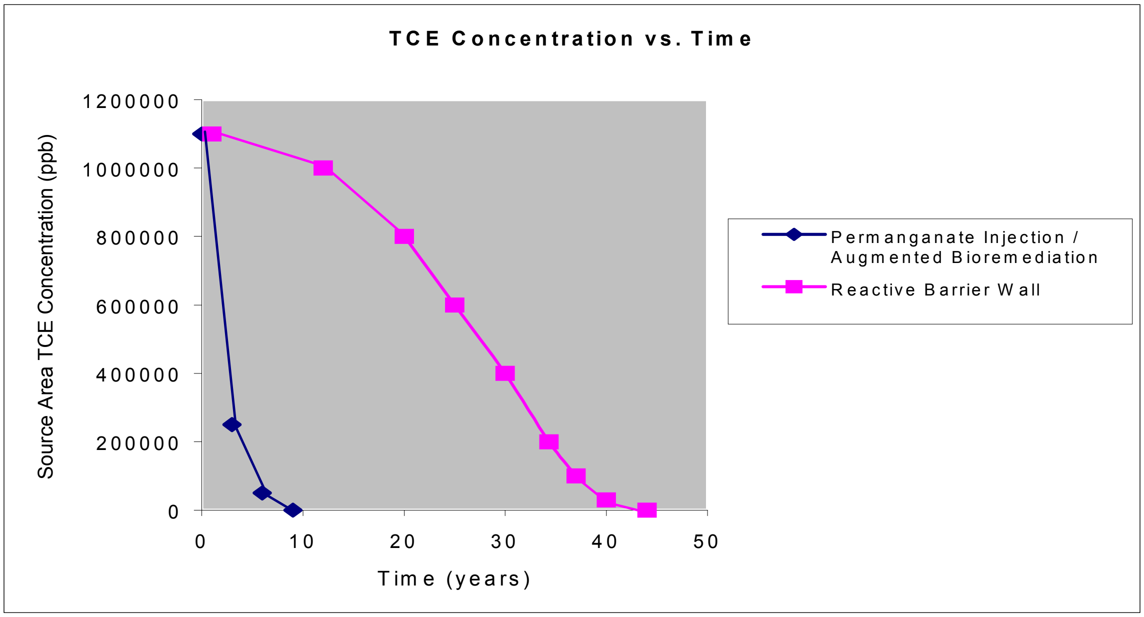
Implementation of the permanganate injection/augmented bioremediation alternative will achieve chemical-specific ARARs on-site in approximately nine years. This includes the completion of the design and implementation of the full-scale permanganate injection, the reductive agent injection, and post-injection monitoring. This alternative will provide for significant reductions of contaminants in the overburden groundwater and reduce further migration of the contaminated groundwater. Therefore, the goal of the removal action, to minimize exposure and contaminant migration, and restoration of the aquifer, will be met sooner by this alternative.

5.3.3 Short-term Effectiveness

The short-term effectiveness comparison includes the evaluation of the relative potential for impacts to the nearby communities, site worker exposures, environmental impacts, and the time frame for implementation of the alternatives.

The potential short-term risks associated with the passive groundwater treatment with zero valence iron and the permanganate injection/augmented bioremediation are minimal and are easily managed. The potential short-term risks to construction workers and the community, associated with both of these alternatives, might exist during activities involving the installation of monitoring wells, collection of groundwater data, and mixing and injection of permanganate and molasses or some other carbon-based reducing agent. During the system installation, exposure to contaminated media will be minimized through the use of personal protective equipment such as gloves and protective clothing. Applicable protective gear and a spill response plan will also be used during the handling, mixing, and injection of the permanganate solution. Similar protocols will be implemented for all associated groundwater gauging and sampling activities. Additionally, short-term effects during the installation of these alternatives can be minimized by implementing an effective site-specific health and safety program, and institutional controls.

The estimated time required to implement the passive groundwater treatment alternative is over 40 years while the estimated time required to implement the permanganate injection/augmented bioremediation system is 9 years. The reactive barrier wall system does not directly address the source area but relies on transport of VOCs from the source area to the reactive wall. The change in source area VOC concentrations over time would be characteristic of a natural degradation process. In contrast, the permanganate injection/augmented bioremediation system actively addresses VOCs in the source area and within the contaminant plume. VOC concentrations in the source area would rapidly decline as the active treatment was implemented. The reactive barrier wall system requires significantly more time to implement than the permanganate injection/augmented bioremediation system because of the rate limiting transport of VOCs to the reactive barrier. The difference in time required to implement these two alternatives can be demonstrated graphically as follows:



5.3.4 Long-term Effectiveness

The comparative evaluation of long-term effectiveness focuses on the reduction of residual risk and adequacy and reliability of controls provided by each alternative.

Passive groundwater treatment with zero valence iron will provide an effective long-term remedy for chlorinated VOCs present in the overburden groundwater; however, a supplemental technology for reduction of methylene chloride must be identified during the final design and implemented in conjunction with the passive groundwater treatment system. Assuming that an effective means of treating methylene chloride is identified, this alternative will permanently destroy VOCs in the overburden groundwater by abiotic reductive dehalogenation.

Permanganate injection/augmented bioremediation will provide an effective long-term remedy for chlorinated VOCs present in the overburden groundwater. This alternative will permanently destroy the chlorinated VOCs in the overburden groundwater by oxidation and reductive dechlorination, thereby, reducing the chlorinated VOC mass in the overburden groundwater and preventing off-site migration.

5.3.5 Reduction in Mobility, Toxicity, and Volume

The comparative evaluation of the reduction of mobility, toxicity, and volume focuses on the ability of the alternative employed to address the impacted material on-site, the mass of material destroyed or treated, the irreversibility of the process employed, and the nature of the impacted materials after implementation of the alternative.

The passive groundwater treatment with zero valence iron will reduce the overall volume of toxic contaminants present in the overburden groundwater, provide a permanent remedy for reduction of contaminant toxicity, mobility, and volume through treatment, and meet the USEPA statutory preference for treatment as a principle element. Successful treatment is dependent upon identifying an effective supplemental technology for methylene chloride treatment.

The permanganate injection/augmented bioremediation alternative will reduce the overall volume of toxic contaminants present in the overburden groundwater, provide a permanent remedy for reduction of contaminant toxicity, mobility, and volume through treatment, and meet the USEPA statutory preference for treatment as a principal element. Successful treatment will be dependent on the determination of groundwater transport and mass balance for full treatment to concentrations meeting cleanup objectives. Groundwater impacted with VOCs not reached by permanganate or a reductive agent will be naturally attenuated.

5.3.6 Implementability

The comparative evaluation of implementability focuses on the feasibility of construction and operation of each alternative, the administrative feasibility, the availability of required disposal facilities, technical and service personnel, and contractors.

Construction of a passive groundwater treatment system with zero valence iron is readily implementable at the Site, although some difficulties associated with construction of the permeable barrier wall in and around areas containing underground utilities may need to be addressed during the engineering design and construction phases.
Permanganate and molasses/sodium lactate are food grade chemicals ideal for the application to groundwater for the treatment of a variety of VOCs, specifically chlorinated ethenes and ethanes. Permanganate and molasses/sodium lactate have been used at sites throughout the country, in a variety of geologic settings for the treatment of the compounds found at the SOH site. Injection of permanganate and molasses/sodium lactate is accomplished through monitoring wells constructed in an identical manner to existing monitoring wells or through infiltration galleries. The presence of the buildings onsite present the only restrictions to access for any drilling necessary to facilitate the successful implementation of a permanganate injection/augmented bioremediation system.

5.3.7 Cost

The estimated present worth cost of the passive groundwater treatment system with zero valence iron is $4,439,914. The estimated present worth cost of the permanganate injection/augmented bioremediation treatment is $2,182,587. The comparative evaluation of the cost of remediation is based on the net present worth of each alternative. The total capital, annual O&M, periodic, and present worth costs for these alternatives are presented in **Appendix A**.

5.3.8 Summary

Each overburden groundwater remedial alternative was qualitatively evaluated by each of the criteria described above. Based upon the comparative analysis of the passive groundwater treatment system and the permanganate injection/augmented bioremediation system, permanganate injection/augmented bioremediation was selected as the preferred remedy for overburden groundwater. This determination was made based upon the following factors:

- Permanganate injection/augmented bioremediation specifically addresses the source area as well as the overburden groundwater plume. By treating the source area, the time to completion of this alternative is significantly reduced compared to the passive groundwater treatment system. The passive groundwater treatment system does not specifically address the source area; therefore, the time to completion will be dependent upon transport of the VOCs to the permeable reactive barrier wall.
- The passive groundwater treatment with zero valence iron will effectively treat the chlorinated VOCs present in the overburden groundwater with the exception of methylene chloride. Methylene chloride was not identified as a COPC during the 1996; however, it was detected at concentrations as high as 680,000 µg/L during the pre-design investigation. An effective supplemental technology for treating methylene chloride will need to be identified during the final design for this remedy.
- The estimated cost of the permanganate injection/augmented bioremediation is lower than the estimated cost of the passive groundwater treatment system. The cost savings is due to lower initial capital costs and annual operations and maintenance costs projected over the shorter timeframe required to implement the respective alternatives.

6.0 OVERVIEW OF SELECTED ALTERNATIVE

Based upon the results of this *Focused Feasibility Study* for the Stuart-Olver-Holtz Site and the criteria described in **Section 5** for evaluation of alternatives, Shaw recommends implementing the permanganate injection/augmented bioremediation system as the overburden groundwater action component of the selected site wide remedy. The other components of the site wide remedy presented in the ROD would be retained as part of this new site wide remedy. The components of the new remedy are summarized below.

Overburden Groundwater Actions:

- Implement a permanganate injection system to destroy chlorinated ethenes. Injection wells installed at the perimeter of the site on the northern, western and southwestern property boundaries, at the source area, and within the plume would be utilized to inject permanganate solutions into the overburden groundwater.
- Implement an augmented bioremediation system utilizing molasses or some other reductive agent as a carbon source to destroy chlorinated ethanes. This augmented remediation system would be implemented upon completion of the permanganate injection. The system would utilize former permanganate injection wells at the source area and within the plume for molasses/reductive agent injection.
- Install and operate as an IRM a line of closely spaced injection wells onsite along the southern property line and upgradient of the Ruby Gordon sumps. The injection wells would utilize reducing agents and/or carbon amendments to intercept and treat VOC's that migrate offsite toward the Ruby Gordon sumps. This IRM would be consistent with and could be easily assimilated into the final remedial measure for the overall site.
- Conduct periodic, long-term overburden groundwater monitoring.
- Construct drainage improvements between Ruby Gordon and the SOH site to minimize groundwater recharge to the Ruby Gordon basement.
- Recommend deed restrictions on future use(s) of the site.

Bedrock Groundwater Action:

- Implement institutional controls to reduce the potential for exposure to contaminated bedrock groundwater. This would include: disconnecting the SOH interior bedrock wells, conducting bedrock groundwater monitoring, and implementing deed restrictions of future use(s) of groundwater.

Surface Soil Action:

- Excavate the on-site and off-site surface soils that are above SCGs and transport off-site for disposal. Regrade and restore the excavated areas. Isolation of on-site contaminated surface soils could be done in-lieu of excavation.

SOH Sump Contents:

- Clean and dispose off-site accumulated sediments from site sumps, catch basins, and related piping.
- Evaluate, upgrade or decommission drainage lines or connections.

This report contains an analysis of the estimated cost to implement the proposed overburden groundwater actions. The estimated cost to implement the bedrock groundwater action, surface soil action, and the SOH sump contents removal is based upon the estimated costs presented in the 1996 FS. The costs presented in the 1996 FS were adjusted to 2001 dollars using Engineering New Record's 1996 Annual and May 2001 Construction Cost Index. The total net present worth of the selected alternative using a permanganate injection / augmented bioremediation system to address the overburden groundwater is $4,090,430. In contrast, the total net present worth of a site wide alternative using a reactive barrier wall to address the overburden groundwater is $7,130,476. A detailed breakdown of this estimate is provided in **Appendix A**.

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TABLES

Table 2-1
Soil Borings and Monitoring Wells Installation/Sampling Rationale
NYSDEC - SOH, Henrietta, NY

Sampling Location	Type	Installation / Sampling Date	Sample Matrix	Rationale
SB-1 through SB-12 and SB-15	Soil Boring	5/01/00 to 6/29/00	Soil (Analytical)	Delineate the source area around OW-7S/7R (outside). Borings were placed according to a grid pattern.
SB-16 through SB-20	Soil Boring	5/01/00 to 6/29/00	Soil (Analytical)	Delineate the source area around OW-7S/7R (inside). Borings were placed according to a grid pattern.
B-1/PZ-3, B2, B3/PZ-2, B4/PZ-1	Soil Boring and Piezometer	5/25/00 to 5/30/00	Soil	Further characterize the subsurface in the proposed alignment of the Groundwater collection trench. Borings were placed in the proposed collection trench location.
		12/18/00	Water	Site-wide groundwater quality (1).
IW-1, IPZ-2 and IPZ-3	Injection/Observation Wells	6/26/00 to 6/29/00	Soil (Analytical)	Installed to serve as injection points for the Sodium Permanganate Pilot Test.
		7/17/00	Water	Baseline sampling prior to pilot test.
		10/20/00	Water	Monitoring water quality after the sodium permanganate pilot test.
		12/18/00	Water	Site-wide groundwater quality (1).
IPZ-1	Observation Well	6/26/00 to 6/29/00	Soil	Installed to serve as monitoring point (with OW-7S and OW-7R) during the Sodium Permanganate Pilot Test.
		7/17/00	Water	Baseline sampling prior to pilot test.
		9/11/00	Water	Monitoring water quality after the sodium permanganate pilot test.
		10/20/00	Water	Monitoring water quality after the sodium permanganate pilot test.
		12/18/00	Water	Site-wide groundwater quality (1).

Table 2-1
Soil Borings and Monitoring Wells Installation/Sampling Rationale
NYSDEC - SOH, Henrietta, NY

TW-1 through TW-4	Monitoring Wells	9/18/00 9/19/00		Installed for monitoring the results of the Sodium Permanganate Pilot test several weeks after the injection. Collection of water samples.
		9/22/00	Water	Monitoring water quality after the sodium permanganate pilot test.
		10/20/00	Water	Monitoring water quality after the sodium permanganate pilot test.
		12/18/00	Water	Site-wide groundwater quality [(1)].
DD-1 through DD-15	Surface Samples	2/18/00	Soil	Further delineate the extent of surface soil impacts above NYSDEC SCGs. Collection of surface soil samples.
Sewer Sample 01 through Sewer Sample 04	Sewer / Pit Samples	2/15/01	Soil	Characterize the soil impact if any and establish removal action if necessary.
GP-1 through GP-28	Soil Boring With Geoprobes	6/17/02 6/18/02	Soil	Characterize the source area under the SOH building slab.

Note: Wells OW-7S and OW-7R sampled 7/17/00, 9/11/00, 10/20/00 and 12/18/00.

[(1)]See table 4 for complete list of wells sampled during site wide groundwater sampling event.

Table 2-2
Summary of Subsurface Soil Sample Analysis
NYSDEC SOH, Henrietta, NY

Sample ID	Sampling Date	Method ID			
		PCB, Pesticide (8081)	VOC (8260)	SVOC (8270)	TOC (EPA 415.1)
SB-1 4-6A	5/18/00		X		
SB-1 6-8C	5/18/00		X		
SB-1 8-10A	5/18/00				X
SB-1 10-12B	5/18/00		X		
SB-1 10-12C	5/18/00		X		
SB-1 12-14A	5/18/00		X		
SB-1 16-18D	5/18/00				X
SB-1 CUTTINGS	5/18/00	X	X	X	
SB-2 18-20D	5/19/00		X		
SB-2 20-22B	5/19/00		X		
SB-2 20-22C	5/19/00		X		
SB-2 40-42A	5/19/00		X		
SB-3 16-18C	5/22/00		X		
SB-3 28-30A	5/22/00		X		
SB-3 30-32A	5/22/00		X		
SB-4 4-6B	5/11/00				X
SB-4 14-16B	5/11/00		X		
SB-4 16-18A	5/11/00		X		
SB-4 16-18B	5/11/00		X		
SB-4 26-28A	5/11/00				X
SB-5 10-12A	5/12/00				X
SB-5 22-24B	5/12/00		X		
SB-5 24-26A	5/12/00		X		
SB-5 30-32A	5/12/00		X		
SB-6 10-12A	5/15/00				X
SB-6 10-12C	5/15/00		X		
SB-6 20-22A	5/15/00		X		
SB-6 30-32A	5/15/00				X
SB-6 34-36A	5/15/00		X		
SB-6 4-6C	5/15/00		X		
SBX-6 4-6A	5/17/00		X		
SBX-6 4-6B	5/17/00		X		
SBX-6 6-8B	5/17/00		X		
SBX-6 40-42C	5/17/00		X		
SB7 16-18 D	5/9/00		X		
SB7 18-20 A	5/9/00		X		
SB7 34-36 A	5/9/00		X		
SB-8 26-28 B	5/8/00		X		
SB-8 26-28 C	5/8/00		X		
SB-8 26-28 D	5/8/00		X		
SB-9 18-20 A	5/5/00		X		
SB-9 20-22 A	5/5/00		X		
SB-9 34-36 A	5/5/00		X		
SB-10A 30-32	5/3/00		X		
SB-10A 32-34 B	5/3/00		X		

Table 2-2
Summary of Subsurface Soil Sample Analysis
NYSDEC SOH, Henrietta, NY

Sample ID	Sampling Date	Method ID			
		PCB, Pesticide (8081)	VOC (8260)	SVOC (8270)	TOC (EPA 415.1)
SB-16 26-28A	6/9/00		X		
SB-16 36-38A	6/9/00		X		
SB-16 44-46A	6/9/00		X		
SB-17 10-12B	6/12/00		X		
SB-17 24-26B	6/13/00		X		
SB-17 28-30A	6/13/00		X		
SB-18 12-14B	6/15/00		X		
SB-18 18-20A	6/16/00		X		
SB-18 22-24A	6/16/00		X		
SB-19 4-6A	6/14/00		X		
SB-19 24-26A	6/14/00		X		
SB-19 26-28A	6/14/00		X		
SB-20 4-6A	6/19/00		X		
SB-20 16-18A	6/20/00		X		
SB-20 20-22B	6/20/00		X		

Note: Each 2 feet sample was separated in 6 inch increments from the top of the sample to the bottom
"A", "B", "C" and "D" in a sample SB-X 4-6A would correspond to 4-4.5', 4.5'-5',5' - 5.5' and 5.5' - 6', respectively

Table 2-3
Summary of Surface Soil and Sediment
Sample Analysis
NYSDEC SOH, Henrietta, NY

Sample ID	Sampling Date	Analytical Methodology			
		TAL Metals (6010)	SVOC (8270)	Cyanide (SW 9010)	VOC (8260)
Surface Soil Sample					
DD-1	11/30/00	X	X	X	
DD-2	11/30/00	X	X	X	
DD-3	11/30/00	X	X	X	
DD-4	11/30/00	X	X	X	
DD-5	11/30/00	X	X	X	
DD-6	11/30/00	X	X	X	
DD-7	11/30/00	X	X	X	
DD-8	11/30/00	X	X	X	
DD-9	11/30/00	X	X	X	
DD-10	11/30/00	X	X	X	
DD-11	11/30/00	X	X	X	
DD-12	11/30/00	X	X	X	
DD-13	11/30/00	X	X	X	
DD-14	11/30/00	X	X	X	
DD-15	11/30/00	X	X	X	
Sump / Catch Bassin Sediment Sample					
01	2/15/01				X
02	2/15/01				X
04	2/15/01				X

Table 2-4
Summary of Groundwater Sample Analysis
NYSDEC - SOH, Henrietta, NY

		Analytical Method													
Sample ID	Sample Date	TCL Metals (6010)	VOCs (8260)	Spec. Conductance (EPA 120.1)	Fluoride (EPA 340.1)	Nitrate/ Nitrite (EPA 353.2)	(1) DOC / TOC (EPA 415.1)	Alkalinity (SM 2320)	Total Dissolved Solid (TDS) (SM 2540-C)	Chloride (SM 4500-Cl)	Phosphate (Total) (SM 4500-P)	Sulfate (SM 4500-SO)	COD (2) (SM 5220-C)	Bromide (SM 4500-BR)	Cyanide (SW 9010
IPZ-1	07/17/2000	X	X							X			X		
IPZ-1	09/11/2000	X	X							X			X		
IPZ-1	10/20/2000	X	X							X			X		
IPZ-1	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
IPZ-2	07/17/2000	X	X							X			X		
IPZ-2	10/20/2000	X	X							X			X		
IPZ-2	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
IPZ-3	07/17/2000	X	X							X			X		
IPZ-3	10/20/2000	X	X							X			X		
IPZ-3	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
IW-1	07/17/2000	X	X							X			X		
IW-1	10/20/2000	X	X							X			X		
IW-1	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
MW-2	12/18/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
MW-3	12/18/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
MW-5	12/18/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-1R	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-1S	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-2R	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-2S	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-3R	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-3S	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-4R	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-4S	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-5S	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-6S	12/18/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-7R	07/17/2000	X	X							X			X		
OW-7R	09/11/2000	X	X							X			X		
OW-7R	10/20/2000	X	X							X			X		
OW-7R	12/18/2000	X	X	X	X	X	X	X	X	X	X	X		X	X

(1): DOC - Dissolved Organic Compound / TOC - Total Organic Compound
(2) - COD - Chemical Oxygen Demand

Table 2-4
Summary of Groundwater Sample Analysis
NYSDEC - SOH, Henrietta, NY

		Analytical Method													
Sample ID	Sample Date	TCL Metals (6010)	VOCs (8260)	Spec. Conductance (EPA 120.1)	Fluoride (EPA 340.1)	Nitrate/ Nitrite (EPA 353.2)	(1) DOC / TOC (EPA 415.1)	Alkalinity (SM 2320)	Total Dissolved Solid (TDS) (SM 2540-C)	Chloride (SM 4500-Cl)	Phosphate (Total) (SM 4500-P)	Sulfate (SM 4500-SO)	COD (2) (SM 5220-C)	Bromide (SM 4500-BR)	Cyanide (SW 9010)
OW-7S	07/17/2000	X	X							X			X		
OW-7S	09/11/2000	X	X							X			X		
OW-7S	10/20/2000	X	X							X			X		
OW-7S	12/18/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
OW-8S	12/19/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
PZ-1	12/15/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
PZ-2	12/15/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
PZ-3	12/15/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
TW-1	09/22/2000	X	X							X			X		
TW-1	10/20/2000	X	X							X			X		
TW-1	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
TW-2	09/22/2000	X	X							X			X		
TW-2	10/20/2000	X	X							X			X		
TW-2	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
TW-3	09/22/2000	X	X							X			X		
TW-3	10/20/2000	X	X							X			X		
TW-3	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X
TW-4	09/22/2000	X	X							X			X		
TW-4	10/20/2000	X	X							X			X		
TW-4	12/14/2000	X	X	X	X	X	X	X	X	X	X	X		X	X

(1): DOC - Dissolved Organic Compound / TOC - Total Organic Compound
(2) - COD - Chemical Oxygen Demand

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-1 4-6A 70751004 05/17/2000	SB-1 6-8C 70751006 05/18/2000	SB1 8-10A 5/18/00	SB-1 10-12B 70751010 05/18/2000	SB-1 10-12C 70751011 05/18/2000	SB-1 12-14A 70751012 05/18/2000
Analyte							
TOC (%)		---	---	0.7	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800			---	310 J	320 JD	23 J
1,1,2-Trichloroethane	na			---			
1,1-Dichloroethane	200			---	92 J	130 J	3 J
1,1-Dichloroethene	400			---	33 J	75 J	
1,2-Dichloroethane	100			---			
1,2-Dichloroethene (Total)	300 (Trans)			---	38 J	95 J	3 J
2-Butanone	300			---	25 J	41 J	
4-Methyl-2-Pentanone	1,000			---		5 J	
Acetone	200			---			
Carbon Disulfide	2,700			---			
Chloroform	300			---			
Ethylbenzene	5,500			---		1 J	
Methylene Chloride	100			---			
Tetrachloroethene	1,400		1 J	---	41 J	30 J	5 J
Toluene	1,500			---		2 J	
Trichloroethene	700	12 J	26 J	---	320 J	420 JD	58 J
Xylene (Total)	1,200			---	3 J	6 J	

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-1 16-18D 05/18/2000	SB-1 CUTTINGS 70751009 05/18/2000	SB-2 18-20D 70751013 05/19/2000	SB-2 20-22B 70751014 05/19/2000	SB-2 20-22C 70751015 05/19/2000	SB-2 40-42A 70751016 05/19/2000
Analyte							
TOC (%)		0.5	---	---	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800	---	14 J	30 J		2 J	2 J
1,1,2-Trichloroethane	na	---				6 J	6 J
1,1-Dichloroethane	200	---	130 J	26 J		16 J	15 J
1,1-Dichloroethene	400	---	15 J	11 J			
1,2-Dichloroethane	100	---					
1,2-Dichloroethene (Total)	300 (Trans)	---	40 J	95 J		79 J	75 J
2-Butanone	300	---		25 J		37 J	41 J
4-Methyl-2-Pentanone	1,000	---				18 J	22 J
Acetone	200	---		140 J	**320 J**	**350 J**	**410 J**
Carbon Disulfide	2,700	---					5 J
Chloroform	300	---					
Ethylbenzene	5,500	---					
Methylene Chloride	100	---				36 J	
Tetrachloroethene	1,400	---	40 J	2 J		5 J	5 J
Toluene	1,500	---		2 J		6 J	7 J
Trichloroethene	700	---	400 J	**4,200 JD**	220 J	**4,400 JD**	**3,300 JD**
Xylene (Total)	1,200	---				2 J	4 J

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-3 16-18C 70768001 05/22/2000	SB-3 28-30A 70768002 05/22/2000	SB-3 30-32A 70768003 05/22/2000	SB-4 4-6B 05/11/2000	SB-4 14-16B 70713004 05/11/2000	SB-4 16-18A 70713005 05/11/2000
Analyte							
TOC (%)		---	---	---		---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800				---		
1,1,2-Trichloroethane	na				---		4 J
1,1-Dichloroethane	200				---	7 J	11 J
1,1-Dichloroethene	400				---		
1,2-Dichloroethane	100				---		
1,2-Dichloroethene (Total)	300 (Trans)	**1,500 J**		13 J	---	4 J	10 J
2-Butanone	300				---	100 J	72 J
4-Methyl-2-Pentanone	1,000				---	23 J	
Acetone	200	**2,400 J**		28 UJ	---	**230 J**	**210 J**
Carbon Disulfide	2,700				---		
Chloroform	300				---		
Ethylbenzene	5,500			1 J	---		
Methylene Chloride	100			17 J	---	62 J	**270 J**
Tetrachloroethene	1,400	**2,000 J**		62 J	---		
Toluene	1,500			2 J	---		
Trichloroethene	700	**110,000 J**	**9,400 J**	**1,200 JD**	---	96 J	150 J
Xylene (Total)	1,200			9 J	---		

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-4 16-18B 70713006 05/11/2000	SB-4 26-28A 70713001 05/11/2000	SB-5 10-12A 05/12/2000	SB-5 22-24B 70713009 05/12/2000	SB-5 22-24B 70713009RE 05/12/2000	SB-5 24-26A 70713008 05/12/2000
Analyte							
TOC (%)		---			---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800		---	---			
1,1,2-Trichloroethane	na		---	---			
1,1-Dichloroethane	200		---	---			
1,1-Dichloroethene	400		---	---			
1,2-Dichloroethane	100		---	---			
1,2-Dichloroethene (Total)	300 (Trans)		---	---			
2-Butanone	300		---	---			
4-Methyl-2-Pentanone	1,000		---	---	DNR		
Acetone	200	110 UJ	---	---	**470**	DNR	**720 J**
Carbon Disulfide	2,700		---	---			
Chloroform	300		---	---			
Ethylbenzene	5,500		---	---			
Methylene Chloride	100		---	---	DNR		
Tetrachloroethene	1,400		---	---	DNR	9 J	18 J
Toluene	1,500		---	---		4 J	
Trichloroethene	700	**1,300 J**	---	---	DNR	330 J	**1,300 J**
Xylene (Total)	1,200		---	---	DNR		

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-5 30-32A 70733001 05/15/2000	SB-6 4-6C 70733007 05/15/2000	SB-6 10-12A 70733002 05/15/2000	SB-6 10-12C 70733009 05/15/2000	SB-6 20-22A 70733008 05/15/2000	SB-6 30-32A 70733003 05/15/2000
Analyte							
TOC (%)		---	---	30.9	---	---	1.7
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800	37 J	20	---	310 JD	210 D	---
1,1,2-Trichloroethane	na			---			---
1,1-Dichloroethane	200	8 J		---	15	**240 D**	---
1,1-Dichloroethene	400			---			---
1,2-Dichloroethane	100			---			---
1,2-Dichloroethene (Total)	300 (Trans)	24 J		---	11		---
2-Butanone	300			---			---
4-Methyl-2-Pentanone	1,000			---			---
Acetone	200			---			---
Carbon Disulfide	2,700			---			---
Chloroform	300			---			---
Ethylbenzene	5,500		2	---			---
Methylene Chloride	100			---		**140**	---
Tetrachloroethene	1,400		34	---	8	4	---
Toluene	1,500	2 J		---	6	6	---
Trichloroethene	700	**1,700 D**		---	15	16	---
Xylene (Total)	1,200		18	---			---

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-6 34-36A 70733005 05/16/2000	SBX-6 4-6A 70733010 05/17/2000	SBX-6 4-6B 70751001 05/17/2000	SBX-6 6-8B 70751002 05/17/2000	SBX-6 40-42C 70751003 05/17/2000	SB7 (16-18) D 70688009 05/09/2000
Analyte							
TOC (%)		---	---	---	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800	29 J	**8,900**	73 J	350 JD		
1,1,2-Trichloroethane	na						
1,1-Dichloroethane	200	40			37 J		73 J
1,1-Dichloroethene	400				34 J		10 J
1,2-Dichloroethane	100						
1,2-Dichloroethene (Total)	300 (Trans)						33 J
2-Butanone	300						
4-Methyl-2-Pentanone	1,000						
Acetone	200			53 UJ	16 UJ		
Carbon Disulfide	2,700						
Chloroform	300						
Ethylbenzene	5,500		700	110 J	24 J		
Methylene Chloride	100				30 UJ		
Tetrachloroethene	1,400	2	**12,000**	**5,000 JD**	470 JD		
Toluene	1,500	1			2 J		
Trichloroethene	700	3			4 J	350 J	**1,100 J**
Xylene (Total)	1,200		**4,600**	880 J	170 J		

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB7 (18-20) A 70688008 05/09/2000	SB7 (34-36) A 70688010 05/09/2000	SB-8 (26-28) B 70688004 05/08/2000	SB-8 (26-28) C 70688005 05/08/2000	SB-8 (26-28) D 70688006 05/08/2000	SB-9 (18-20) A 70688001 05/05/2000
Analyte							
TOC (%)		---	---	---	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800	7 J					
1,1,2-Trichloroethane	na						
1,1-Dichloroethane	200	**300 J**		44 J	44 J	51 J	21 J
1,1-Dichloroethene	400	10 J		2 J			
1,2-Dichloroethane	100						
1,2-Dichloroethene (Total)	300 (Trans)	63 J		22 J	24 J	33 J	
2-Butanone	300				17 J		
4-Methyl-2-Pentanone	1,000			3 J	6 J	4 J	
Acetone	200		14 UJ				
Carbon Disulfide	2,700						
Chloroform	300						
Ethylbenzene	5,500				1 J		
Methylene Chloride	100	78 UJ		**250 J**	**370 J**	**1,500 JD**	
Tetrachloroethene	1,400			8 J	15 J	6 J	
Toluene	1,500						2 J
Trichloroethene	700	**1,000 J**	6 J	**8,500 JD**	**5,600 JD**	**7,600 JD**	12 J
Xylene (Total)	1,200			2 J	5 J	2 J	2 J

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-9 (20-22) A 70688002 05/05/2000	SB-9 (34-36) A 70688003 05/05/2000	SB-10A (30-32) 70674004 05/03/2000	SB-10A(32-34)B 70674005 05/03/2000	SB-10A(32-34)C 70674006 05/03/2000	SB-11(38-40)C 70674007 05/02/2000
Analyte							
TOC (%)		---	---	---	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800						
1,1,2-Trichloroethane	na						
1,1-Dichloroethane	200	66 J	7 J	18 J	94 J		2 J
1,1-Dichloroethene	400						
1,2-Dichloroethane	100						
1,2-Dichloroethene (Total)	300 (Trans)			7 J	37 J		2 J
2-Butanone	300						7 J
4-Methyl-2-Pentanone	1,000						
Acetone	200			9 J			31 J
Carbon Disulfide	2,700						
Chloroform	300						
Ethylbenzene	5,500						
Methylene Chloride	100						4 J
Tetrachloroethene	1,400		5 J				26 J
Toluene	1,500	1 J	2 J				4 J
Trichloroethene	700	99 J	30 J	280 J	**1,100 J**	390 J	**2,200 JD**
Xylene (Total)	1,200						1 J

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-11 (38-40)D 70674008 05/02/2000	SB-11 (40-42)D 70674009 05/02/2000	SB-12 (24-26)C 70674001 05/04/2000	SB-12 (26-28)B 70674002 05/04/2000	SB-12 (26-28)D 70674003 05/04/2000	SB-15 18-20B 70768004 05/23/2000
Analyte							
TOC (%)		---	---	---	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800			240 J	230 J	10 J	
1,1,2-Trichloroethane	na						
1,1-Dichloroethane	200	6 J	58 J	**590 J**	**1,200 J**	85 J	
1,1-Dichloroethene	400			14 J			
1,2-Dichloroethane	100						
1,2-Dichloroethene (Total)	300 (Trans)	4 J	250 J	14 J	14 J		**430 J**
2-Butanone	300		8 J			11 J	
4-Methyl-2-Pentanone	1,000						
Acetone	200	30 J	43 J	29 J	56 J	22 J	**900 J**
Carbon Disulfide	2,700		2 J				
Chloroform	300						
Ethylbenzene	5,500						
Methylene Chloride	100	38 J	**370 J**	97 J	**280 J**	38 J	
Tetrachloroethene	1,400	4 J	1 J			1 J	
Toluene	1,500	4 J	3 J				
Trichloroethene	700	**3,300 JD**	**1,700 JD**	87 J	110 J		**7,400 J**
Xylene (Total)	1,200						

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-15 18-20C 70768005 05/23/2000	SB-15 20-22A 70768006 05/23/2000	SB-16 26-28A 70866003 06/09/2000	SB-16 36-38A 70866004 06/09/2000	SB-16 44-46A 70866005 06/09/2000	SB-17 10-12B 70905004 06/12/2000
Analyte							
TOC (%)		---	---	---	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800					6 J	
1,1,2-Trichloroethane	na						
1,1-Dichloroethane	200	7					45 J
1,1-Dichloroethene	400						2 J
1,2-Dichloroethane	100						
1,2-Dichloroethene (Total)	300 (Trans)	49	11				29 J
2-Butanone	300						
4-Methyl-2-Pentanone	1,000						
Acetone	200	**580 JD**	**520 JD**				
Carbon Disulfide	2,700						
Chloroform	300						
Ethylbenzene	5,500	1	1				
Methylene Chloride	100	82	10				
Tetrachloroethene	1,400	16	15				
Toluene	1,500	3	3				
Trichloroethene	700	**1,100 JD**	**1,600 JD**				5 J
Xylene (Total)	1,200	7	6				

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-17 24-26B 70905003 06/13/2000	SB-17 28-30A 70905002 06/13/2000	SB-18 12-14B 70924001 06/15/2000	SB-18 18-20A 70924002 06/16/2000	SB-18 22-24A 70924003 06/16/2000	SB-20 4-6A 70941001 06/19/2000
Analyte							
TOC (%)		---	---	---	---	---	---
Volatiles (ug/kg)							
1,1,1-Trichloroethane	800			220	**20,000 D**	**1,100,000**	1
1,1,2-Trichloroethane	na				91		
1,1-Dichloroethane	200	5	5	14	**220**		
1,1-Dichloroethene	400				16		
1,2-Dichloroethane	100						
1,2-Dichloroethene (Total)	300 (Trans)	22	14	**370 D**	210		
2-Butanone	300	12					
4-Methyl-2-Pentanone	1,000						
Acetone	200	60	39	20	74		
Carbon Disulfide	2,700						
Chloroform	300						
Ethylbenzene	5,500				140		
Methylene Chloride	100						
Tetrachloroethene	1,400			2	**2,200 D**	**22,000**	
Toluene	1,500				160		
Trichloroethene	700	44	17	32	180		67
Xylene (Total)	1,200				880		

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

m:/103reps/DEC/SOH/Table 3-1A

Table 3-1A
Detected Compounds (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID	NYSDEC Objective (TAGM 4046)[1]	SB-19 24-26A 70905007 06/14/2000	SB-19 26-28A 70905006 06/14/2000	SB-19 4-6A 70905005 06/14/2000	SB-20 16-18A 70941002 06/20/2000	SB-20 20-22B 70941003 06/20/2000
Analyte						
TOC (%)		---	---	---	---	---
Volatiles (ug/kg)						
1,1,1-Trichloroethane	800	410 D	91	20		
1,1,2-Trichloroethane	na					
1,1-Dichloroethane	200	84	91	3		
1,1-Dichloroethene	400			1		
1,2-Dichloroethane	100		3			
1,2-Dichloroethene (Total)	300 (Trans)	1				
2-Butanone	300		13			
4-Methyl-2-Pentanone	1,000					
Acetone	200	64	58		**2,100**	
Carbon Disulfide	2,700		3			
Chloroform	300					
Ethylbenzene	5,500					
Methylene Chloride	100					
Tetrachloroethene	1,400					
Toluene	1,500	3	1			
Trichloroethene	700	2	2	1	**73,000**	**1,200**
Xylene (Total)	1,200					

Notes: --- :Not Analyzed
na: not applicable
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Below Detection Limit
1) NYSDEC Div of Hazardous Waste Technical an Administrative Guidance Memorandum (TAGM 4046);
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1B
Detected Compounds (PCBs, SVOCs) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Objective (TAGM 4046)[1]	SB-1 CUTTINGS 70751009 05/18/2000
Analyte *Pesticides/PCBs (mg/kg)*		
4,4-DDD	2.9	
4,4-DDE	2.1	
4,4-DDT	2.1	
Aldrin	0.041	
alpha-BHC	0.11	
alpha-Chlordane	na	
Aroclor-1016	na	
Aroclor-1221	na	
Aroclor-1232	na	
Aroclor-1242	na	
Aroclor-1248	na	
Aroclor-1254	na	
Aroclor-1260	na	
PCBs (total)	10	
beta-BHC	0.2	
delta-BHC	0.3	
Dieldrin	0.044	
Endosulfan I	0.9	
Endosulfan II	0.9	
Endosulfan sulfate	1	
Endrin	0.1	
Endrin aldehyde	na	
Endrin ketone	na	
gamma-BHC (Lindane)	0.06	
gamma-Chlordane	0.54	
Heptachlor	0.1	
Heptachlor epoxide	0.02	
Methoxychlor	na	
Toxaphene	na	

Empty cell: Below Detection Limit
na: not applicable
1) NYSDEC Div. Of Haz Waste Technical and Administrative Guidance Memorandum (TAGM 4046): Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-1B
Detected Compounds (PCBs, SVOCs) In Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Objective (TAGM 4046)[1]	SB-1 CUTTINGS 70751009 05/18/2000
Semivolatiles (ug/kg)		
1,2,4-Trichlorobenzene	3,400	
1,2-Dichlorobenzene	7,900	
1,3-Dichlorobenzene	16,000	
1,4-Dichlorobenzene	85,000	
2,2-oxybis(1-Chloropropane)	na	
2,4,5-Trichlorophenol	100	
2,4,6-Trichlorophenol	400	
2,4-Dichlorophenol	na	
2,4-Dimethyphenol	na	
2,4-Dinitrophenol	200 or md	
2,4-Dinitrotoluene	na	
2,6-Dinitrotoluene	100	
2-Chloronaphthalene	na	
2-Chlorophenol	800	
2-Methylnaphthalene	36,400	
2-Methylphenol	100or md	
2-Nitroaniline	430 or md	
2-Nitrophenol	330 or md	
3,3-Dichlorobenzidine	na	
3-Nitroaniline	500 or md	
4,6-Dinitro-2-methylphenol	na	
4-Bromophenyl-phenylether	na	
4-Chloro-3-methylphenol	240 or md	
4-Chloroaniline	220 or md	
4-Chlorophenyl-phenylether	na	
4-Methylphenol	900	
4-Nitroaniline	na	
4-Nitrophenol	100 or md	
Acenaphthene	50,000	
Acenaphthylene	41,000	
Anthracene	50,000	
Benzo(a)anthracene	224 or md	
Benzo(a)pyrene	61 or md	
Benzo(b)fluoranthene	1,100	
Benzo(g,h,i)perylene	50,000	
Benzo(k)fluoranthene	1,100	
bis(2-Chloroethoxy)methane	na	
bis(-2-Chloroethyl)Ether	na	
bis(2-Ethylhexyl)phthalate	50,000	
Butylbenzylphthalate	50,000	
Carbazole	na	
Chrysene	400	
Dibenzo(a,h)anthracene	14 or md	
Dibenzofuran	6,200	
Diethylphthalate	7,100	
Dimethylphthalate	2,000	
Di-n-butylphthalate	8,100	
Di-n-octylphthalate	50,000	
Fluoranthene	50,000	
Fluorene	50,000	

Table 3-2
Relation Between TCE Concentration and PID Readings
NYSDEC-SOH, Henrietta, NY

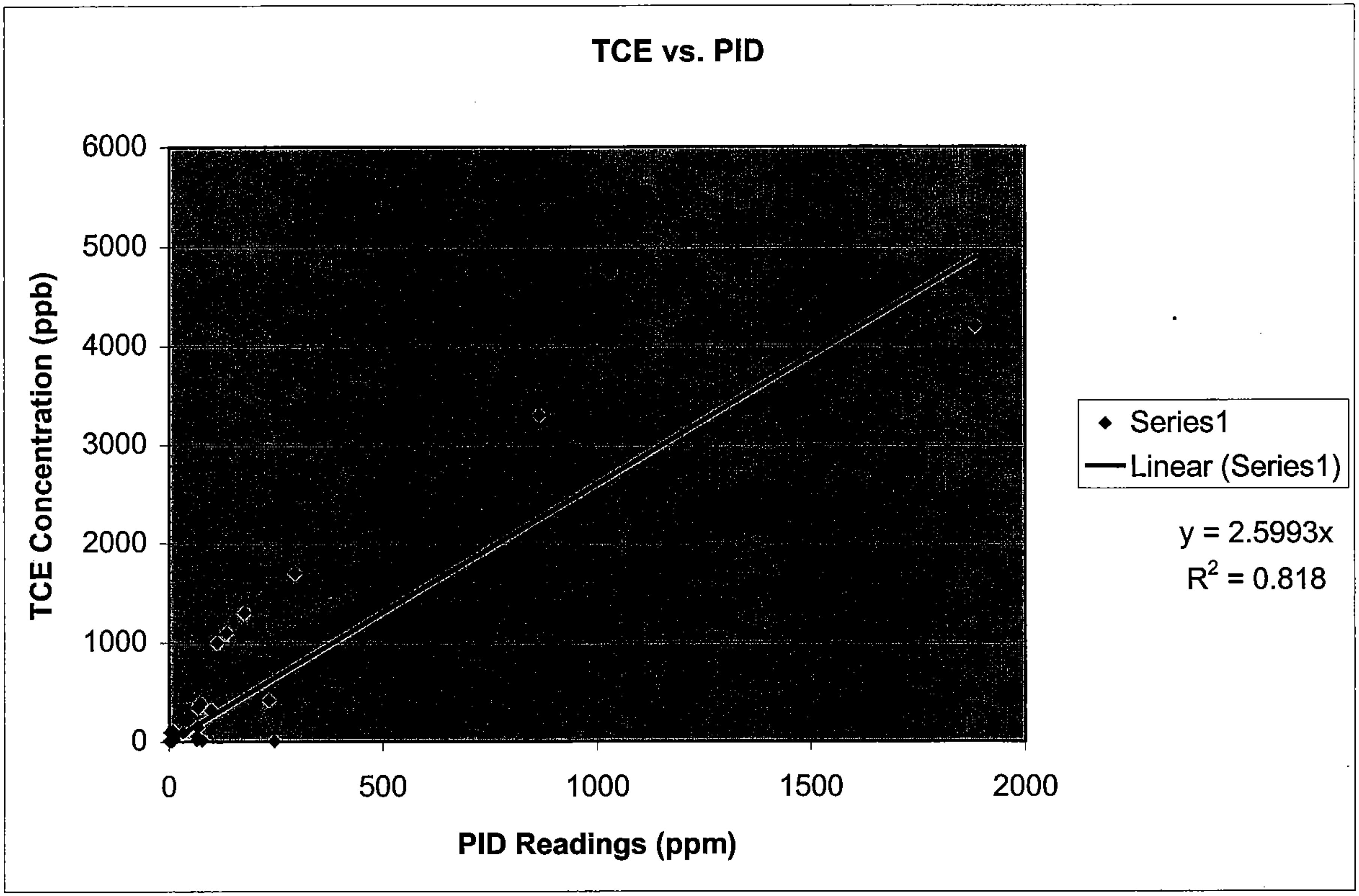


Table 3-3
Detected Compounds (SVOCs, Metals) in Surface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Objective (TAGM 4046)[1]	DD-1 71970001 11/30/2000	DD-2 71970002 11/30/2000	DD-3 71970003 11/30/2000	DD-4 71970004 11/30/2000
Analyte					
Metals (mg/Kg)					
Aluminum	SB (33,000)	5,660	3,070	8,980	7,310
Antimony	SB (n/a)	0.74 J			0.68 J
Arsenic	7.5 or SB(3-12)	4.2	3.2	3.7	10.5 J
Barium	300 or SB (15-600)	37.3	15.7	66.1	143
Beryllium	0.16 or SB (0-1.75)			0.098	0.34
Cadmium	1 or SB (0.1-1)	0.76	0.41	0.87	**2.1**
Calcium	SB (130-35,000)	2,330 J	668	8040 J	22,500 J
Chromium	10 or SB (1.5-40)	9.7 J	4.2 J	12.9 J	11.6 J
Cobalt	30 or SB (2.5-60)	3.8	2.6	4.9	6.8
Copper	25 or SB (1-50)	9.9	4.1	10.9	16.9
Iron	2,000 or SB (2,000-550,000)	12,100	6,370	15,000	26,900 J
Lead	SB (200-500)	13.4 J	7.2 J	11.7 J	40.1 J
Magnesium	SB (100-5,000)	2,090	840	4,930	**8,190**
Manganese	SB (50-5,000)	289 J	171 J	247 J	1,680 J
Mercury	0.1				0.081
Nickel	13 or SB (0.5-25)	8	3.9	13.1 J	10.1 J
Potassium	SB (8,500-43,000)	377	222	872	522
Selenium	2 or SB(0.1-3.9)				
Silver	na	1	0.66	1.3	2.9
Sodium	SB (na)	321	197	267	485
Thallium	SB (na)				
Vanadium	150 or SB(1-300)	13.9	7.1	17.1	27
Zinc	20 or SB (9-50)	**117 J**	30.9 J	49.9 J	**106 J**
Cyanide	SB (na)	0.2		0.15	
Semivolatiles (ug/kg)					
2,4-Dimethylphenol					
2-Methylnaphthalene	36400				
2-Methylphenol	100or md				
4-Methylphenol	900				
Acenaphthene	50000				160
Acenaphthylene	41000				400
Anthracene	50000				1,000
Benzo(a)anthracene	224 or md	190		97	**5,400 J**
Benzo(a)pyrene	61 or md	**300 J**		**110 J**	**4,000 J**
Benzo(b)fluoranthene	1100	590 J	67 J	200 J	**5,800 J**
Benzo(g,h,i)perylene	50000	230 J			3,700 J
Benzo(k)fluoranthene	1100	160 J		66 J	2,000 J
bis(2-Ethylhexyl)phthalate	50000	160 J	88 J	110 J	180 J
Butylbenzylphthalate	50000				86 J
Carbazole	na				430
Chrysene	400	310		130	**4,700 J**
Dibenzo(a,h)anthracene	14 or md				**790 J**
Dibenzofuran	6200				190

Table 3-3
Detected Compounds (SVOCs, Metals) in Surface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Objective (TAGM 4046)[1]	DD-5 71970005 11/30/2000	DD-6 71970006 11/30/2000	DD-7 71970007 11/30/2000	DD-8 71970008 11/30/2000
Analyte					
Metals (mg/Kg)					
Aluminum	SB (33,000)	6,580	11,400	5,650	10,900
Antimony	SB (n/a)			0.7 J	
Arsenic	7.5 or SB(3-12)	1.5	3.2	3.8	2.8
Barium	300 or SB (15-600)	46.9	101	42.9	63
Beryllium	0.16 or SB (0-1.75)		0.25		
Cadmium	1 or SB (0.1-1)	0.74	**1.2**	0.75	**1.1**
Calcium	SB (130-35,000)	**45,100 J**	**49,600 J**	**75,500 J**	28,500 J
Chromium	10 or SB (1.5-40)	10.3 J	16.3 J	6.8 J	17 J
Cobalt	30 or SB (2.5-60)	5.1	8.3	4.2	7.4
Copper	25 or SB (1-50)	12.2	18.5	16	19 J
Iron	2,000 or SB (2,000-550,000)	12,400	19,900	11,100	18,300
Lead	SB (200-500)	9 J	11.6 J	12.7 J	16 J
Magnesium	SB (100-5,000)	**15,500**	**16,500**	**34,900**	**11,100**
Manganese	SB (50-5,000)	427	427	603	272
Mercury	0.1				
Nickel	13 or SB (0.5-25)	11.6 J	21 J	11.4 J	18.2 J
Potassium	SB (8,500-43,000)	1,250	2,260	764	1,740
Selenium	2 or SB(0.1-3.9)				
Silver	na	1.1	2.1	1.5	1.6
Sodium	SB (na)	817	502	539	891
Thallium	SB (na)				2.5 J
Vanadium	150 or SB(1-300)	15	22.2	12.1	22.2
Zinc	20 or SB (9-50)	41.7 J	**62.3 J**	**57.1 J**	**84.6 J**
Cyanide	SB (na)		0.19		0.39
Semivolatiles (ug/kg)					
2,4-Dimethylphenol					
2-Methylnaphthalene	36400				350
2-Methylphenol	100or md				
4-Methylphenol	900				
Acenaphthene	50000				1,500
Acenaphthylene	41000				
Anthracene	50000				2,000
Benzo(a)anthracene	224 or md	99 J	130	100	**5,200**
Benzo(a)pyrene	61 or md	**130 J**	**180 J**	**130 J**	**4,100**
Benzo(b)fluoranthene	1100	290 J	300 J	220 J	**5,300**
Benzo(g,h,i)perylene	50000	96 J	120 J	76 J	2,400
Benzo(k)fluoranthene	1100	69 J	92 J	70 J	**2,200 J**
bis(2-Ethylhexyl)phthalate	50000	130 J	130 J	92 J	
Butylbenzylphthalate	50000				
Carbazole	na				1200
Chrysene	400	160 J	200	140	**4,700**
Dibenzo(a,h)anthracene	14 or md				**790**
Dibenzofuran	6200				530

Table 3-3
Detected Compounds (SVOCs, Metals) in Surface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Objective (TAGM 4046)[1]	DD-9 71970009 11/30/2000	DD-10 71970010 11/30/2000	DD-11 71970011 11/30/2000	DD-12 71970012 11/30/2000
Analyte					
Metals (mg/Kg)					
Aluminum	SB (33,000)	5,620	4,190	9,860 J	6,400
Antimony	SB (n/a)			1.6 J	
Arsenic	7.5 or SB(3-12)	5.4	2.7	4.6 J	3.6
Barium	300 or SB (15-600)	43	48.4	67.6 J	48.6
Beryllium	0.16 or SB (0-1.75)				
Cadmium	1 or SB (0.1-1)	0.79	0.66	**4 J**	0.82
Calcium	SB (130-35,000)	20,400 J	**61,400 J**	17,700 J	26,700 J
Chromium	10 or SB (1.5-40)	9.6 J	5.3 J	35.8 J	9.4 J
Cobalt	30 or SB (2.5-60)	3.4	3.1	5.6 J	4.7
Copper	25 or SB (1-50)	13.8 J	14.5 J	**108 J**	16.7 J
Iron	2,000 or SB (2,000-550,000)	9,920	9,980	16,500 J	13,000
Lead	SB (200-500)	22.8 J	6.5 J	322 J	16.1 J
Magnesium	SB (100-5,000)	**9,580**	**11,400**	**10,900 J**	**8,300**
Manganese	SB (50-5,000)	278	560	145 J	303
Mercury	0.1			**0.55 J**	
Nickel	13 or SB (0.5-25)	9.3 J	8.4 J	25 J	11.3 J
Potassium	SB (8,500-43,000)	917	581	1,300 J	983
Selenium	2 or SB(0.1-3.9)				
Silver	na	0.92	1.3	2.8 J	1.2
Sodium	SB (na)	361	444	5,020 J	701
Thallium	SB (na)			2.6 J	
Vanadium	150 or SB(1-300)	15	8.7	31.6 J	15.2
Zinc	20 or SB (9-50)	**59.1 J**	**65.1 J**	**1,370 J**	**114 J**
Cyanide	SB (na)			5.3 J	0.14
Semivolatiles (ug/kg)					
2,4-Dimethylphenol		300			
2-Methylnaphthalene	36400	14,000 D		100 J	
2-Methylphenol	100or md	140			
4-Methylphenol	900	520			
Acenaphthene	50000	**53,000 D**		120 J	76
Acenaphthylene	41000	260 J			
Anthracene	50000	76,000 D			190
Benzo(a)anthracene	224 or md	**150,000 JD**	110	180 J	**1,200**
Benzo(a)pyrene	61 or md	**110,000 JD**	**120 J**	**180 J**	**990**
Benzo(b)fluoranthene	1100	**150,000 JD**	190 J	320 J	**1,700**
Benzo(g,h,i)perylene	50000	**61,000 JD**		180 J	1,100
Benzo(k)fluoranthene	1100	**62,000 JD**	74 J	120 J	590 J
bis(2-Ethylhexyl)phthalate	50000	330 J	120 J	170 J	150
Butylbenzylphthalate	50000				
Carbazole	na	44000			180
Chrysene	400	**140,000 JD**	130	240 J	**1,200**
Dibenzo(a,h)anthracene	14 or md	**20,000 JD**			200
Dibenzofuran	6200	**20,000 D**			

Table 3-3
Detected Compounds (SVOCs, Metals) in Surface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID **Lab ID** **Sample Date**	**NYSDEC Objective** **(TAGM 4046)[1]**	**DD-13** **71970013** **11/30/2000**	**DD-14** **71970014** **11/30/2000**	**DD-15** **71970015** **11/30/2000**
Analyte				
Metals (mg/Kg)				
Aluminum	SB (33,000)	11,500 J	7,470	8,200
Antimony	SB (n/a)	3.7 J		
Arsenic	7.5 or SB(3-12)		5	4.5
Barium	300 or SB (15-600)	108 J	39.8	59.1
Beryllium	0.16 or SB (0-1.75)			0.066
Cadmium	1 or SB (0.1-1)	**7.5 J**	0.91	**1**
Calcium	SB (130-35,000)	11,900 J	11,700 J	34,900 J
Chromium	10 or SB (1.5-40)	**46.6 J**	9.8 J	12.7 J
Cobalt	30 or SB (2.5-60)	4.8 J	4.4	6.6
Copper	25 or SB (1-50)	**178 J**	12.7 J	16.8 J
Iron	2,000 or SB (2,000-550,000)	19,700 J	13,400	16,400
Lead	SB (200-500)	**629 J**	13.1 J	13.7 J
Magnesium	SB (100-5,000)	**5,580 J**	4,670	**11,800**
Manganese	SB (50-5,000)	171 J	304	416
Mercury	0.1	**0.38 J**		
Nickel	13 or SB (0.5-25)	25 J	11 J	17.2 J
Potassium	SB (8,500-43,000)	2,050 J	1,050	1,470
Selenium	2 or SB(0.1-3.9)			
Silver	na	2.8 J	1.2	1.6
Sodium	SB (na)	4,810 J	208	416
Thallium	SB (na)			
Vanadium	150 or SB(1-300)	37.6 J	15.4	18
Zinc	20 or SB (9-50)	**2,150 J**	**51.9 J**	**55.3 J**
Cyanide	SB (na)	0.7 J		0.14
Semivolatiles (ug/kg)				
2,4-Dimethylphenol				
2-Methylnaphthalene	36400			
2-Methylphenol	100or md			
4-Methylphenol	900			
Acenaphthene	50000			
Acenaphthylene	41000			
Anthracene	50000	4,400 JD		
Benzo(a)anthracene	224 or md	**37,000 JD**	110	72
Benzo(a)pyrene	61 or md	**48,000 JD**	**120**	**84**
Benzo(b)fluoranthene	1100	**77,000 JD**	240	160
Benzo(g,h,i)perylene	50000	**53,000 JD**	89	97
Benzo(k)fluoranthene	1100	**28,000 JD**	56 J	64 J
bis(2-Ethylhexyl)phthalate	50000	**6,500 JD**	70	75
Butylbenzylphthalate	50000			
Carbazole	na	5,400 JD		
Chrysene	400	**52,000 JD**	150	120
Dibenzo(a,h)anthracene	14 or md	**8,000 JD**		
Dibenzofuran	6200			

Table 3-4
Detected Compounds (VOCs) in Sump/Catch Basin Sediment Samples
NYSDEC - SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Objective (TAGM 4046)[1]	01 80332001 02/15/2001	02 80332002 02/15/2001	03 80332003 02/15/2001
Volatiles (ug/kg)				
1,1,1-Trichloroethane	800	**31,000**	**6,700,000**	**20,000**
1,1-Dichloroethane	200	**6,500**	**160,000**	**41,000**
2-Butanone	300			**890**
Acetone	200	**3,500**		
Bromomethane	na			330
Chloromethane	na	2,300		700
Tetrachloroethene	1400	**3,800**		
Vinyl Chloride	200	**710**		
Xylene (Total)	1200	**1,600**		

Notes: --- :Not Analyzed J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Result below detection limit
1) NYSDEC Div. Of Haz Waste Technical and Administrative Guidance Memorandum (TAGM 4046):
Soil Cleanup Objectives and Cleanup Levels Recommended Soil Cleanup Objectives used for this table.

Table 3-5
Groundwater Elevation Measurements
(December 13, 2000)
NYSDEC - SOH, Henrietta, NY

Well ID	PVC Elevation (Feet)	Depth to Water (Feet)	Water Elevation (Feet)	Well Depth (Feet)	Headspace (2) Reading (ppm)
IPZ-1	527.86	4.9	522.96	23.2	3056
IPZ-2	528.38	5.1	523.28	na	4.6
IPZ-3	527.87	4.85	523.02	na	4.6
TW-1	527.74	4.7	523.04	24.25	>9999
TW-2	527.55	4.6	522.95	24.15	7.6
TW-3	527.66	4.55	523.11	24.5	199
TW-4	527.58	4.45	523.13	20.55	68
IW-1	528.23	5.35	522.88	na	12
OW-1S	530.86	6.95	523.91	25.7	0
OW-1R	531.22	12.7	518.52	42.3	0
OW-2S	533.58	7.25	526.33	22.75	0
OW-2R	533.9	15.5	518.4	45.35	0
OW-3S	527.25	9.05	518.2	24.8	29.6
OW-3R	527.1	9.6	517.5	45.8	0
OW-4S	531.81	9.25	522.56	26.8	0.1
OW-4R	531.26	12.9	518.36	50.8	0
OW-5R	Well not gauged				
OW-5S	528.79	12.3	516.49	23.75	0
OW-6S	531	8.1	522.9	15.75	60.3
OW-6R	Well not gauged				
OW-7S	527.51	4.9	522.61	28.3	1539
OW-7R	527.9	9.5	518.4	45.95	7580
OW-8S	528.02	7.05	520.97	34	2.4
OW-LS	533.12	5.6	527.52	11.4	na
PZ-1	530.75	9.5	521.25	23	29.7
PZ-2	532.74	11.05	521.69	30.2	0
PZ-3	527.97	10	517.97	22.2	2.7
OW-9S	524.95	1.7	523.25	24.25	na
OW-11S	531.31	6.55	524.76	14.15	0
OW-10S	531.73	7.75	523.98	16.3	0

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	IPZ-1 71101004 07/17/2000	IP2-1 71459002 09/11/2000	IPZ-1 71707001 10/20/2000	IPZ-1 72073007 12/14/2000	IPZ-2 71101002 07/17/2000
Metals (ug/L)						
Aluminum	na	---	---	---	25.3 J	---
Antimony	3	---	---	---		---
Arsenic	25	---	---	---		---
Barium	1,000	---	---	---	137	---
Beryllium	3(guid)	---	---	---		---
Cadmium	5	---	---	---	0.6	---
Calcium	na	---	---	---	183000	---
Chromium	50	---	---	---		---
Cobalt	na	---	---	---	3.9	---
Copper	200	---	---	---	2.3	---
Iron	300	**88400 J**	**6340**	**5570**	**4050**	**187000 J**
Lead	25	---	---	---		---
Magnesium	35,000 (guid)	---	---	---	**109000**	---
Manganese	300	**2880 J**	137	106	**1680 J**	**7530 J**
Mercury	0.7	---	---	---		---
Nickel	100	---	---	---	48.9	---
Potassium	na	---	---	---	6430	---
Selenium	10	---	---	---		---
Silver	50	---	---	---	0.5	---
Sodium	20,000	---	---	---	**92800 J**	---
Thallium	0.5(guid)	---	---	---		---
Vanadium	na	---	---	---		---
Zinc	2,000(guid)	---	---	---	R	---
Cyanide	200	---	---	---		---
Volatiles (ug/L)						
1,1,1-Trichloroethane	5	**11000**		**9100**	**5900**	
1,1,2-Trichloroethane	1					
1,1-Dichloroethane	5	**35000**	**13000**	**34000**	**14000**	
1,1-Dichloroethene	5					
1,2-Dichloroethane	0.6					
1,2-Dichloroethene (Total)	5	---	---	---	**13000**	---
2-Butanone	50					
2-Chlorotoluene	5				---	
2-Hexanone	50					
4-Chlorotoluene	5				---	
4-Methyl-2-Pentanone	na					
Acetone	50 (guid)		**12000**	**8600**		
Benzene	1					
Bromobenzene	5				---	
Bromochloromethane	5				---	
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)					
Carbon Tetrachloride	5					
Chlorobenzene	5					
Chloroethane	5					
Chloroform	7					

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	IPZ-2 71707010 10/20/2000	IPZ-2 72073005 12/14/2000	IPZ-3 71101003 07/17/2000	IPZ-3 71707008 10/20/2000	IPZ-3 72073008 12/14/2000
Metals (ug/L)						
Aluminum	na	---	581 J	---	---	672 J
Antimony	3	---		---	---	
Arsenic	25	---		---	---	
Barium	1,000	---	6.9	---	---	
Beryllium	3(guid)	---		---	---	
Cadmium	5	---	0.34	---	---	
Calcium	na	---	215000	---	---	17400
Chromium	50	---	**345**	---	---	**1010**
Cobalt	na	---	21.8	---	---	23.9
Copper	200	---		---	---	
Iron	300	247	72.3	**41900 J**	177	100
Lead	25	---	**48.8**	---	---	**73.4**
Magnesium	35,000 (guid)	---	**123000**	---	---	**35300**
Manganese	300	**497000**	**730000 J**	**1210 J**	**399000**	**664000 J**
Mercury	0.7	---	**1.1**	---	---	**6.4**
Nickel	100	---	16.4	---	---	7
Potassium	na	---	54900	---	---	77700
Selenium	10	---	**306**	---	---	**499**
Silver	50	---		---	---	
Sodium	20,000	---	**1310000 J**	---	---	**3170000 J**
Thallium	0.5(guid)	---		---	---	
Vanadium	na	---		---	---	
Zinc	2,000(guid)	---	R	---	---	
Cyanide	200	---		---	---	
Volatiles (ug/L)						
1,1,1-Trichloroethane	5	**100000**	**120000**	**100000**	**280000**	**290000**
1,1,2-Trichloroethane	1					
1,1-Dichloroethane	5	**19000**	**12000**	**110000**	**46000**	**40000**
1,1-Dichloroethene	5		**1100**		**9500**	**3500**
1,2-Dichloroethane	0.6					
1,2-Dichloroethene (Total)	5	---		---	---	
2-Butanone	50					
2-Chlorotoluene	5		---			---
2-Hexanone	50					
4-Chlorotoluene	5		---			---
4-Methyl-2-Pentanone	na					
Acetone	50 (guid)					
Benzene	1					
Bromobenzene	5		---			---
Bromochloromethane	5		---			---
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)					
Carbon Tetrachloride	5					
Chlorobenzene	5					
Chloroethane	5					
Chloroform	7					

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	IW-1 71101001 07/17/2000	IW-1 71707009 10/20/2000	IW-1 72073006 12/14/2000	MW-2 72109001 12/18/2000	MW-3 72109006 12/18/2000
Metals (ug/L)						
Aluminum	na	---	---	3040 J	R	R
Antimony	3	---	---		3	
Arsenic	25	---	---			
Barium	1,000	---	---	1.3	89	105
Beryllium	3(guid)	---	---			
Cadmium	5	---	---		0.47	0.18
Calcium	na	---	---	107000	122000	119000
Chromium	50	---	---	**1450**		
Cobalt	na	---	---	32.5	0.43	1.6
Copper	200	---	---		1.9	2.9
Iron	300	**20100 J**	65.5	**463**	**2000**	**1390**
Lead	25	---	---	**307**		
Magnesium	35,000 (guid)	---	---	**73100**	**68700**	**64200**
Manganese	300	**704 J**	**319000**	**4090000 J**	71.4 J	210 J
Mercury	0.7	---	---	3.2		
Nickel	100	---	---		2.3	24.2
Potassium	na	---	---	54200	7690	4370
Selenium	10	---	---	**1950**		
Silver	50	---	---		2.9 J	2.1
Sodium	20,000	---	---	**3080000 J**	**48600**	**97100**
Thallium	0.5(guid)	---	---			
Vanadium	na	---	---			
Zinc	2,000(guid)	---	---	R		
Cyanide	200	---	---	3.9		
Volatiles (ug/L)						
1,1,1-Trichloroethane	5		**82000**	**100000**	**450**	**22**
1,1,2-Trichloroethane	1					
1,1-Dichloroethane	5		**18000**	**15000**	**2300**	**160**
1,1-Dichloroethene	5		**2600**		**100**	**41**
1,2-Dichloroethane	0.6					
1,2-Dichloroethene (Total)	5	---	---		**150**	**43**
2-Butanone	50					
2-Chlorotoluene	5			---	---	---
2-Hexanone	50					
4-Chlorotoluene	5			---	---	---
4-Methyl-2-Pentanone	na					
Acetone	50 (guid)		**3700**			
Benzene	1					
Bromobenzene	5			---	---	---
Bromochloromethane	5			---	---	---
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)					
Carbon Tetrachloride	5					
Chlorobenzene	5					
Chloroethane	5					
Chloroform	7					

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	MW-5 72109002 12/18/2000	OW-1S 72131004 12/19/2000	OW-2S 72109015 12/19/2000	OW-3S 72109009 12/19/2000	OW-4S 72109012 12/19/2000
Metals (ug/L)						
Aluminum	na	R				R
Antimony	3			**3.4 J**		
Arsenic	25					
Barium	1,000	179	88.8	66.1	23.7	54.4
Beryllium	3(guid)	0.2		0.21		0.25
Cadmium	5	0.4	0.89	0.57	0.53	1.2
Calcium	na	110000	123000	71500	41700	60900
Chromium	50					
Cobalt	na	1.6	0.9 J	0.49	0.5	0.99
Copper	200	5	6.6			
Iron	300	**1060**	**12100**	**10700**	**10700**	**22000**
Lead	25	1.6				2.6
Magnesium	35,000 (guid)	34700	**36100**	**76300**	**65400**	**54900**
Manganese	300	**931 J**	70.8	96.6 J	114 J	155 J
Mercury	0.7					
Nickel	100	6.2	7.6	9.4	19.3	9.4
Potassium	na	1560	2970	4760	2580	3150
Selenium	10					
Silver	50	2.5 J	3.8	3.3	2.6	4
Sodium	20,000	**36300**	**127000**	**204000**	**54100**	**53500**
Thallium	0.5(guid)					
Vanadium	na	2.5	0.59			1.4
Zinc	2,000(guid)	3.5	13.1	3.3	5.3	4.6
Cyanide	200		8.6			
Volatiles (ug/L)						
1,1,1-Trichloroethane	5		2			**200**
1,1,2-Trichloroethane	1					
1,1-Dichloroethane	5			**60**	**25**	**810**
1,1-Dichloroethene	5					**76**
1,2-Dichloroethane	0.6					
1,2-Dichloroethene (Total)	5			**11**	**2500**	
2-Butanone	50					
2-Chlorotoluene	5	---	---	---	---	---
2-Hexanone	50					
4-Chlorotoluene	5	---	---	---	---	---
4-Methyl-2-Pentanone	na					
Acetone	50 (guid)					
Benzene	1					
Bromobenzene	5	---	---	---	---	---
Bromochloromethane	5	---	---	---	---	---
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)					
Carbon Tetrachloride	5					
Chlorobenzene	5					
Chloroethane	5					
Chloroform	7					

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	OW-5S 72109008 12/19/2000	OW-6S 72131001 12/18/2000	OW-7S 71101006 07/17/2000	OW-7S 71459003 09/11/2000	OW-7S 71707003 10/20/2000
Metals (ug/L)						
Aluminum	na	R	158	---	---	---
Antimony	3	**3.3**		---	---	---
Arsenic	25			---	---	---
Barium	1,000	231 J	166	---	---	---
Beryllium	3(guid)	0.23		---	---	---
Cadmium	5	2.5	3.5	---	---	---
Calcium	na	79800	169000	---	---	---
Chromium	50	14	13.6	---	---	---
Cobalt	na	3.3	17.2 J	---	---	---
Copper	200	10.8	9.6	---	---	---
Iron	300	**47500**	**42300**	**70800 J**	**1070**	**8140**
Lead	25	21.3	11.1 J	---	---	---
Magnesium	35,000 (guid)	**49800**	**59500**	---	---	---
Manganese	300	**495 J**	**475**	**1380 J**	50.6	194
Mercury	0.7			---	---	---
Nickel	100	59	**141**	---	---	---
Potassium	na	6860	2270	---	---	---
Selenium	10			---	---	---
Silver	50	7.9	8.1	---	---	---
Sodium	20,000	**51700**	**37700**	---	---	---
Thallium	0.5(guid)			---	---	---
Vanadium	na	5.8	2.6	---	---	---
Zinc	2,000(guid)	25.2	18.1	---	---	---
Cyanide	200		5.7	---	---	---
Volatiles (ug/L)						
1,1,1-Trichloroethane	5	4	**11000 J**			
1,1,2-Trichloroethane	1					
1,1-Dichloroethane	5	**56**	**660 J**			**450**
1,1-Dichloroethene	5	**12**	**690 J**			
1,2-Dichloroethane	0.6					
1,2-Dichloroethene (Total)	5	**24**		----	---	---
2-Butanone	50					
2-Chlorotoluene	5	---	---			
2-Hexanone	50					
4-Chlorotoluene	5	---	---			
4-Methyl-2-Pentanone	na					
Acetone	50 (guid)					
Benzene	1					
Bromobenzene	5	---	---			
Bromochloromethane	5	---	---			
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)					
Carbon Tetrachloride	5					
Chlorobenzene	5					
Chloroethane	5					
Chloroform	7					

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	OW-7S 72109007 12/18/2000	OW-8S 72109017 12/19/2000	PZ-1 72073009 12/15/2000	PZ-2 72073010 12/15/2000	PZ-3 72073014 12/15/2000
Metals (ug/L)						
Aluminum	na	R		2450 J	107 J	1490 J
Antimony	3		**3.2 J**		**3.3 J**	
Arsenic	25				8.9	
Barium	1,000	34.3	50.3	237 J	527 J	155
Beryllium	3(guid)			0.28		
Cadmium	5	2.1	0.41	1.2	0.82	0.51
Calcium	na	17100	86100	389000	135000	189000
Chromium	50	1.4				19.3
Cobalt	na	0.99	2.3	18	2.1	9.7
Copper	200	2.3		19	2.8	16.1
Iron	300	**11600**	**6850**	**6270**	**9170**	**3220**
Lead	25	1.5		7.6		1.9
Magnesium	35,000 (guid)	6770	**82000**	**140000**	**127000**	**85000**
Manganese	300	207 J	62.6 J	**3260 J**	254 J	**407 J**
Mercury	0.7					
Nickel	100	6.8	26.2	15.6	7.2	18.9
Potassium	na	2240	2950	3200	9510	6440
Selenium	10					
Silver	50	2.9	1.6	2.5	1.4	
Sodium	20,000	9120	**50600**	**24500 J**	**33200 J**	**93300 J**
Thallium	0.5(guid)					
Vanadium	na	2.1		3.5		2.7
Zinc	2,000(guid)	9.3		R	R	R
Cyanide	200				4.7	5.6
Volatiles (ug/L)						
1,1,1-Trichloroethane	5			**60000**	**330 D**	**360**
1,1,2-Trichloroethane	1					
1,1-Dichloroethane	5		**5000**		**8200 D**	**310**
1,1-Dichloroethene	5		**130**	**5200**	**730 D**	**99**
1,2-Dichloroethane	0.6				39	
1,2-Dichloroethene (Total)	5	**610**	**120**	**1900**		**120**
2-Butanone	50				**160**	
2-Chlorotoluene	5	---	---	---	---	---
2-Hexanone	50					
4-Chlorotoluene	5	---	---	---	---	---
4-Methyl-2-Pentanone	na				110 JD	
Acetone	50 (guid)				**140 J**	
Benzene	1				**13**	
Bromobenzene	5	---	---	---	---	---
Bromochloromethane	5	---	---	---	---	---
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)				2	
Carbon Tetrachloride	5					
Chlorobenzene	5					
Chloroethane	5				**1900 D**	
Chloroform	7					

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	TW-1 71539001 09/22/2000	TW-1 71707002 10/20/2000	TW-1 72073001 12/14/2000	TW-2 71539002 09/22/2000	TW-2 71707005 10/20/2000
Metals (ug/L)						
Aluminum	na	---	---	27.9 J	---	---
Antimony	3	---	---		---	---
Arsenic	25	---	---		---	---
Barium	1,000	---	---	65	---	---
Beryllium	3(guid)	---	---		---	---
Cadmium	5	---	---	0.3	---	---
Calcium	na	---	---	168000	---	---
Chromium	50	---	---		---	---
Cobalt	na	---	---	1.2	---	---
Copper	200	---	---	2.5	---	---
Iron	300	**525**	**561**	**362**	---	---
Lead	25	---	---		---	---
Magnesium	35,000 (guid)	---	---	**96500**	---	---
Manganese	300	**4870**	**2050**	**848 J**	**2660**	**5140**
Mercury	0.7	---	---		---	---
Nickel	100	---	---	14.9	---	---
Potassium	na	---	---	5320	---	---
Selenium	10	---	---		---	---
Silver	50	---	---	0.9	---	---
Sodium	20,000	---	---	**41700 J**	---	---
Thallium	0.5(guid)	---	---		---	---
Vanadium	na	---	---		---	---
Zinc	2,000(guid)	---	---	R	---	---
Cyanide	200	---	---		---	---
Volatiles (ug/L)						
1,1,1-Trichloroethane	5				**68000D**	**160000**
1,1,2-Trichloroethane	1				**49**	
1,1-Dichloroethane	5	**8100**	**6000**		**77000D**	**100000**
1,1-Dichloroethene	5				**65**	**6500**
1,2-Dichloroethane	0.6				**170**	
1,2-Dichloroethene (Total)	5	---	----	**9300**	---	----
2-Butanone	50					
2-Chlorotoluene	5			---	3	
2-Hexanone	50				17	
4-Chlorotoluene	5			---	2	
4-Methyl-2-Pentanone	na				180	
Acetone	50 (guid)	**23000**			**4300D**	
Benzene	1				**5**	
Bromobenzene	5			---	3	
Bromochloromethane	5			---	**9**	
Bromoform	50				2	
Bromomethane	5	**6100**				
Carbon Disulfide	60 (guid)				3	
Carbon Tetrachloride	5					
Chlorobenzene	5				1	
Chloroethane	5				**16**	
Chloroform	7				**11**	

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	TW-2 72073002 12/14/2000	TW-3 71539003 09/22/2000	TW-3 71707006 10/20/2000	TW-3 72073004 12/14/2000	TW-4 71539004 09/22/2000
Metals (ug/L)						
Aluminum	na	55.2 J	---	---		---
Antimony	3		---	---	**3.5 J**	---
Arsenic	25		---	---		---
Barium	1,000	333 J	---	---	646 J	---
Beryllium	3(guid)		---	---		---
Cadmium	5	0.27	---	---	0.5	---
Calcium	na	209000	---	---	217000	---
Chromium	50	5	---	---		---
Cobalt	na	6.6	---	---	1.4	---
Copper	200	13.3	---	---	2	---
Iron	300	**741 J**	**1380**	**4500**	**5620**	**4540**
Lead	25		---	---		---
Magnesium	35,000 (guid)	**128000**	---	---	**141000**	---
Manganese	300	**6680 J**	**381**	**382**	**145 J**	277
Mercury	0.7		---	---		---
Nickel	100	**108**	---	---	90.1	---
Potassium	na	8600	---	---	9160	---
Selenium	10		---	---		---
Silver	50	1.4	---	---	1.1	---
Sodium	20,000	**387000 J**	---	---	**76900 J**	---
Thallium	0.5(guid)		---	---		---
Vanadium	na		---	---		---
Zinc	2,000(guid)	R	---	---	R	---
Cyanide	200		---	---		---
Volatiles (ug/L)						
1,1,1-Trichloroethane	5	**160000 D**	**86000**	**120000**	**160000 D**	**26000**
1,1,2-Trichloroethane	1	110				
1,1-Dichloroethane	5	**61000 D**	**99000**	**120000**	**92000 D**	**56000**
1,1-Dichloroethene	5	**3000 D**	**1800**	**5600**	**4200 J**	**1000**
1,2-Dichloroethane	0.6					
1,2-Dichloroethene (Total)	5	**3500 D**	---	----	**6500 J**	---
2-Butanone	50	**420 J**				
2-Chlorotoluene	5	---			---	
2-Hexanone	50					
4-Chlorotoluene	5	---			---	
4-Methyl-2-Pentanone	na	340 J				
Acetone	50 (guid)	**1000 J**	**1600**			
Benzene	1	**6**				
Bromobenzene	5	---			---	
Bromochloromethane	5	---			---	
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)	6				
Carbon Tetrachloride	5	**5100 J**				
Chlorobenzene	5					
Chloroethane	5	**54**				
Chloroform	7	**30**				

Table 3-6A
Detected Compounds (VOCs, Metals) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	TW-4 71707007 10/20/2000	TW-4 72073012 12/14/2000
Metals (ug/L)			
Aluminum	na	---	114 J
Antimony	3	---	
Arsenic	25	---	
Barium	1,000	---	501 J
Beryllium	3(guid)	---	
Cadmium	5	---	0.51
Calcium	na	---	164000
Chromium	50	---	
Cobalt	na	---	1.4
Copper	200	---	3.1
Iron	300	**5660**	**2140**
Lead	25	---	
Magnesium	35,000 (guid)	---	**117000**
Manganese	300	**583**	124 J
Mercury	0.7	---	
Nickel	100	---	55
Potassium	na	---	8790
Selenium	10	---	
Silver	50	---	0.42
Sodium	20,000	---	**40700 J**
Thallium	0.5(guid)	---	
Vanadium	na	---	
Zinc	2,000(guid)	---	R
Cyanide	200	---	
Volatiles (ug/L)			
1,1,1-Trichloroethane	5	**30000**	**60000**
1,1,2-Trichloroethane	1		
1,1-Dichloroethane	5	**56000**	**74000**
1,1-Dichloroethene	5	**1500**	**1900**
1,2-Dichloroethane	0.6		
1,2-Dichloroethene (Total)	5	---	**2700**
2-Butanone	50		
2-Chlorotoluene	5		
2-Hexanone	50		
4-Chlorotoluene	5		
4-Methyl-2-Pentanone	na		
Acetone	50 (guid)		
Benzene	1		
Bromobenzene	5		
Bromochloromethane	5		
Bromoform	50		
Bromomethane	5		
Carbon Disulfide	60 (guid)		
Carbon Tetrachloride	5		
Chlorobenzene	5		
Chloroethane	5		
Chloroform	7		

Tables 3-6A and 3-7A
Detected compound in Groundwater Samples Samples
NYSDEC - SOH, Henrietta, NY

Table Notes:

[1]New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance series 1.1.1 Ambient Water Quality Standards and Guidance Values.

na: Not applicable (indicates that a class GA groundwater quality standards is not published for the respective compound)

(guid) - Indicates a standard was not listed, therefore the Guidance value was used.

--- : Not analyzed.

Empty cell indicates that the analyte was not detected above the method detection limit.

Unless otherwise specified by the validation, if a sample was analyzed once with acceptable results, the results from the first analysis was reported.

J-Estimated Value.

D- Result from a secondary dilution.

DNR - Do not report, duplicate result exist due to dilution or re-analysis, this result should not be reported.

U - Not detected above the reported sample quantitation limit.

R - Rejected data.

Table 3-6B
Detected Compounds (Wet Chem. and Other) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	IPZ-1 71101004 07/17/2000	IP2-1 71459002 09/11/2000	IPZ-1 72073007 12/14/2000	IPZ-2 71101002 07/17/2000	IPZ-2 71707010 10/20/2000	IPZ-2 72073005 12/14/2000
Wet Chemistry (ug/L) and Misc (various)							
Specific Conductance (uMHOS)	na	---	---	2,430	---	---	8,680
Fluoride	1,500	---	---		---	---	49.8
DOC	na	---	---	230	---	---	200
TOC	250,000	---	---	210	---	---	150
Chloride	10,000 (sum)	700	700	510	350		
Nitrate/Nitrite	na	---	---		---	---	
Phosphate-total	250,000	---	---		---	---	
Sulfates	na	---	---	120	---	---	
Alkalinity (mgCa)	na	---	---	450	---	---	
Total Dissolved Solids	na	---	---	1,400	---	---	5,400
pH	na	---	---	6.9 J	---	---	6.8 J
Chemical Oxygen Demand	2,000	300	240	---	2,900		---
Bromide		---	---		---	---	

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed

J: Estimated Value

DNR: Do not report

R: Rejected Data

D: Result fron Dilution

Empty Cell: Result below detection limit

Table 3-6B
Detected Compounds (Wet Chem. and Other) in
Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	IPZ-3 71101003 07/17/2000	IPZ-3 71707008 10/20/2000	IPZ-3 72073008 12/14/2000	IPZ-1 71707001 10/20/2000	IW-1 71101001 07/17/2000	IW-1 71707009 10/20/2000	IW-1 72073006 12/14/2000
Wet Chemistry (ug/L) and Misc (various)								
Specific Conductance (uMHOS)	na	---	---	15,900	---	---	na	19,600
Fluoride	1,500	---	---		---	---	na	38.7
DOC	na	---	---	460	---	---	na	340
TOC	250,000	---	---	350	---	---	na	340
Chloride	10,000 (sum)	900			780	300		
Nitrate/Nitrite	na	---	---		---	---	---	
Phosphate-total	250,000	---	---		---	---	---	
Sulfates	na	---	---		---	---	---	
Alkalinity (mgCa)	na	---	---		---	---	---	
Total Dissolved Solids	na	---	---	9,900	---	---	---	18,000
pH	na	---	---	7.7 J	---	---	---	6.9 J
Chemical Oxygen Demand	2,000	440		---	240	350		---
Bromide		---	---		---	---	---	

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed

J: Estimated Value

DNR: Do not report

R: Rejected Data

D: Result fron Dilution

Empty Cell: Result below detection limit

Table 3-6B
Detected Compounds (Wet Chem. and Other) in
Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	MW-2 72109001 12/18/2000	MW-3 72109006 12/18/2000	MW-5 72109002 12/18/2000	OW-1S 72131004 12/19/2000	OW-2S 72109015 12/19/2000	OW-3S 72109009 12/19/2000	OW-4S 72109012 12/19/2000
Wet Chemistry (ug/L) and Misc (various)								
Specific Conductance (uMHOS)	na	1,290	1,500	835	1,840	1,930	915	1,060
Fluoride	1,500		0.10	0.08 J	0.11	0.10	0.16	0.07
DOC	na	17	21	21	17	18	14	21
TOC	250,000	15	17	21	20	11	10	5
Chloride	10,000 (sum)	210	250		200	350		210
Nitrate/Nitrite	na		0.09		5.8			
Phosphate-total	250,000	0.70	1.0	0.67	0.57 J			
Sulfates	na	140	150	26	75	150		120
Alkalinity (mgCa)	na	290	330	330	470	380	330	140
Total Dissolved Solids	na	710	820	470	900	910	460	520
pH	na	7.3 J	7.3 J	7.0 J	7.2 J	7.4 J	7.7 J	7.8 J
Chemical Oxygen Demand	2,000	---	---	---	---	---	---	---
Bromide			2.01					

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed

J: Estimated Value

DNR: Do not report

R: Rejected Data

D: Result fron Dilution

Empty Cell: Result below detection limit

Table 3-6B
Detected Compounds (Wet Chem. and Other) in
Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	OW-5S 72109008 12/19/2000	OW-6S 72131001 12/18/2000	OW-7S 71101006 07/17/2000	OW-7S 71459003 09/11/2000	OW-7S 71707003 10/20/2000	OW-7S 72109007 12/18/2000	OW-8S 72109017 12/19/2000
Wet Chemistry (ug/L) and Misc (various)								
Specific Conductance (uMHOS)	na	793	1,300	---	---	---	169	1,310
Fluoride	1,500	0.29		---	---	---	0.09	0.33
DOC	na	10	24	---	---	---		52
TOC	250,000	6	26	---	---	---	6	11
Chloride	10,000 (sum)		95	150	43	50		110
Nitrate/Nitrite	na			---	---	---		
Phosphate-total	250,000		0.80 J	---	---	---	0.16	
Sulfates	na	72	140	---	---	---	11	130
Alkalinity (mgCa)	na	250	460	---	---	---	64	290
Total Dissolved Solids	na	410	800 J	---	---	---	93	670
pH	na	7.9 J	6.8 J	---	---	---	8.7 J	7.7 J
Chemical Oxygen Demand	2,000	---	---	130	31	42	---	---
Bromide				---	---	---		

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Result below detection limit

Table 3-6B
Detected Compounds (Wet Chem. and Other) in
Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID **Lab ID** **Sample Date**	**NYSDEC** **Standards[1]** **(ug/L)**	**PZ-1** **72073009** **12/15/2000**	**PZ-2** **72073010** **12/15/2000**	**PZ-3** **72073014** **12/15/2000**	**TW-1** **71539001** **09/22/2000**	**TW-1** **71707002** **10/20/2000**	**TW-1** **72073001** **12/14/2000**
Wet Chemistry (ug/L) and Misc (various)							
Specific Conductance (uMHOS)	na	1,760	1,690	1,550	---	---	
Fluoride	1,500	0.16	0.24	0.18	---	---	
DOC	na	87	99	35	---	---	220
TOC	250,000	94	85	36	---	---	190
Chloride	10,000 (sum)	180	280	140	560	570	490
Nitrate/Nitrite	na			0.61	---	---	
Phosphate-total	250,000				---	---	
Sulfates	na	110		130	---	---	120
Alkalinity (mgCa)	na	720	660	570	---	---	430
Total Dissolved Solids	na	1,000	1,100	930	---	---	1,200
pH	na	6.9	6.8	7.1	---	---	6.9 J
Chemical Oxygen Demand	2,000	---	---	---	210	200	---
Bromide					---	---	

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed

J: Estimated Value

DNR: Do not report

R: Rejected Data

D: Result fron Dilution

Empty Cell: Result below detection limit

Table 3-6B
Detected Compounds (Wet Chem. and Other) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	TW-2 71539002 09/22/2000	TW-2 71707005 10/20/2000	TW-2 72073002 12/14/2000	TW-3 71539003 09/22/2000	TW-3 71707006 10/20/2000	TW-3 72073004 12/14/2000
Wet Chemistry (ug/L) and Misc (various)							
Specific Conductance (uMHOS)	na	---	---	3,790	---	---	2,840
Fluoride	1,500	---	---		---	---	
DOC	na	---	---	180	---	---	140
TOC	250,000	---	---	140	---	---	140
Chloride	10,000 (sum)	900	900	790	700	840	650
Nitrate/Nitrite	na	---	---		---	---	
Phosphate-total	250,000	---	---		---	---	
Sulfates	na	---	---	320	---	---	110
Alkalinity (mgCa)	na	---	---	700	---	---	590
Total Dissolved Solids	na	---	---	560	---	---	1,600
pH	na	---	---	6.8 J	---	---	6.9 J
Chemical Oxygen Demand	2,000	230	300	---	200	230	---
Bromide		---	---		---	---	

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed

J: Estimated Value

DNR: Do not report

R: Rejected Data

D: Result fron Dilution

Empty Cell: Result below detection limit

Table 3-6B
Detected Compounds (Wet Chem. and Other) in Overburden Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	TW-4 71539004 09/22/2000	TW-4 71707007 10/20/2000	TW-4 72073012 12/14/2000
Wet Chemistry (ug/L) and Misc (various)				
Specific Conductance (uMHOS)	na	---	---	2,240
Fluoride	1,500	---	---	
DOC	na	---	---	79
TOC	250,000	---	---	73
Chloride	10,000 (sum)	350	510	580
Nitrate/Nitrite	na	---	---	
Phosphate-total	250,000	---	---	
Sulfates	na	---	---	21
Alkalinity (mgCa)	na	---	---	470
Total Dissolved Solids	na	---	---	1,300
pH	na	---	---	7.2 J
Chemical Oxygen Demand	2,000	84	72	---
Bromide		---	---	

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed

J: Estimated Value

DNR: Do not report

R: Rejected Data

D: Result fron Dilution

Empty Cell: Result below detection limit

Table 3-7A
Detected Compounds (VOCs, Metals) in Bedrock Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards (ug/L)	OW-1R 72131003 12/19/2000	OW-2R 72109014 12/19/2000	OW-3R 72109010 12/19/2000	OW-4R 72109013 12/19/2000	OW-7R 71101005 07/17/2000
Metals (ug/L)						
Aluminum	na	14.4		R		---
Antimony	3		**3.6 J**	3	3 J	---
Arsenic	25					---
Barium	1,000	26.8	11.3	6.9	10.7	---
Beryllium	3(guid)					---
Cadmium	5	1.4	0.8	2.6	1.3	---
Calcium	na	25000	33000	411000	182000	---
Chromium	50					---
Cobalt	na	0.84 J	0.57	0.83	0.89	---
Copper	200	1.4	11.9	5.6	9.8	---
Iron	300	**19600**	**16000**	**52800**	**25100**	**1340 J**
Lead	25	1.4 J	2.6	2.5	1.3	---
Magnesium	35,000 (guid)	24800	29800	**35200**	**50500**	---
Manganese	300	278	**327 J**	**2530 J**	**707 J**	20.2 J
Mercury	0.7					---
Nickel	100	10.1	5.2	7.8	8.5	---
Potassium	na	3150	3920	9840	9240	---
Selenium	10					---
Silver	50	3.3	2.9	13.2	6.4	---
Sodium	20,000	18300	13500	15600	**26300**	---
Thallium	0.5(guid)					---
Vanadium	na	0.67	0.8	2.9	1.4	---
Zinc	2,000(guid)	5.7	4.5	10.3	5	---
Cyanide	200					---
Volatiles (ug/L)						
1,1,1-Trichloroethane	5					**1200**
1,1,2-Trichloroethane	1					
1,1-Dichloroethane	5					**2900**
1,1-Dichloroethene	5					
1,2-Dichloroethane	0.6					
1,2-Dichloroethene (Total)	5		**6**			---
2-Butanone	50					
2-Chlorotoluene	5	---	---	---	---	
2-Hexanone	50					
4-Chlorotoluene	5	---	---	---	---	
4-Methyl-2-Pentanone	na					
Acetone	50 (guid)					
Benzene	1					
Bromobenzene	5	---	---	---	---	
Bromochloromethane	5	---	---	---	---	
Bromoform	50					
Bromomethane	5					
Carbon Disulfide	60 (guid)					
Carbon Tetrachloride	5					
Chlorobenzene	5					
Chloroethane	5					

Table 3-7A
Detected Compounds (VOCs, Metals) in Bedrock Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards (ug/L)	OW-7R 71459004 09/11/2000	OW-7R 71459004RE 09/11/2000	OW-7R 71707004 10/20/2000	OW-7R 72131002 12/18/2000
Metals (ug/L)					
Aluminum	na	---	---	---	54.1
Antimony	3	---	---	---	
Arsenic	25	---	---	---	
Barium	1,000	---	---	---	8.2
Beryllium	3(guid)	---	---	---	
Cadmium	5	---	---	---	0.71
Calcium	na	---	---	---	45700
Chromium	50	---	---	---	1.8
Cobalt	na	---	---	---	0.49 J
Copper	200	---	---	---	4.5
Iron	300	**4710**		**7360**	**3790**
Lead	25	---	---	---	1.3 J
Magnesium	35,000 (guid)	---	---	---	804
Manganese	300	66.6		290	55.6 J
Mercury	0.7	---	---	---	
Nickel	100	---	---	---	4.4
Potassium	na	---	---	---	9760 J
Selenium	10	---	---	---	
Silver	50	---	---	---	1.8
Sodium	20,000	---	---	---	14300
Thallium	0.5(guid)	---	---	---	
Vanadium	na	---	---	---	
Zinc	2,000(guid)	---	---	---	5.8
Cyanide	200	---	---	---	2.1
Volatiles (ug/L)					
1,1,1-Trichloroethane	5	**590**	**320**	**200**	**18 J**
1,1,2-Trichloroethane	1				
1,1-Dichloroethane	5	**3800**	**2600**	**2000**	**200 J**
1,1-Dichloroethene	5	**290**	**130**	**110**	
1,2-Dichloroethane	0.6				
1,2-Dichloroethene (Total)	5	---	---	---	**610 J**
2-Butanone	50				
2-Chlorotoluene	5				---
2-Hexanone	50				
4-Chlorotoluene	5				----
4-Methyl-2-Pentanone	na				
Acetone	50 (guid)				
Benzene	1				
Bromobenzene	5				---
Bromochloromethane	5				---
Bromoform	50				
Bromomethane	5				
Carbon Disulfide	60 (guid)				
Carbon Tetrachloride	5				
Chlorobenzene	5				
Chloroethane	5				

Table 3-7B
Detected Compounds (Wet Chem. and Other)
in Bedrock Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	OW-1R 72131003 12/19/2000	OW-2R 72109014 12/19/2000	OW-3R 72109010 12/19/2000	OW-4R 72109013 12/19/2000	OW-7R 71101005 07/17/2000
Wet Chemistry (ug/L) and Misc (various)						
Specific Conductance (uMHOS)	na	572	605	1,920	1,210	---
Fluoride	1,500		0.14		0.46	---
DOC	na		5			---
TOC	na	6				---
Chloride	250,000	46	150			140
Nitrate/Nitrite	10,000 (sum)					---
Phosphate-total	na	0.22 J				---
Sulfates	250,000	100	28	1,400	830	---
Alkalinity (mgCa)	na	85	29			---
Total Dissolved Solids	na	290	250	1,800	960	---
pH	na	9.8 J	8.0 J	5.9 J	6.8 J	---
Chemical Oxygen Demand	na	na	---	---	---	86
Bromide	2,000					---

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed
J: Estimated Value
DNR: Do not report
R: Rejected Data
D: Result fron Dilution
Empty Cell: Result below detection limit

Table 3-7B
Detected Compounds (Wet Chem. and Other)
in Bedrock Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	OW-7R 71459004 09/11/2000	OW-7R 71459004RE 09/11/2000	OW-7R 71707004 10/20/2000	OW-7R 72131002 12/18/2000
Wet Chemistry (ug/L) and Misc (various)					
Specific Conductance (uMHOS)	na	---	---	---	572
Fluoride	1,500	---	---	---	
DOC	na	---	---	---	
TOC	na	---	---	---	
Chloride	250,000	120	---	110	15
Nitrate/Nitrite	10,000 (sum)	---	---	---	0.34
Phosphate-total	na	---	---	---	0.12 J
Sulfates	250,000	---	---	---	53
Alkalinity (mgCa)	na	---	---	---	72
Total Dissolved Solids	na	---	---	---	210 J
pH	na	---	---	---	11.2 J
Chemical Oxygen Demand	na	33	---	38	---
Bromide	2,000	---	---	---	---

1) New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values

---: not analyzed

J: Estimated Value

DNR: Do not report

R: Rejected Data

D: Result fron Dilution

Empty Cell: Result below detection limit

Table 3-8A
Detected Compounds (VOCs, Metals) in Water Sample Collected in Vault
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	NYSDEC Standards[1] (ug/L)	Vault 8033001 2/15/01
Metals (ug/L)		
Aluminum	na	267
Antimony	3	**132**
Arsenic	25	8.7
Barium	1,000	406
Beryllium	3(guid)	
Cadmium	5	**31.7**
Calcium	na	90,600
Chromium	50	**188**
Cobalt	na	115
Copper	200	**434**
Iron	300	**2,130**
Lead	25	**51**
Magnesium	35,000 (guid)	20,600
Manganese	300	198
Mercury	0.7	
Nickel	100	**224,000**
Potassium	na	145,000
Selenium	10	**86.8**
Silver	50	4
Sodium	20,000	**2,520,000**
Thallium	0.5(guid)	
Vanadium	na	23.4
Zinc	2,000(guid)	**4,670**
Cyanide	200	75.5
Volatiles (ug/L)		
1,1,1-Trichloroethane	5	**9,400**
1,1,2-Trichloroethane	1	
1,1-Dichloroethane	5	**92**
1,1-Dichloroethene	5	**1,800**
1,2-Dichloroethane	0.6	**160**
1,2-Dichloroethene (Total)	5	
2-Butanone	50	
2-Chlorotoluene	5	
2-Hexanone	50	
4-Chlorotoluene	5	
4-Methyl-2-Pentanone	na	
Acetone	50 (guid)	
Benzene	1	
Bromobenzene	5	
Bromochloromethane	5	
Bromoform	50	
Bromomethane	5	
Carbon Disulfide	60 (guid)	
Carbon Tetrachloride	5	
Chlorobenzene	5	
Chloroethane	5	
Chloroform	7	
Chloromethane		

Table 3-8B
Detected Compounds (SVOCs) in Water Sample Collected in Vault
NYSDEC-SOH, Henrietta, NY

Sample ID **Lab ID** **Sample Date**	**NYSDEC** **Standards[1]** **(ug/L)**	**Vault** **8033001** **2/15/01**
Semivolatiles (ug/L)		
bis(2-Ethylhexyl)phthalate	---	7
Butylbenzylphthalate	50	1
Di-n-octylphthalate	---	10
Isophorone	50	1
Phenol	1	**9**

Note: Results not validated

Empty Cell: Result Below Detection Limit

[1]New York State Department of Environmental Conservation Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values used for this table

Table 3-9
Shallow Subsurface Soil Data
NYSDEC-SOH, Henrietta, NY

Sample ID Units	Depth (ft)	PID (ppm)	TCE (ppm)	TCA (ppm)
SB-1 (4'-6') A	5	10.6	12 J	ND
SB-1 (6'-8') C	7	11.9	26 J	ND
SB-1 (8'-10') A	9	39.7	NA	NA
SB-4 (4'-6') B	5	0	NA	NA
SB-6 (4'-6') C	5	68.1	ND	20
SB-6 (4'-6') A	5	734	ND	8900
SBX-6 (6'-8') B	7	247	4 J	350 JD
SB-19 (4'-6') A	5	25.7	1	20
SB-20 (4'-6') A	5	2000	67	1

*See Figure 3-1A for boring locations.
Date of Sampling: May 2000
J = Estimated Value
NA = Not Applicable
ND = Nondetectable, below detection limit.
JD - Estimated Value, result from dilution.

Table 4-1
Groundwater Field Parameter Monitoring Before and
During Sodium Permanganate Pilot Test
NYSDEC - SOH, Henrietta, NY

	Temperature (degree C)	Dissolved Oxygen (mg/L)	Conductivity (mS/cm)	ORP (mV)	pH	Headspace (ppm)
Pre-NaMnO4 Injection						
July 17, 2000						
IPZ-1	15.5	2.9	3.1	-230	6.9	>2000
IPZ-2	16.5	3.1	2	-86	7.3	>2000
IPZ-3	15	2.3	3.7	-173	6.9	982
IW-1	15.6	4	2.1	-46	7.2	>2000
OW-7S	16.9	5.4	1	-136	8.8	42.6
OW-7R	13.9	2.1	1.6	-139	7.5	9.2
During NaMnO4 Injection						
July 18, 2000, 0910am						
IPZ-1	NM	1.5	3	-234	6.7	NM
IPZ-2	NM	3.8	1.7	-177	7	NM
IPZ-3	NM	4.2	3.8	-119	6.5	NM
OW-7S	13.7	1.4	0.9	-230	8.2	NM
OW-7R	13.9	1.5	1.5	-259	8	NM
July 19, 2000, 0830am						
IPZ-1	15.1	1.8	2.59	-289	6.3	NM
IPZ-3	16.4	4.3	3.78	-77	6.5	NM
OW-7S	13.7	1.5	0.96	-272	8.3	NM
OW-7R	14.9	1.6	1.57	-310	8	NM
July 19, 2000, 1400pm						
IPZ-1	15.3	3.8	2.57	-231	7.3	NM
IPZ-3	17.4	4.5	3.96	-46	6.7	NM
OW-7S	13.6	1.6	0.95	-232	8.3	NM
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 4.2
Groundwater Observations After Sodium Permanganate Pilot Test
Stuart-Olver-Holtz Pre-Design Investigation
Henrietta, New York

	Temperature (degrees C)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Conductivity (mS/cm)	ORP (mV)	pH	Comment
July 22, 2000							
IPZ-1	15.32	NM	4.9	2.65	-68	6.8	
OW-7S	14.13	NM	1.9	0.883	-258	8.2	
OW-7R	14.94	NM	1.6	1.48	-325	9.4	
August 8, 2000							
IPZ-1	14.9	NM	4.7	3.81	-161	6.56	
OW-7S	13.5	NM	6.5	0.293	-13	8.19	
OW-7R	13.6	NM	5.2	1.46	-221	9.6	
August 11, 2000							
IPZ-1	14.9	999	4.7	3.81	-161	6.56	
OW-7S	13.5	999	6.5	0.293	-13	8.19	
OW-7R	13.6	17.4	5.2	1.46	-221	9.6	
August 18, 2000							
IPZ-1	15.1	999	4.4	3.71	-200	6.6	
OW-7S	13.7	-10	4.7	0.27	-275	8.45	
OW-7R	13.4	13.9	3.3	2.19	-201	11.43	
August 28, 2000							
IPZ-1	17.2	3.8	0.63	3.69	-69	6.56	
OW-7S	15.1	17.9	0.18	0.277	-111	8.93	
OW-7R	14.3	23	0.5	1.7	-197	11.03	
September 1, 2000							
IPZ-1	17.1	26.7	0.57	3.58	-110	6.65	
OW-7S	16.3	20.1	0.36	0.219	-201	8.97	
OW-7R	14.2	32.1	0.37	1.52	-293	10.86	
September 8, 2000							
IPZ-1	17.2	999	0.18	3.6	-77	6.45	
OW-7S	16.8	0.4	0.26	0.369	-129	8.42	
OW-7R	14.3	-1	0	1.49	-330	10.06	
September 15, 2000							

Table 4.2
Groundwater Observations After Sodium Permanganate Pilot Test
Stuart-Olver-Holtz Pre-Design Investigation
Henrietta, New York

	Temperature (degrees C)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Conductivity (mS/cm)	ORP (mV)	pH	Comment
September 22, 2000							
IPZ-1	16.4	87.2	0.77	3.51	-105	6.72	
OW-7S	13.6	116	0.58	0.526	-273	8.48	
OW-7R	13.3	-10	0.48	1.65	-462	9.7	
TW-1	17.6	2.59	1.25	2.92	135	6.76	
TW-2*	17.2	38.7	1.58	9	576	6.99	*Light Purple
TW-3	17.6	33.9	2.33	3.29	-103	6.81	
TW-4	15.4	999	5.88	1.73	-100	7.46	
September 28, 2000							
IPZ-1	15.8	21.9	0.98	3.65	-86	6.73	
OW-7S	15.8	35.2	1.46	0.347	-129	8.16	
OW-7R	13.2	3.4	0.74	1.68	-247	8.18	
TW-1	17	91.4	0.92	2.83	80	6.76	
TW-2*	-	-	-	-	-	-	Inaccessible
TW-3	15.8	11.3	4.78	2.42	-102	6.97	
TW-4	15.6	741	0.93	1.8	-173	7.37	
October 6, 2000							
IPZ-1	16.3	53.6	1.24	3.44	-68	6.8	
OW-7S	14.1	71.4	1.55	0.503	-86	8.18	
OW-7R	13.9	7.4	0.15	1.7	-245	8.22	
TW-1	17	19.8	1.78	2.84	7	6.64	
TW-2*	-	-	-	-	-	-	Inaccessible
TW-3	15.3	2.9	1.54	3.49	-83	6.9	
TW-4	15	17.8	1.27	1.86	-143	7.22	
October 13, 2000							
IPZ-1	16.9	37.3	1.01	3.49	-98	6.67	
OW-7S	16.4	20.3	0.92	0.302	-138	8.77	
OW-7R	16.2	55.5	0.83	1.63	-273	7.61	
TW-1	17.7	97.8	0.9	2.84	136	6.43	
TW-2*	17.3	171	0.8	4.03	243	6.73	
TW-3	17.1	28.3	0.72	3.34	-143	6.71	
TW-4	16.9	79.1	0.98	1.79	-264	7.22	

Table 4.2
Groundwater Observations After Sodium Permanganate Pilot Test
Stuart-Olver-Holtz Pre-Design Investigation
Henrietta, New York

	Temperature (degrees C)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Conductivity (mS/cm)	ORP (mV)	pH	Comment
October 20, 2000							
IPZ-1	16	22.1	0.38	3.68	-92	6.76	
IPZ-2	na	63.3	4.53	7.07	655	6.75	
IPZ-3	17.8	497	6.95	18.9	618	7.53	
OW-7S	17.6	9.3	11.37	0.524	-45	8.06	
OW-7R	14.3	12.5	7.33	1.72	-104	7.18	
IW-1	na	64.5	7.35	23.3	686	6.66	
TW-1	17.3	20	0.63	2.93	-35	6.64	
TW-2*	17.4	56.8	3.57	4.34	122	6.6	
TW-3	17.1	243	7.01	3.28	-73	6.88	
TW-4	17.1	140	5.14	1.97	-22	7.15	
November 14, 2000							
IPZ-1	15.7	114	1.03	3.57	-110	6.79	
IPZ-2	-	-	-	-	-	-	Dark purple
IPZ-3	-	-	-	-	-	-	Dark purple
OW-7S	15	271	4.9	0.244	-110	7.77	
OW-7R	14.9	55	4.1	1.47	-72	8.81	
IW-1	-	-	-	-	-	-	
TW-1	16.2	235	1.29	2.65	-44	6.8	Dark purple
TW-2*	15.6	227	1.18	4.13	132	6.78	
TW-3	15.6	56.2	1.18	3.2	-141	6.83	
TW-4	14.8	291	5.28	1.88	-121	7.44	
November 29, 2000							
IPZ-1	14.7	154	1.55	3.37	-70	6.83	
IPZ-2	-	-	-	-	-	-	Dark Purple
IPZ-3	-	-	-	-	-	-	Dark Purple
OW-7S	13.3	52.7	2.96	3.81	-106	8.15	
OW-7R	13.1	66.8	0.64	1.44	-356	8.86	
IW-1	-	-	-	-	-	-	Dark Purple
TW-1	15.5	92.1	1.31	2.52	-18	6.74	
TW-2	14.9	363	1.09	4.86	147	6.78	
TW-3	14.3	38.4	1.01	3.2	-116	6.81	
TW-4	13.9	58.8	3.06	2.07	-114	7.37	

See notes on last page

Table 4.2
Groundwater Observations After Sodium Permanganate Pilot Test
Stuart-Olver-Holtz Pre-Design Investigation
Henrietta, New York

	Temperature (degrees C)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Conductivity (mS/cm)	ORP (mV)	pH	Comment
December 14, 2000							
IPZ-1	12.6	4.8	0.06	2.73	-57	6.44	
IPZ-2	6.9	606	5.55	10.1	664	6.19	
IPZ-3	7.7	657	6.08	15.8	627	7.2	
OW-7S	10.5	21.4	6.22	0.213	96	7.57	
OW-7R	10.6	-10	0.94	1.58	-72	7.44	
IW-1	7.6	748	5.48	19.3	686	6.51	
TW-1	11.5	7.4	0.22	2.24	-19	6.95	
TW-2*	7.3	76.3	0.3	4.52	177	6.8	
TW-3	10.4	0.6	2.79	3.11	-82	5.93	
TW-4	9.4	9.3	3.21	2.75	-57	6.72	
December 15, 2000							
PZ-1	9.4	>999	0.03	1.86	9	4.89	
PZ-2	8.9	3.8	0	1.81	-112	4.98	
PZ-3	9.9	58.3	9.76	1.7	220	5.99	
December 18, 2000							
MW-2	8.3	-6.3	6.98	0.62	-55	7.18	
MW-3	3.6	6.7	6.06	1.71	-6	7.25	
MW-5	7.9	-2.6	5.88	0.99	68	7.03	
OW-1R	9.8	4.1	6.56	1.23	-48	7.54	
OW-1S	9.8	0.9	0	1.7	157	7.17	
OW-2S	9.7	0.7	0.33	2.36	-108	7.25	
OW-2R	11.3	5.4	6.26	2.3	-100	7.43	
OW-3R	10.7	5.3	5.13	2.75	-69	7.08	
OW-3S	10.6	3.6	0	1.4	-88	6.97	
OW-4R	9.2	2.3	6.73	2.66	-82	7.29	
OW-4S	8.7	2.3	0	1.37	-111	7.42	
OW-5S	7.9	55	5.84	0.93	204	7.8	
OW-6S	8.5	-0.2	5.74	1.45	85	7.09	
OW-8S	9.1	43.9	8.64	1.57	-37	7.63	
January 5, 2001							
IPZ-1	13.6	18.3	3.86	2.91	-56	6.85	

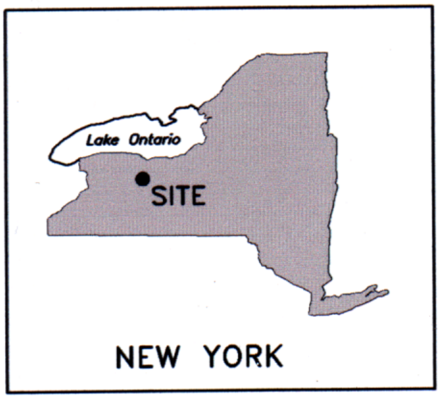
Table 4-3
Permanganate Injection Baseline and Post-Injection Results

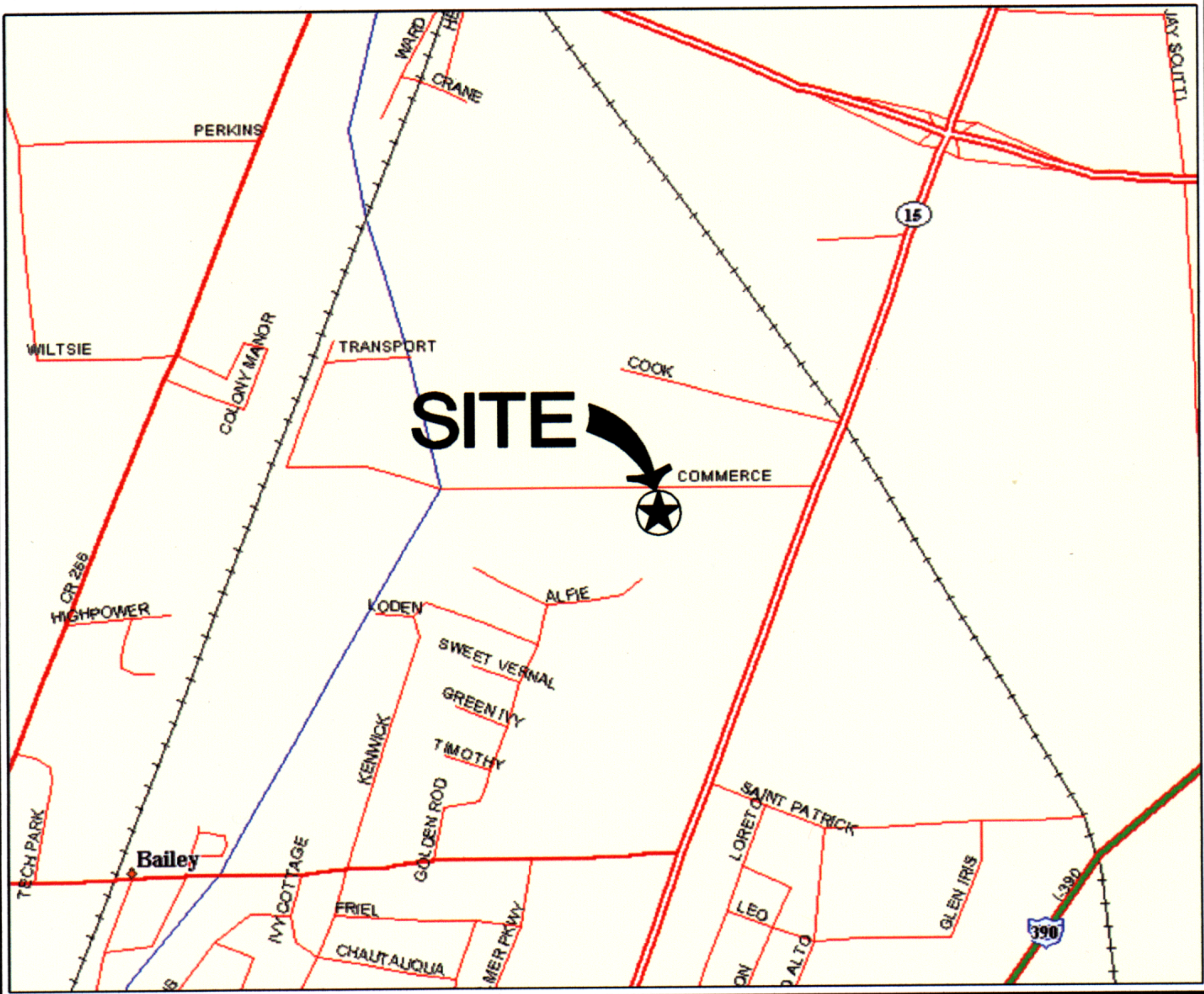
All results in ug/L unless otherwise noted

Compound	NYSDEC Groundwater Standards	Location and Date (Injection Well (IW-1), Injection Piezometers										
		IW-1				IPZ-2				IPZ-3		
		07/17/2000	09/11/2000	10/20/2000	% Removal	07/17/2000	09/11/2000	10/20/2000	% Removal	07/17/2000	09/11/2000	10/20/2000
[illegible]												
TCE	5	460,000	[redacted]	[redacted]	99.7%	1,200,000	[redacted]	[redacted]	100%	28,000	[redacted]	[redacted]
Methylene Chloride	5	220,000	[redacted]	[redacted]	74%	680,000	[redacted]	[redacted]	91%	45,000	[redacted]	[redacted]
Cis-1,2-DCE	-	6,500	[redacted]	[redacted]	> 23%	< 50,000	[redacted]	[redacted]	-	22,000	[redacted]	[redacted]
1,1-DCA	5	< 20,000	[redacted]	[redacted]	-	< 50,000	[redacted]	[redacted]	-	110,000	[redacted]	[redacted]
1,1,1-TCA	5	< 20,000	[redacted]	[redacted]	-	< 50,000	[redacted]	[redacted]	-	100,000	[redacted]	[redacted]
PCE	5	< 20,000	[redacted]	[redacted]	-	< 50,000	[redacted]	[redacted]	-	< 4,000	[redacted]	[redacted]
1,1-DCE	5	< 20,000	[redacted]	[redacted]	-	< 50,000	[redacted]	[redacted]	-	< 4,000	[redacted]	[redacted]
VC	2	< 20,000	[redacted]	[redacted]	-	< 50,000	[redacted]	[redacted]	-	< 4,000	[redacted]	[redacted]
Acetone	2	< 20,000	[redacted]	[redacted]	-	< 50,000	[redacted]	[redacted]	-	< 4,000	[redacted]	[redacted]
Bromomethane	-	< 20,000	[redacted]	[redacted]	-	< 50,000	[redacted]	[redacted]	-	< 4,000	[redacted]	[redacted]
Naphthalene	-	7,500	[redacted]	[redacted]	> 33%	< 50,000	[redacted]	[redacted]	-	900	[redacted]	[redacted]
[illegible]												
Permanganate Applied		748				1,600				952		
Additional Compounds (Metals, COD and Chloride) [illegible]												
Iron (Fe)	-	20,100	[redacted]	[redacted]	-	187,000	[redacted]	[redacted]	-	41,900	[redacted]	[redacted]
Manganese (Mn)	-	704	[redacted]	[redacted]	-	7,530	[redacted]	[redacted]	-	1,210	[redacted]	[redacted]
COD (mg/L)	-	350	[redacted]	[redacted]	-	2,900	[redacted]	[redacted]	-	440	[redacted]	[redacted]
Chloride (mg/L)	-	300	[redacted]	[redacted]	-	350	[redacted]	[redacted]	-	900	[redacted]	[redacted]
Color	-	clear	[redacted]	[redacted]	-	clear	[redacted]	[redacted]	-	clear	[redacted]	[redacted]
ORP (mV)	-	-46	[redacted]	[redacted]	-	-86	[redacted]	[redacted]	-	-173	[redacted]	[redacted]
pH (SIU)	-	7.20	[redacted]	[redacted]	-	7.30	[redacted]	[redacted]	-	6.90	[redacted]	[redacted]

Compound	NYSDEC Groundwater Standards	IPZ-1				TW-1			TW-2			
		07/17/2000	09/11/2000	10/20/2000	% Removal	09/22/2000	10/20/2000	% Removal	09/22/2000	10/20/2000	% Removal	09/22/2000
[illegible]												
TCE	5	290,000		370,000	-28%	540,000	380,000	30%	[redacted]	27,000	-	11,000
Methylene Chloride	5	95,000		110,000	-16%	100,000	96,000	4%	[redacted]	45,000	-41%	24,000
Cis-1,2-DCE	-	34,000		28,000	18%	11,000	12,000	-9%	[redacted]	9,100	-	3,900
1,1-DCA	5	35,000		34,000	3%	8,100	6,000	26%	[redacted]	100,000	-30%	99,000
1,1,1-TCA	5	11,000		9,100	17%	< 25,000	< 20,000	-	[redacted]	160,000	-135%	86,000
PCE	5	< 10,000		< 10,000	-	< 25,000	< 20,000	-	[redacted]	< 7,500	-	< 2,500
1,1-DCE	5	< 10,000		< 10,000	-	< 25,000	< 20,000	-	[redacted]	6,500	-	1,800
VC	2	< 10,000		< 10,000	-	< 25,000	< 20,000	-	[redacted]	< 7,500	-	< 2,500
Acetone	2	< 10,000		8,600	-	23,000	< 20,000	> 13%	[redacted]	< 7,500	-	1,600
Bromomethane	-	< 10,000		< 10,000	-	6,100	< 20,000	-	[redacted]	< 7,500	-	< 2,500
Naphthalene	-	< 10,000		< 10,000	-	12,000	< 20,000	-	[redacted]	< 7,500	-	< 2,500
[illegible]												
Permanganate Applied		0				0			0			
Additional Compounds (Metals, COD and Chloride) [illegible]												
Iron (Fe)	-	88,400		5,570	-	525	561	-	[redacted]	340	-	1,380
Manganese (Mn)	-	2,880		106	-	4,870	2,050	-	[redacted]	5,140	-	381
COD (mg/L)	-	300		240	-	210	200	-	[redacted]	300	-	200
Chloride (mg/L)	-	700		780	-	560	570	-	[redacted]	900	-	700
Color	-	clear	clear	clear	-	clear	clear	-	[redacted]	clear	-	clear
ORP (mV)	-	-230	-115	-92	-	135	-35	-	[redacted]	122	-	-103
pH (SIU)	-	6.90	6.71	6.76	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

FIGURES





NOT TO SCALE

REFERENCE:
MAP FROM DELORME'S MAP EXPERT, FREEPORT, MAINE.

Shaw
Shaw E & I, Inc.

NYSDEC–SOH

FIGURE 1–1
SITE LOCATION MAP

39 COMMERCE DRIVE
HENRIETTA, NEW YORK

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK 09-19-02			784222-A7

Image: SOH
Xref: .

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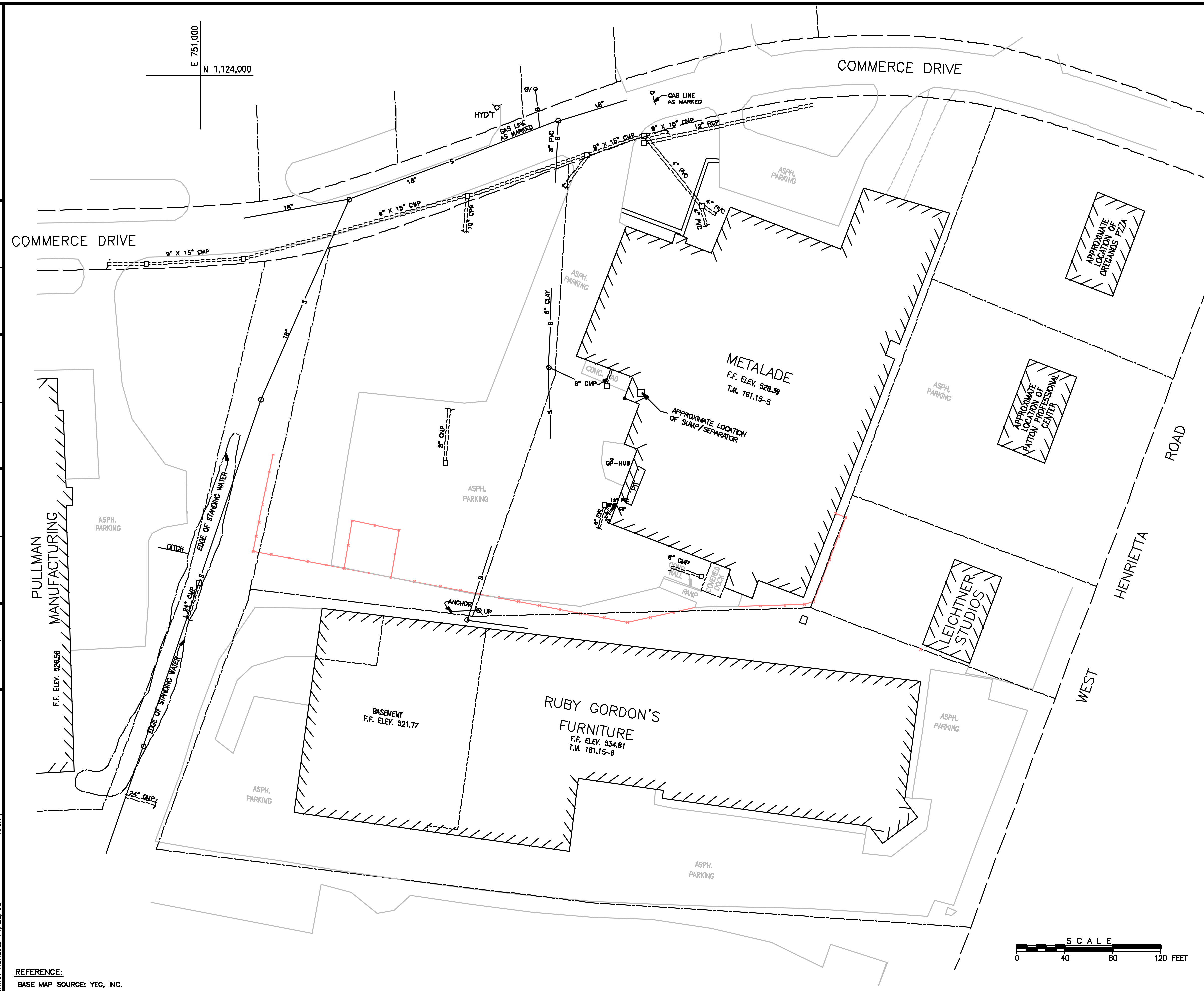


NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

SCALE
0 40 80 120 FEET

REFERENCE:
BASE MAP SOURCE: YEC, INC.

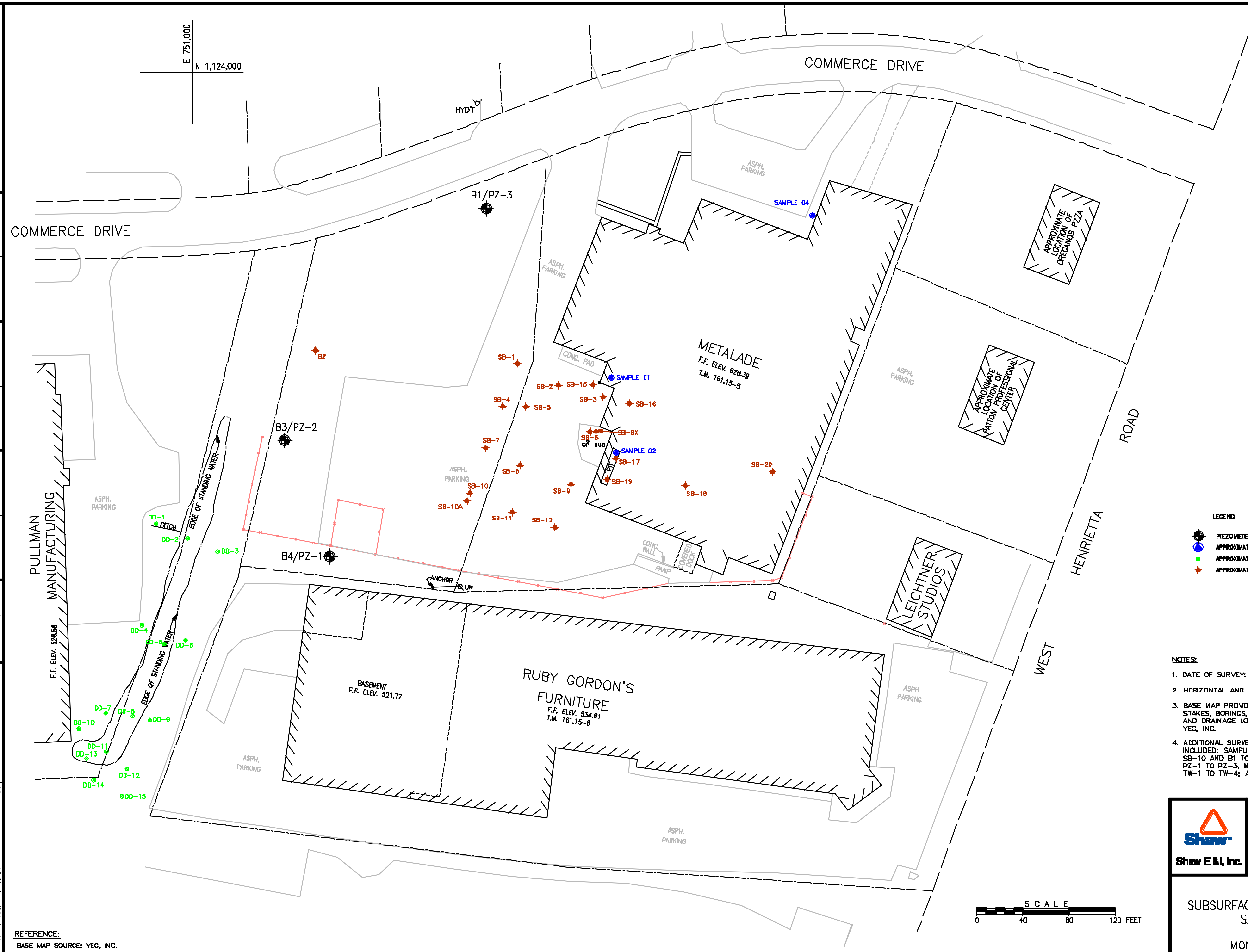
Shaw E & I, Inc.

NYSDEC-SOH

FIGURE 1-2
SITE MAP

TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK 09-20-02			784222D39



LEGEND

- PIEZOMETER (CONVERTED SOIL BORING)
- APPROXIMATE LOCATION OF SUMP/CATCH BASIN SEDIMENT SAMPLE
- APPROXIMATE LOCATION OF SURFACE SOIL SAMPLE
- APPROXIMATE LOCATION OF SUBSURFACE SOIL SAMPLE

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, NW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

SCALE 0 40 80 120 FEET

REFERENCE:
BASE MAP SOURCE: YEC, INC.

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 2-1
SUBSURFACE AND SURFACE SOIL/SEDIMENT SAMPLING LOCATION MAP
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

DRAWING NUMBER	APPROVED BY	CHECKED BY	DRAWN BY	OFFICE
784222D26			S. SHKOLNIK 09-18-02	ALBANY, NY

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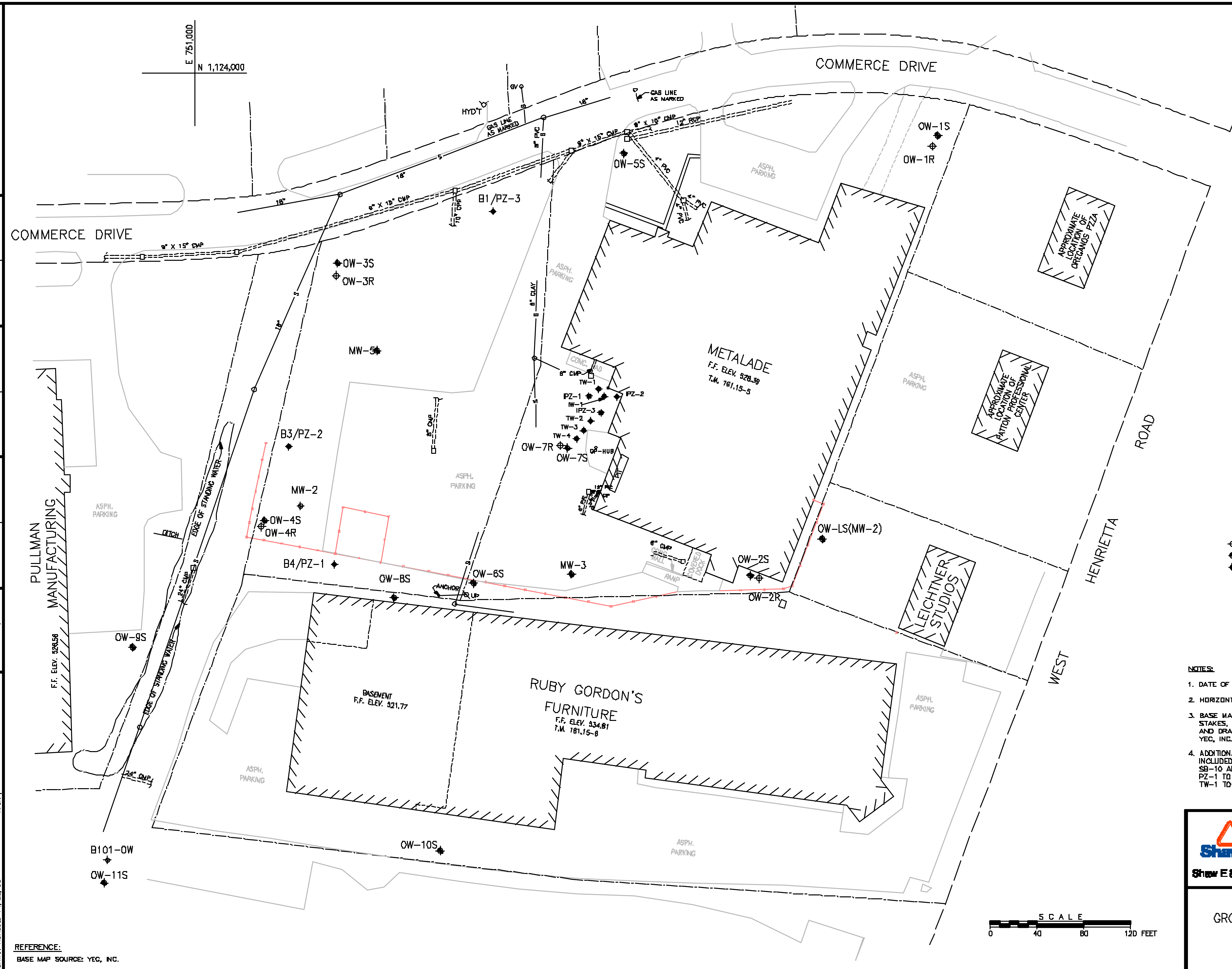

LEGEND

- HISTORICAL BEDROCK MONITORING WELL
- HISTORICAL OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL (IT, 2000) (PIEZOMETER (PZ), TEMPORARY MONITORING WELL (TW), INJECTION WELL (IPZ))

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

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NYSDEC-SOH

FIGURE 2-2
GROUNDWATER SAMPLING LOCATION MAP

TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

OFFICE	DRAWN BY		CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK	09-18-02			784222D27

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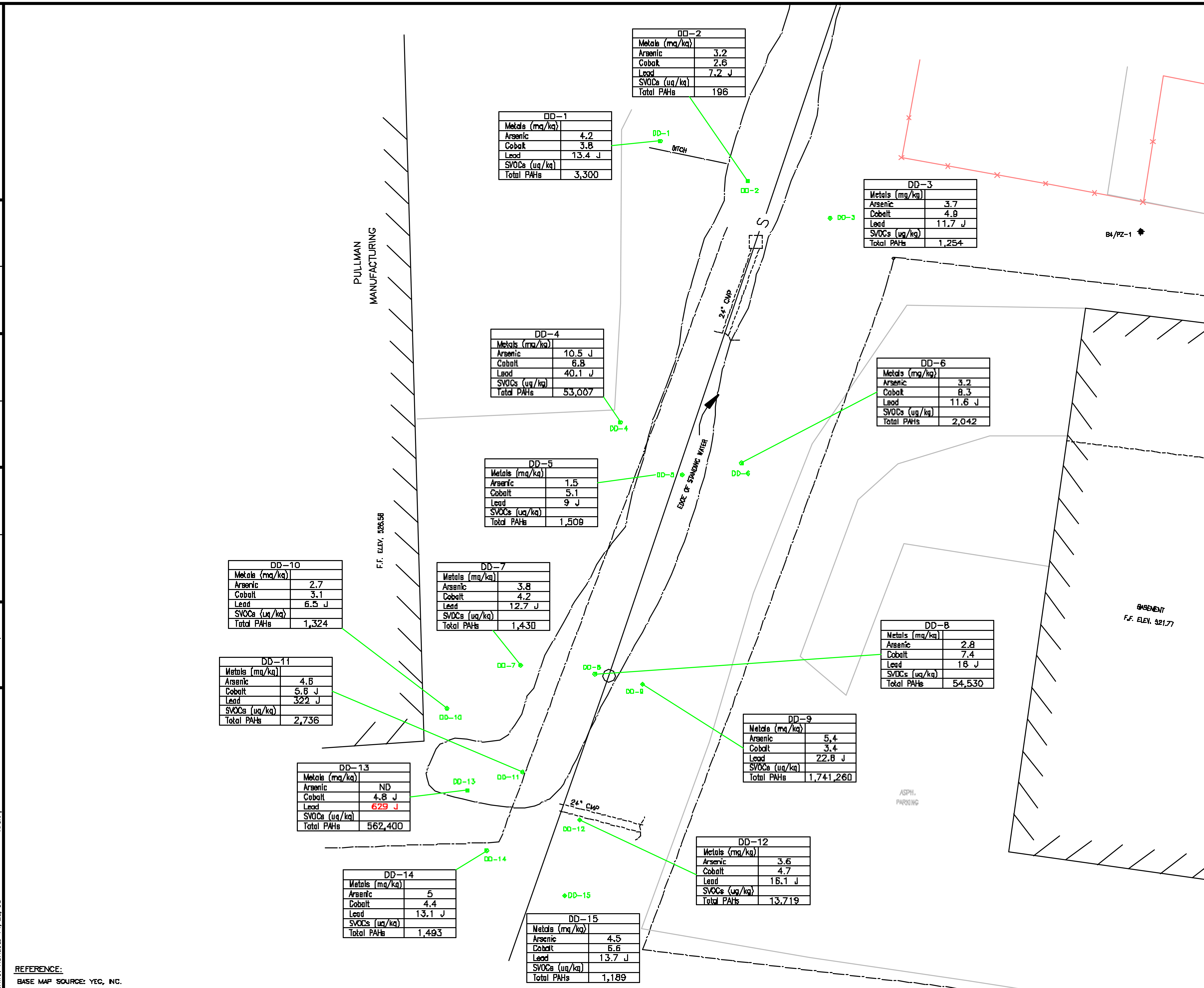
Xref:

REFERENCE:
BASE MAP SOURCE: YEC, INC.



DD-1	
Metals (mg/kg)	
Arsenic	4.2
Cobalt	3.8
Lead	13.4 J
SVOCs (ug/kg)	
Total PAHs	3,300

DD-2	
Metals (mg/kg)	
Arsenic	3.2
Cobalt	2.6
Lead	7.2 J
SVOCs (ug/kg)	
Total PAHs	196

DD-3	
Metals (mg/kg)	
Arsenic	3.7
Cobalt	4.9
Lead	11.7 J
SVOCs (ug/kg)	
Total PAHs	1,254

DD-4	
Metals (mg/kg)	
Arsenic	10.5 J
Cobalt	6.8
Lead	40.1 J
SVOCs (ug/kg)	
Total PAHs	53,007

DD-5	
Metals (mg/kg)	
Arsenic	1.5
Cobalt	5.1
Lead	9 J
SVOCs (ug/kg)	
Total PAHs	1,509

DD-6	
Metals (mg/kg)	
Arsenic	3.2
Cobalt	8.3
Lead	11.6 J
SVOCs (ug/kg)	
Total PAHs	2,042

DD-7	
Metals (mg/kg)	
Arsenic	3.8
Cobalt	4.2
Lead	12.7 J
SVOCs (ug/kg)	
Total PAHs	1,430

DD-8	
Metals (mg/kg)	
Arsenic	2.8
Cobalt	7.4
Lead	16 J
SVOCs (ug/kg)	
Total PAHs	54,530

DD-9	
Metals (mg/kg)	
Arsenic	5.4
Cobalt	3.4
Lead	22.8 J
SVOCs (ug/kg)	
Total PAHs	1,741,260

DD-10	
Metals (mg/kg)	
Arsenic	2.7
Cobalt	3.1
Lead	6.5 J
SVOCs (ug/kg)	
Total PAHs	1,324

DD-11	
Metals (mg/kg)	
Arsenic	4.6
Cobalt	5.6 J
Lead	322 J
SVOCs (ug/kg)	
Total PAHs	2,736

DD-12	
Metals (mg/kg)	
Arsenic	3.6
Cobalt	4.7
Lead	15.1 J
SVOCs (ug/kg)	
Total PAHs	13,719

DD-13	
Metals (mg/kg)	
Arsenic	ND
Cobalt	4.8 J
Lead	629 J
SVOCs (ug/kg)	
Total PAHs	562,400

DD-14	
Metals (mg/kg)	
Arsenic	5
Cobalt	4.4
Lead	13.1 J
SVOCs (ug/kg)	
Total PAHs	1,493

DD-15	
Metals (mg/kg)	
Arsenic	4.5
Cobalt	5.6
Lead	13.7 J
SVOCs (ug/kg)	
Total PAHs	1,189

LEGEND

APPROXIMATE LOCATION OF SURFACE SOIL SAMPLE

SAMPLING LOCATION

DD-1	
Metals (mg/kg)	
Arsenic	4.2
Cobalt	3.8
Lead	13.4 J
SVOCs (ug/kg)	
Total PAHs	3,300

ug/kg : MICROGRAM PER KILOGRAM (ppb)
mg/kg : MILIGRAM PER KILOGRAM (ppm)
SURFACE SOIL SAMPLED IN DECEMBER 2000

11,000 J ABOVE NYSDEC TAGM 4046 SOIL CLEANUP OBJECTIVES

NA : NOT ANALYZED
ND : RESULT BELOW DETECTION LIMIT

SCALE
0 15 30 45 FEET

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

REFERENCE:
BASE MAP SOURCE: YEC, INC.

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 3-1
SELECT SVOCs AND METAL CONCENTRATION IN SURFACE SOIL
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK 09-18-02			784222D28

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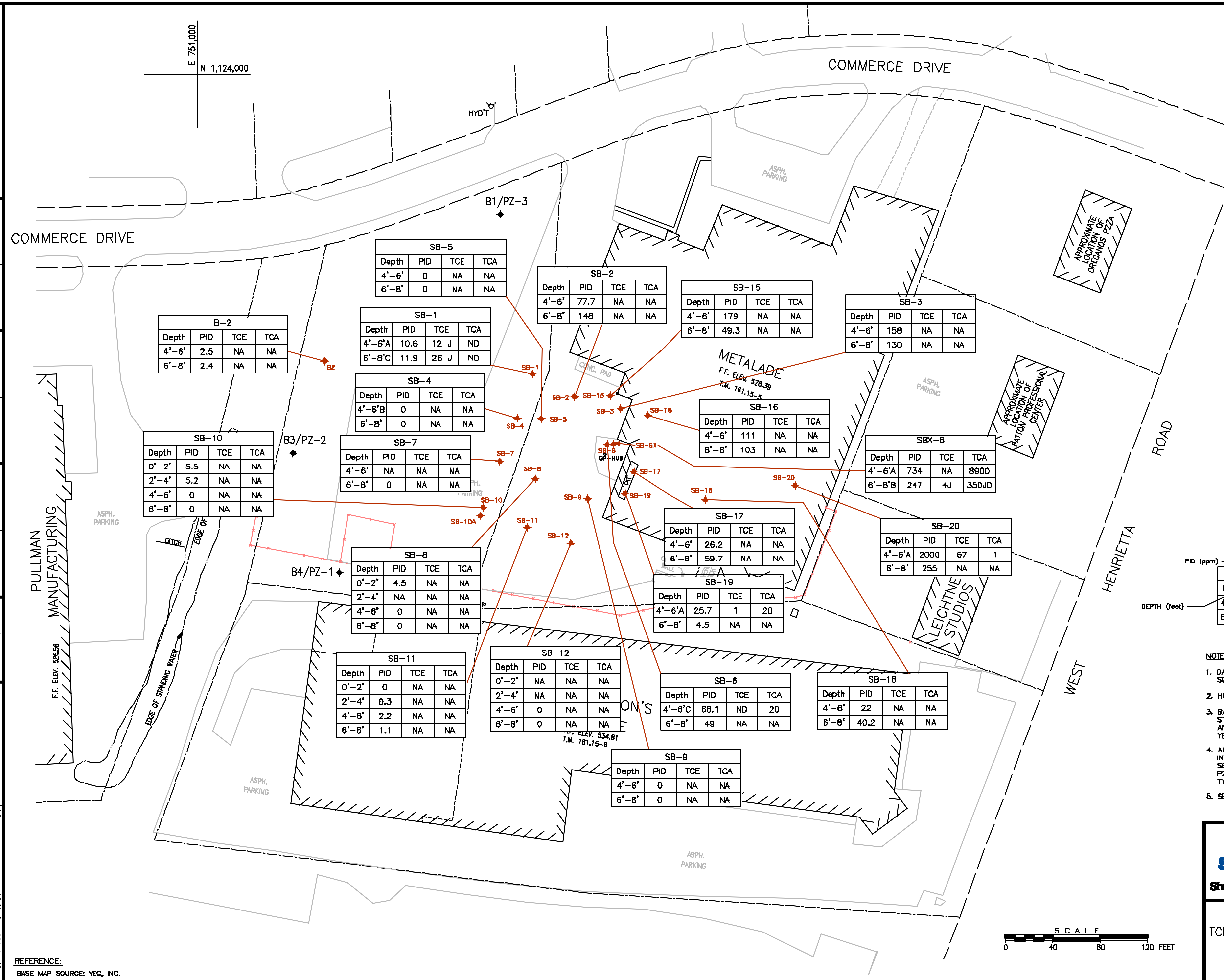

SB-5			
Depth	PID	TCE	TCA
4'-6'	0	NA	NA
6'-8'	0	NA	NA

SB-2			
Depth	PID	TCE	TCA
4'-6'	77.7	NA	NA
6'-8'	148	NA	NA

SB-15			
Depth	PID	TCE	TCA
4'-6'	179	NA	NA
6'-8'	49.3	NA	NA

SB-3			
Depth	PID	TCE	TCA
4'-6'	158	NA	NA
6'-8'	130	NA	NA

B-2			
Depth	PID	TCE	TCA
4'-6'	2.5	NA	NA
6'-8'	2.4	NA	NA

SB-1			
Depth	PID	TCE	TCA
4'-6'A	10.6	12 J	ND
6'-8'C	11.9	26 J	ND

SB-4			
Depth	PID	TCE	TCA
4'-6'B	0	NA	NA
6'-8'	0	NA	NA

SB-16			
Depth	PID	TCE	TCA
4'-6'	111	NA	NA
6'-8'	103	NA	NA

SB-10			
Depth	PID	TCE	TCA
0'-2'	5.5	NA	NA
2'-4'	5.2	NA	NA
4'-6'	0	NA	NA
6'-8'	0	NA	NA

SB-7			
Depth	PID	TCE	TCA
4'-6'	NA	NA	NA
6'-8'	0	NA	NA

SBX-6			
Depth	PID	TCE	TCA
4'-6'A	734	NA	8900
6'-8'B	247	4J	350JD

SB-17			
Depth	PID	TCE	TCA
4'-6'	26.2	NA	NA
6'-8'	59.7	NA	NA

SB-20			
Depth	PID	TCE	TCA
4'-6'A	2000	67	1
6'-8'	255	NA	NA

SB-8			
Depth	PID	TCE	TCA
0'-2'	4.5	NA	NA
2'-4'	NA	NA	NA
4'-6'	0	NA	NA
6'-8'	0	NA	NA

SB-19			
Depth	PID	TCE	TCA
4'-6'A	25.7	1	20
6'-8'	4.5	NA	NA

SB-11			
Depth	PID	TCE	TCA
0'-2'	0	NA	NA
2'-4'	0.3	NA	NA
4'-6'	2.2	NA	NA
6'-8'	1.1	NA	NA

SB-12			
Depth	PID	TCE	TCA
0'-2'	NA	NA	NA
2'-4'	NA	NA	NA
4'-6'	0	NA	NA
6'-8'	0	NA	NA

SB-6			
Depth	PID	TCE	TCA
4'-6'C	68.1	ND	20
6'-8'	49	NA	NA

SB-18			
Depth	PID	TCE	TCA
4'-6'	22	NA	NA
6'-8'	40.2	NA	NA

SB-9			
Depth	PID	TCE	TCA
4'-6'	0	NA	NA
6'-8'	0	NA	NA

LEGEND

- MONITORING WELL
- APPROXIMATE LOCATION OF SUBSURFACE SOIL SAMPLE

WELL ID
PID (ppm)
TRICHLOROETHANE (ppm)
DEPTH (feet)
TRICHLOROETHYLENE (ppm)

SB-1			
Depth	PID	TCE	TCA
4'-6'A	10.6	12 J	ND
6'-8'C	11.9	26 J	ND

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000. SOILS SAMPLED TESTED IN MAY 2000.
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS 01 TO 015; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B1D1-DW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, DW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT
5. SEE TABLE 3-9

SCALE
0 40 80 120 FEET

REFERENCE:
BASE MAP SOURCE: YEC, INC.

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 3-1A
TCE, TCA CONCENTRATION IN SUBSURFACE SOIL (ABOVE 8 FEET BGS)
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

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ALBANY, NY	S. SHKOLNIK 09-19-02			784222D30

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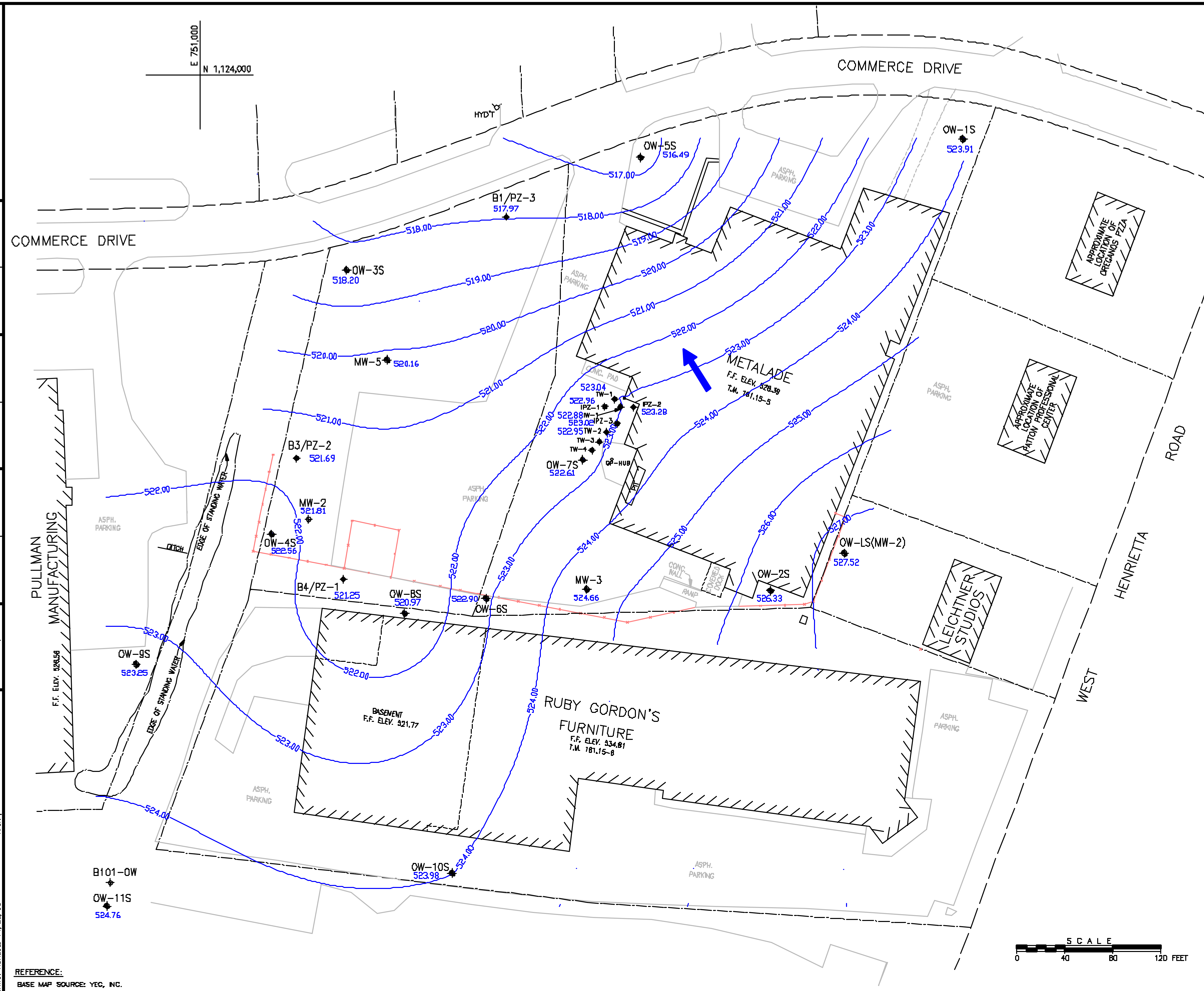

DRAWING NUMBER 784222D29

APPROVED BY

CHECKED BY

DRAWN BY S. SHKOLNIK 09-18-02

OFFICE ALBANY, NY

LEGEND

- HISTORICAL OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL
- 520.16 GROUNDWATER ELEVATION IN FEET
- GROUNDWATER ELEVATION CONTOUR LINE
- APPARENT GROUNDWATER FLOW DIRECTION

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

REFERENCE:

BASE MAP SOURCE: YEC, INC.

Shaw E & I, Inc.

NYSDEC

FIGURE 3-2
GROUNDWATER ELEVATION (OVERBURDEN WELLS)
CONTOUR MAP (12-13-00)
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

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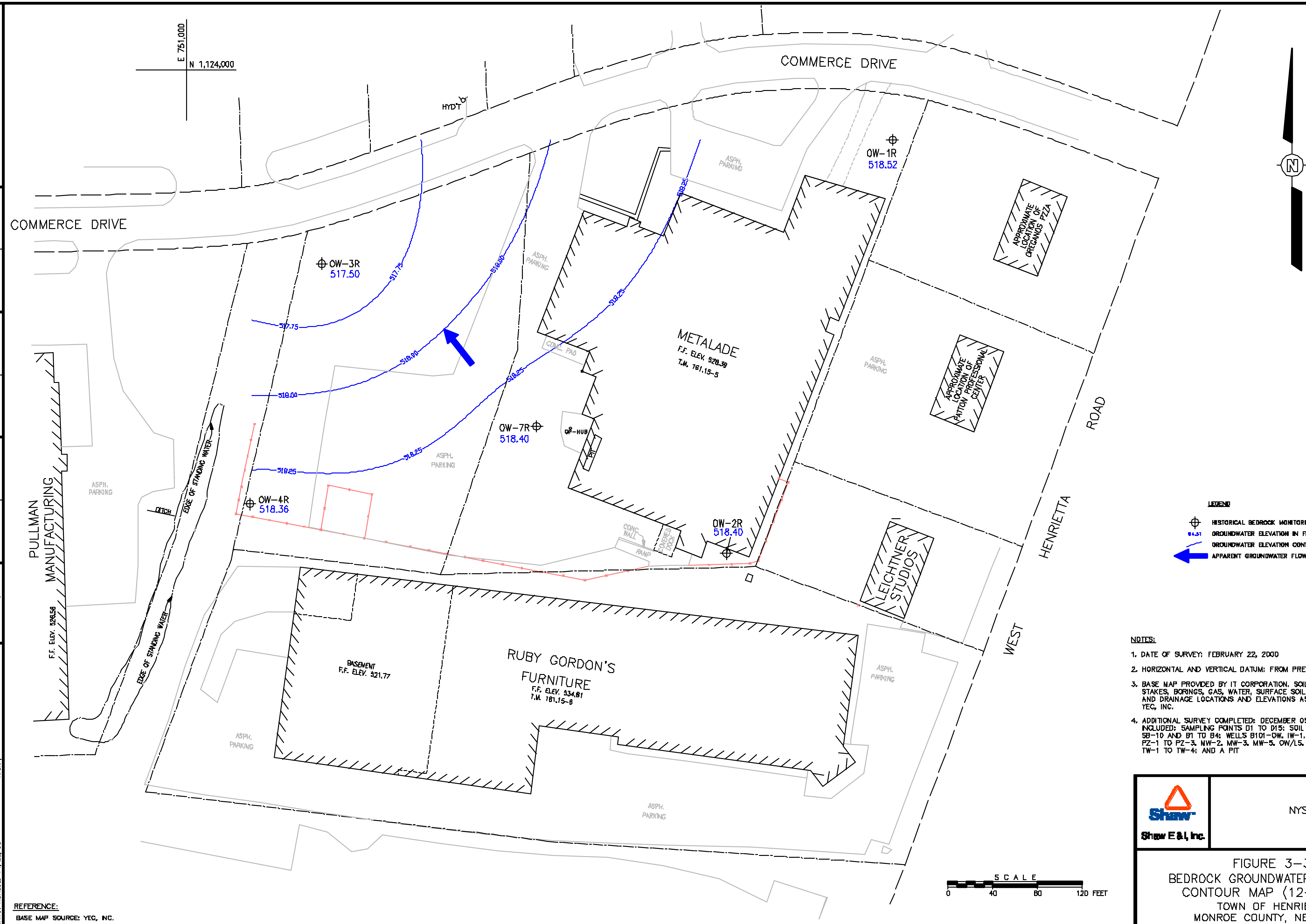

LEGEND

- HISTORICAL BEDROCK MONITORING WELL
- 514.31 GROUNDWATER ELEVATION IN FEET
- GROUNDWATER ELEVATION CONTOUR LINE
- APPARENT GROUNDWATER FLOW DIRECTION

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05. 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15: SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4: WELLS B101-DW. IW-1. IPZ-1 TO IPZ-3. PZ-1 TO PZ-3. MW-2. MW-3. MW-5. OW/LS. OW-1 TO OW-11. TW-1 TO TW-4: AND A PIT

REFERENCE:
BASE MAP SOURCE: YEC, INC.

Shaw E&I, Inc.

NYSDEC

FIGURE 3-3
BEDROCK GROUNDWATER ELEVATION CONTOUR MAP (12-13-00)
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

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ALBANY, NY	S. SHKOLNIK	09-20-02			784222D36

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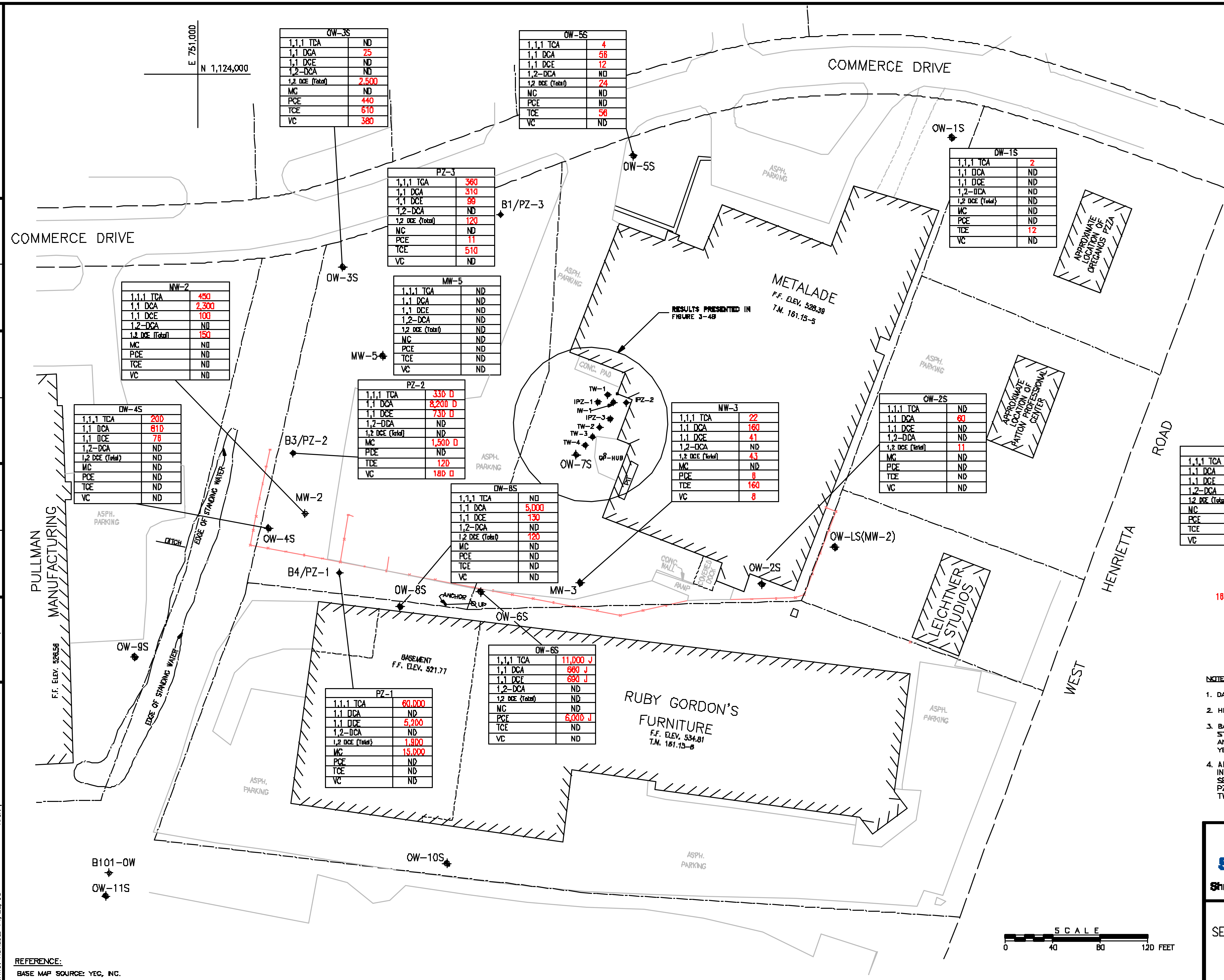

OW-3S	
1,1,1 TCA	ND
1,1 DCA	25
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	2,500
MC	ND
PCE	440
TCE	610
VC	380

OW-5S	
1,1,1 TCA	4
1,1 DCA	56
1,1 DCE	12
1,2-DCA	ND
1,2 DCE (Total)	24
MC	ND
PCE	ND
TCE	56
VC	ND

OW-1S	
1,1,1 TCA	2
1,1 DCA	ND
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	ND
PCE	ND
TCE	12
VC	ND

PZ-3	
1,1,1 TCA	360
1,1 DCA	310
1,1 DCE	99
1,2-DCA	ND
1,2 DCE (Total)	120
MC	ND
PCE	11
TCE	510
VC	ND

MW-2	
1,1,1 TCA	450
1,1 DCA	2,300
1,1 DCE	100
1,2-DCA	ND
1,2 DCE (Total)	150
MC	ND
PCE	ND
TCE	ND
VC	ND

MW-5	
1,1,1 TCA	ND
1,1 DCA	ND
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	ND
PCE	ND
TCE	ND
VC	ND

OW-4S	
1,1,1 TCA	200
1,1 DCA	810
1,1 DCE	76
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	ND
PCE	ND
TCE	ND
VC	ND

PZ-2	
1,1,1 TCA	330 D
1,1 DCA	8,200 D
1,1 DCE	730 D
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	1,500 D
PCE	ND
TCE	120
VC	180 D

OW-8S	
1,1,1 TCA	ND
1,1 DCA	5,000
1,1 DCE	130
1,2-DCA	ND
1,2 DCE (Total)	120
MC	ND
PCE	ND
TCE	ND
VC	ND

MW-3	
1,1,1 TCA	22
1,1 DCA	160
1,1 DCE	41
1,2-DCA	ND
1,2 DCE (Total)	43
MC	ND
PCE	6
TCE	160
VC	8

OW-2S	
1,1,1 TCA	ND
1,1 DCA	60
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	11
MC	ND
PCE	ND
TCE	ND
VC	ND

PZ-1	
1,1,1 TCA	60,000
1,1 DCA	ND
1,1 DCE	5,200
1,2-DCA	ND
1,2 DCE (Total)	1,900
MC	15,000
PCE	ND
TCE	ND
VC	ND

OW-6S	
1,1,1 TCA	11,000 J
1,1 DCA	660 J
1,1 DCE	690 J
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	ND
PCE	6,000 J
TCE	ND
VC	ND

LEGEND

- HISTORICAL OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL

MW-3		
1,1,1 TCA	22	WELL ID
1,1 DCA	160	1,1,1 TCA : 1,1,1 TRICHLOROETHANE in ug/L
1,1 DCE	41	1,1 DCA : 1,1 DICHLOROETHANE in ug/L
1,2-DCA	ND	1,1 DCE : 1,1 DICHLOROETHENE in ug/L
1,2 DCE (Total)	43	1,2 DCA : 1,2 DICHLOROETHANE IN ug/L
MC	ND	1,2 DCE (Total) : 1,2 DICHLOROETHENE (total) in ug/L
PCE	6	MC : METHYLENE CHLORIDE in ug/L
TCE	160	PCE : TETRACHLOROETHENE in ug/L; TCE : TRICHLOROETHENE in ug/L
VC	8	VC : VINYL CHLORIDE in ug/L

ug/L : MICROGRAM PER LITER (ppb)

WELLS SAMPLED DECEMBER 2000

160 ABOVE NYSDEC TOGS 1,1,1 STANDARDS AND GUIDANCE VALUES

NA : NOT ANALYZED

ND : RESULT BELOW DETECTION LIMIT

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

REFERENCE:

BASE MAP SOURCE: YEC, INC.

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 3-4A
SELECT VOC CONCENTRATIONS IN OVERBURDEN GROUNDWATER (DECEMBER 2000)
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

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DRAWN BY	S. SHKOLNIK 09-20-02
OFFICE	ALBANY, NY

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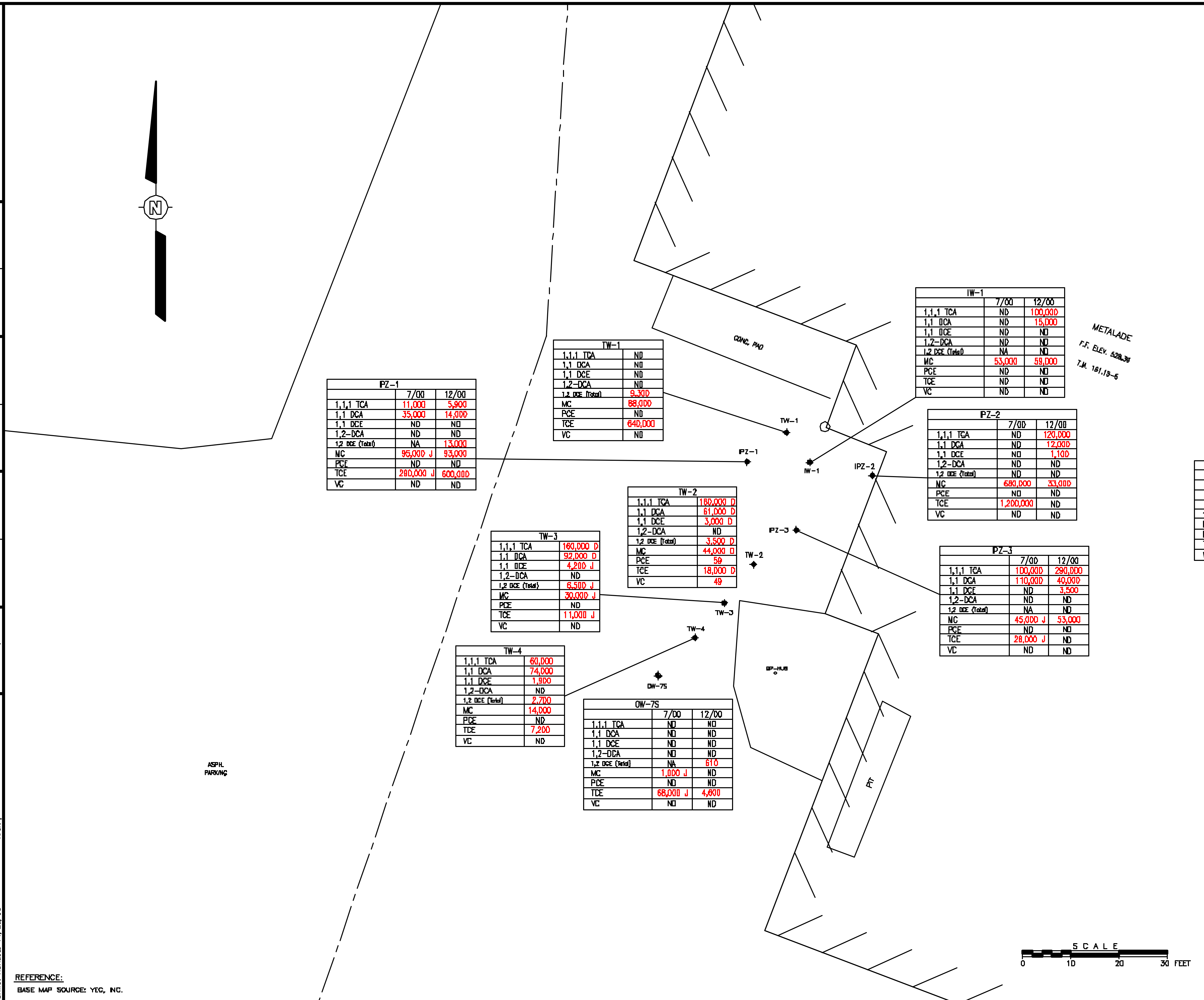

IPZ-1		
	7/00	12/00
1,1,1 TCA	11,000	5,900
1,1 DCA	35,000	14,000
1,1 DCE	ND	ND
1,2-DCA	ND	ND
1,2 DCE (Total)	NA	13,000
MC	95,000 J	93,000
PCE	ND	ND
TCE	280,000 J	600,000
VC	ND	ND

TW-1	
1,1,1 TCA	ND
1,1 DCA	ND
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	9,300
MC	88,000
PCE	ND
TCE	640,000
VC	ND

IW-1		
	7/00	12/00
1,1,1 TCA	ND	100,000
1,1 DCA	ND	15,000
1,1 DCE	ND	ND
1,2-DCA	ND	ND
1,2 DCE (Total)	NA	ND
MC	53,000	59,000
PCE	ND	ND
TCE	ND	ND
VC	ND	ND

IPZ-2		
	7/00	12/00
1,1,1 TCA	ND	120,000
1,1 DCA	ND	12,000
1,1 DCE	ND	1,100
1,2-DCA	ND	ND
1,2 DCE (Total)	ND	ND
MC	680,000	33,000
PCE	ND	ND
TCE	1,200,000	ND
VC	ND	ND

TW-2	
1,1,1 TCA	180,000 D
1,1 DCA	61,000 D
1,1 DCE	3,000 D
1,2-DCA	ND
1,2 DCE (Total)	3,500 D
MC	44,000 D
PCE	59
TCE	18,000 D
VC	49

TW-3	
1,1,1 TCA	160,000 D
1,1 DCA	92,000 D
1,1 DCE	4,200 J
1,2-DCA	ND
1,2 DCE (Total)	6,500 J
MC	30,000 J
PCE	ND
TCE	11,000 J
VC	ND

IPZ-3		
	7/00	12/00
1,1,1 TCA	100,000	290,000
1,1 DCA	110,000	40,000
1,1 DCE	ND	3,500
1,2-DCA	ND	ND
1,2 DCE (Total)	NA	ND
MC	45,000 J	53,000
PCE	ND	ND
TCE	28,000 J	ND
VC	ND	ND

TW-4	
1,1,1 TCA	60,000
1,1 DCA	74,000
1,1 DCE	1,900
1,2-DCA	ND
1,2 DCE (Total)	2,700
MC	14,000
PCE	ND
TCE	7,200
VC	ND

OW-7S		
	7/00	12/00
1,1,1 TCA	ND	ND
1,1 DCA	ND	ND
1,1 DCE	ND	ND
1,2-DCA	ND	ND
1,2 DCE (Total)	NA	610
MC	1,000 J	ND
PCE	ND	ND
TCE	68,000 J	4,600
VC	ND	ND

LEGEND

HISTORICAL OVERBURDEN MONITORING WELL

OVERBURDEN MONITORING WELL

TW-3		
1,1,1 TCA	160,000 D	WELL ID
1,1 DCA	92,000 D	1,1,1 TCA : 1,1,1 TRICHLOROETHANE in ug/L
1,1 DCE	4,200 J	1,1 DCA : 1,1 DICHLOROETHANE in ug/L
1,2-DCA	ND	1,1 DCE : 1,1 DICHLOROETHENE in ug/L
1,2 DCE (Total)	6,500 J	1,2 DCA : 1,2 DICHLOROETHANE IN ug/L
MC	30,000 J	1,2 DCE (Total) : 1,2 DICHLOROETHENE (total) in ug/L
PCE	ND	MC : METHYLENE CHLORIDE in ug/L
TCE	11,000 J	PCE : TETRACHLOROETHENE in ug/L
VC	ND	TCE : TRICHLOROETHENE in ug/L
		VC : VINYL CHLORIDE in ug/L

ug/L : MICROGRAM PER LITER (ppb)

WELLS SAMPLED JULY 2000 (BASELINE) AND DECEMBER 2000

11,000 J ABOVE NYSDEC TOGS 1.1.1 STANDARDS AND GUIDANCE VALUES

NA : NOT ANALYZED

ND : RESULT BELOW DETECTION LIMIT

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

REFERENCE:

BASE MAP SOURCE: YEC, INC.

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 3-4B
SELECT VOC CONCENTRATIONS IN OVERBURDEN GROUNDWATER (Source Area)
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

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ALBANY, NY	S. SHKOLNIK	09-19-02			784222D31

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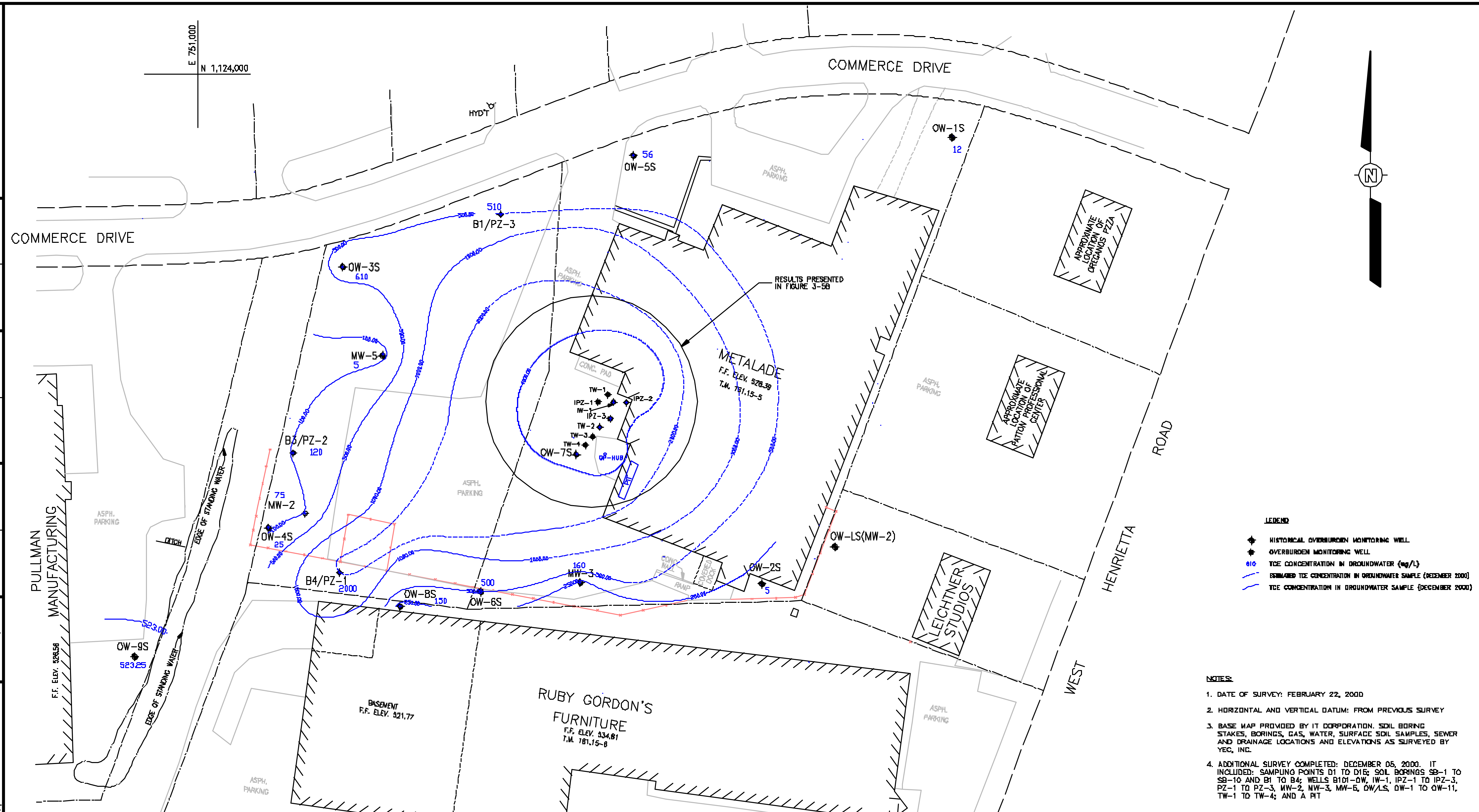

LEGEND

- HISTORICAL OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL
- 610 TCE CONCENTRATION IN GROUNDWATER (ug/L)
- ESTIMATED TCE CONCENTRATION IN GROUNDWATER SAMPLE (DECEMBER 2000)
- TCE CONCENTRATION IN GROUNDWATER SAMPLE (DECEMBER 2000)

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, NW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT

Shaw E&I, Inc.

NYSDEC

FIGURE 3-5A
TCE ISOCONTOUR IN OVERBURDEN GROUNDWATER
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

DRAWING NUMBER 784222D24
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OFFICE ALBANY, NY

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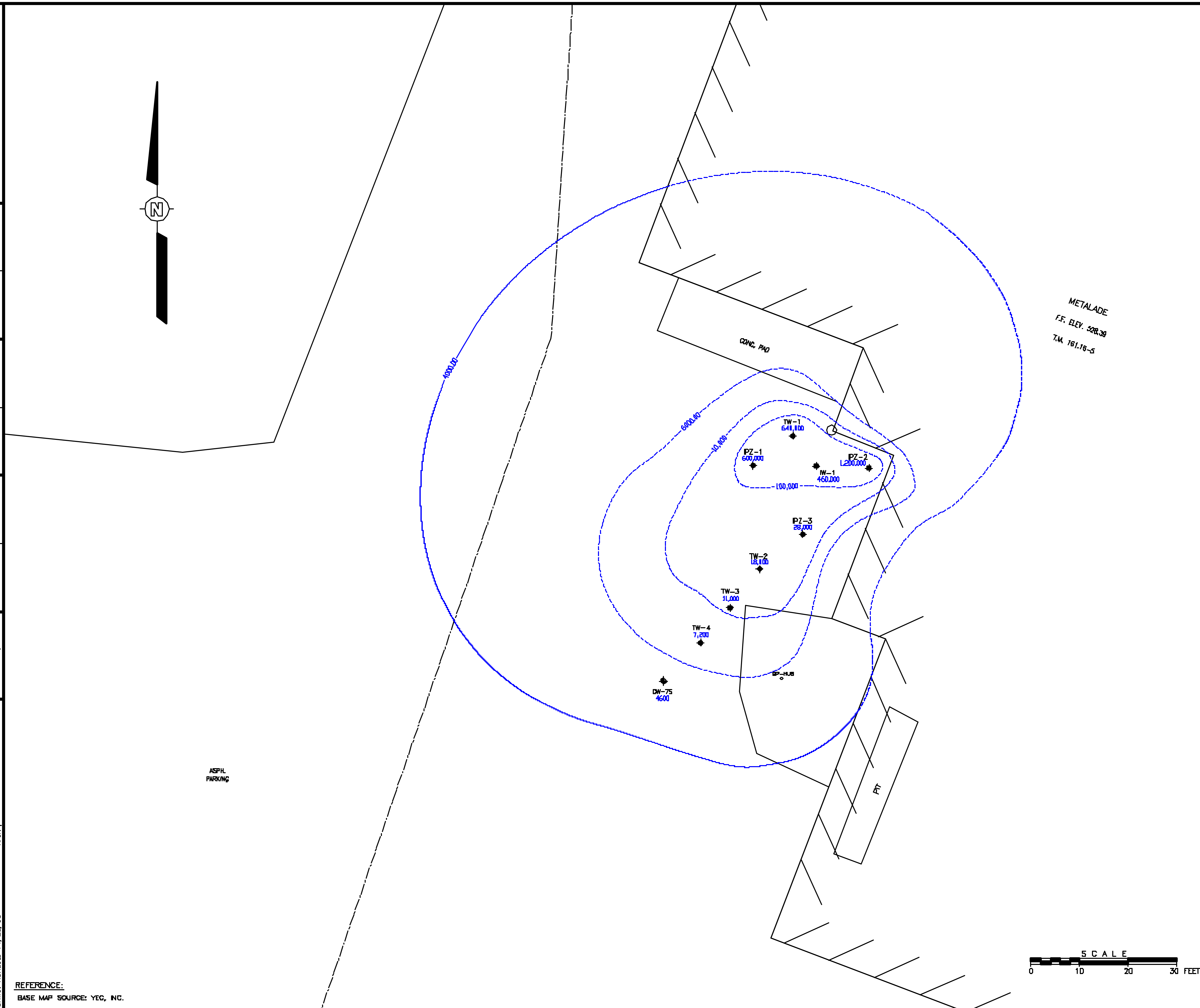
REFERENCE:
BASE MAP SOURCE: YEC, INC.



LEGEND

- HISTORICAL OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL
- 5000 TCE CONCENTRATION IN GROUNDWATER (ug/L)
- ESTIMATED TCE CONCENTRATION IN GROUNDWATER SAMPLE (DECEMBER 2000)
- TCE CONCENTRATION IN GROUNDWATER SAMPLE (DECEMBER 2000)

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D10; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-6, OW/LS, DW-1 TO DW-11, TW-1 TO TW-4; AND A PIT
5. ADDITIONAL SURVEY COMPLETED JUNE 16+17, 2002. SEE APPENDIX H.

REFERENCE:

BASE MAP SOURCE: YEC, INC.

Shaw E & I, Inc.

NYSDEC-SOH

FIGURE 3-5B
TCE ISOCONTOUR IN OVERBURDEN GROUNDWATER (Source Area)
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

OFFICE	DRAWN BY		CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK	09-18-02			784222D25

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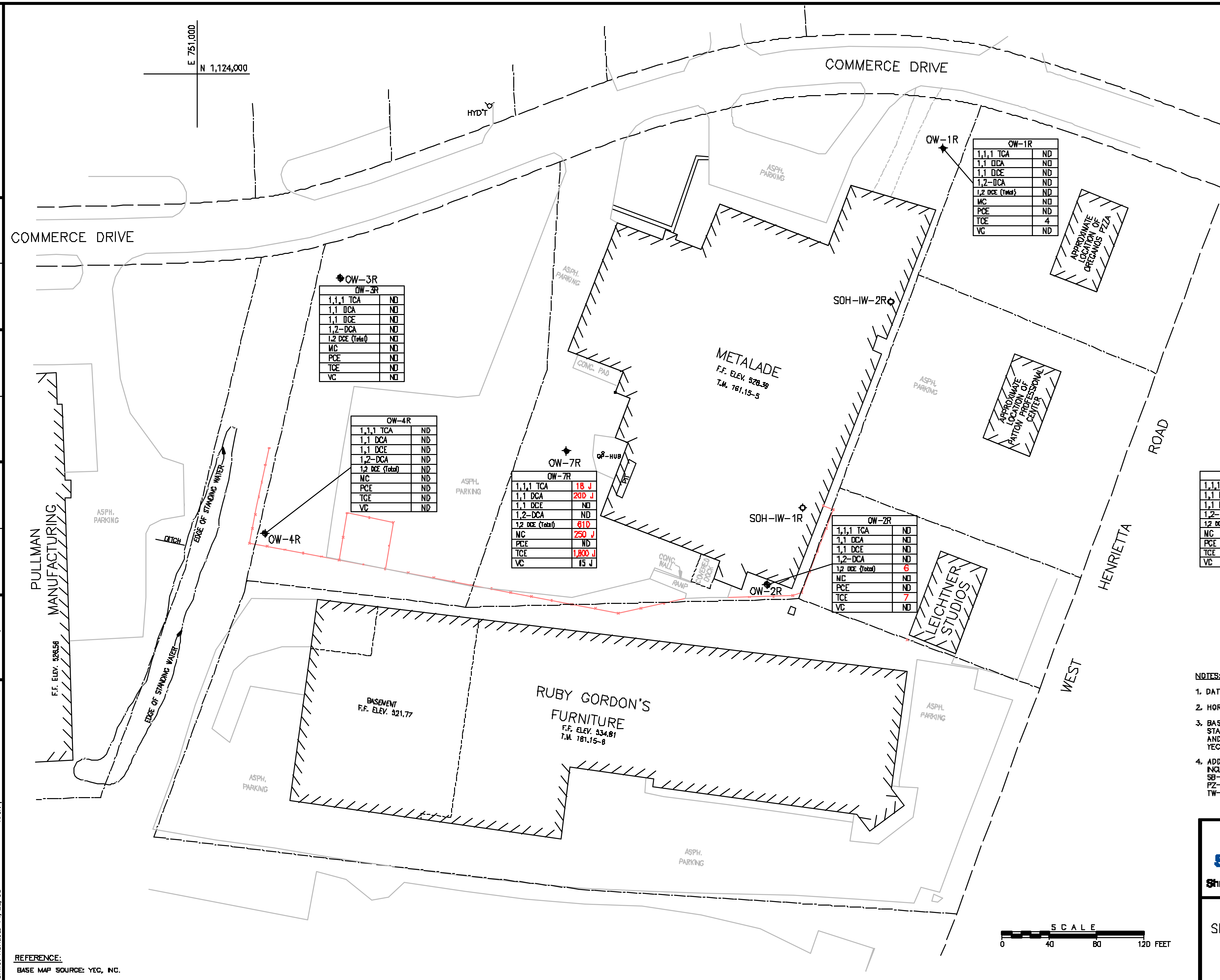

OW-1R	
1,1,1 TCA	ND
1,1 DCA	ND
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	ND
PCE	ND
TCE	4
VC	ND

OW-3R	
1,1,1 TCA	ND
1,1 DCA	ND
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	ND
PCE	ND
TCE	ND
VC	ND

OW-4R	
1,1,1 TCA	ND
1,1 DCA	ND
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	ND
MC	ND
PCE	ND
TCE	ND
VC	ND

OW-7R	
1,1,1 TCA	18 J
1,1 DCA	200 J
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	610
MC	250 J
PCE	ND
TCE	1,800 J
VC	15 J

OW-2R	
1,1,1 TCA	ND
1,1 DCA	ND
1,1 DCE	ND
1,2-DCA	ND
1,2 DCE (Total)	6
MC	ND
PCE	ND
TCE	7
VC	ND

LEGEND

HISTORICAL BEDROCK MONITORING WELL

OW-2R		
1,1,1 TCA	ND	1,1,1 TCA : 1,1,1 TRICHLOROETHANE in ug/L
1,1 DCA	ND	1,1 DCA : 1,1 DICHLOROETHANE in ug/L
1,1 DCE	ND	1,1 DCE : 1,1 DICHLOROETHENE in ug/L
1,2-DCA	ND	1,2 DCA : 1,2 DICHLOROETHANE IN ug/L
1,2 DCE (Total)	6	1,2 DCE (Total) : 1,2 DICHLOROETHENE (total) in ug/L
MC	ND	MC : METHYLENE CHLORIDE in ug/L
PCE	ND	PCE : TETRACHLOROETHENE in ug/L
TCE	7	TCE : TRICHLOROETHENE in ug/L
VC	ND	VC : VINYL CHLORIDE in ug/L

WELL ID

ug/L : MICROGRAM PER LITER (ppb)

WELLS SAMPLED DECEMBER 2000

7 ABOVE NYSDEC TOGS 1.1.1 STANDARDS AND GUIDANCE VALUES

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15: SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4: WELLS B101-DW. IW-1. IPZ-1 TO IPZ-3. PZ-1 TO PZ-3. MW-2. MW-3. MW-5. OW/LS. OW-1 TO OW-11. TW-1 TO TW-4: AND A PIT

REFERENCE:

BASE MAP SOURCE: YEC, INC.

Shaw E & I, Inc.

NYSDEC

FIGURE 3-6
SELECT VOC CONCENTRATIONS IN BEDROCK GROUNDWATER
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK 09-20-02			784222D38

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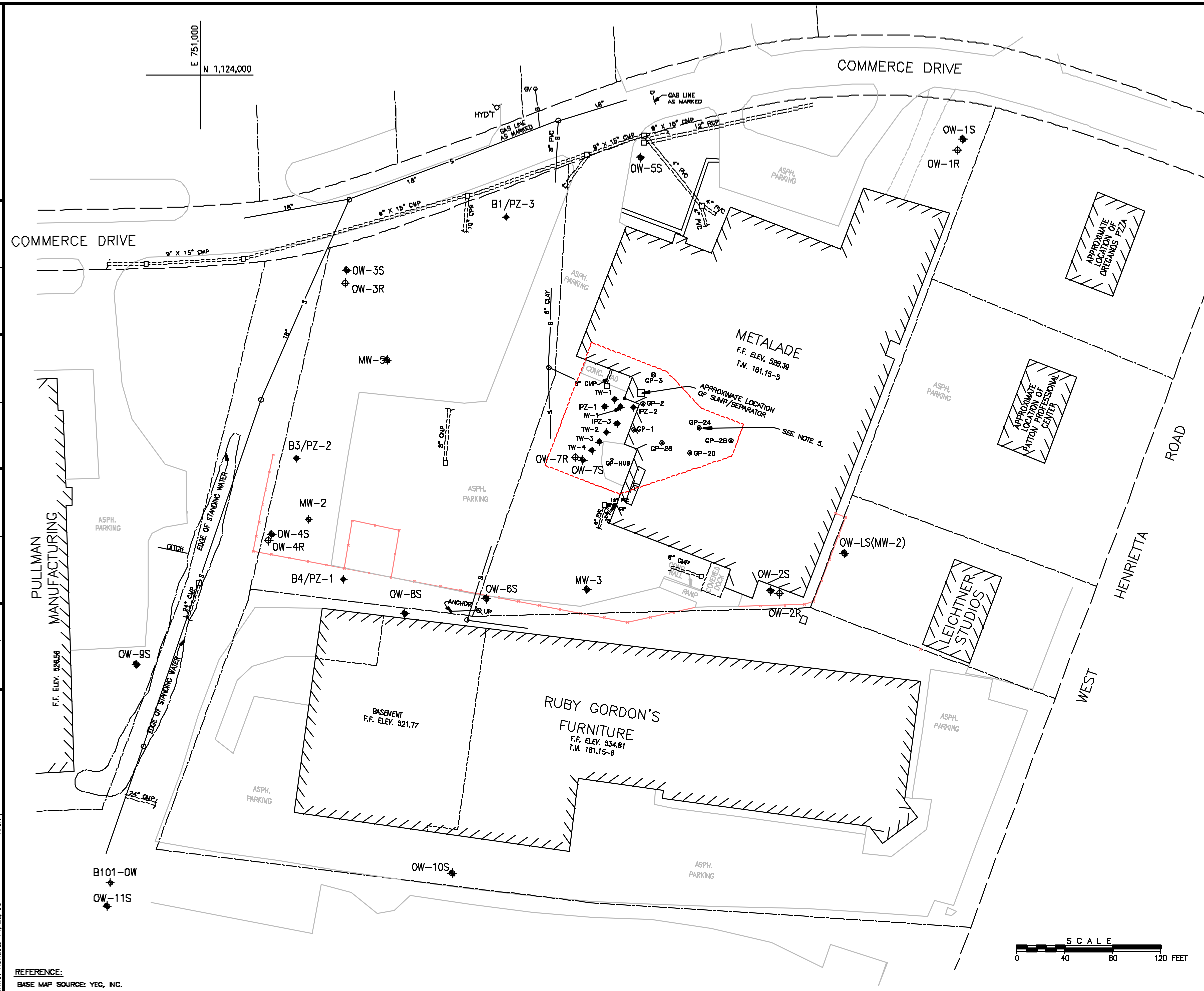

LEGEND

- HISTORICAL BEDROCK MONITORING WELL
- HISTORICAL OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL (IT, 2000)
- GEOPROBE LOCATIONS
- EXTENT OF SOURCE AREA.

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS D1 TO D15; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT
5. ADDITIONAL SURVEY COMPLETED JUNE 16+17, 2002. SEE APPENDIX H.

SCALE 0 40 80 120 FEET

REFERENCE:
BASE MAP SOURCE: YEC, INC.

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 4-1
ESTIMATED EXTENT OF SOURCE AREA

TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK 09-19-02			784222D32

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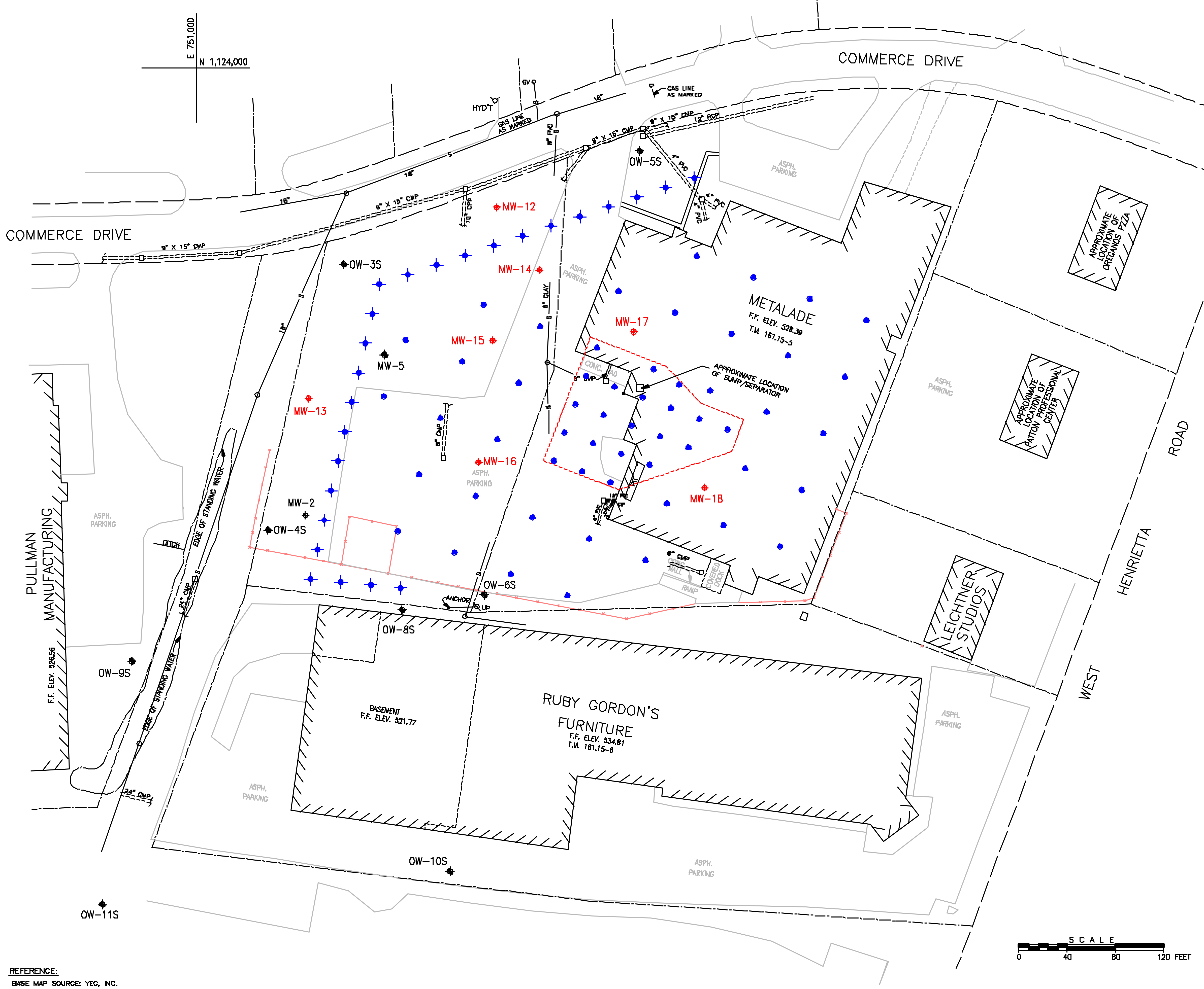
Plot Date/Time: 12/02/02 09:24am
Format Revised: 11/23/99
Image:
Xref:



LEGEND

- PROPOSED BOUNDARY INJECTION WEL (25)
- PROPOSED INJECTION WELL (55)
- PROPOSED MONITORING WELL
- HISTORICAL OVERBURDEN MONITORING WELL
- EXTENT OF SOURCE AREA.

NOTES:

1. DATE OF SURVEY: FEBRUARY 22, 2000
2. HORIZONTAL AND VERTICAL DATUM: FROM PREVIOUS SURVEY
3. BASE MAP PROVIDED BY IT CORPORATION. SOIL BORING STAKES, BORINGS, GAS, WATER, SURFACE SOIL SAMPLES, SEWER AND DRAINAGE LOCATIONS AND ELEVATIONS AS SURVEYED BY YEC, INC.
4. ADDITIONAL SURVEY COMPLETED: DECEMBER 05, 2000. IT INCLUDED: SAMPLING POINTS 01 TO 015; SOIL BORINGS SB-1 TO SB-10 AND B1 TO B4; WELLS B101-OW, IW-1, IPZ-1 TO IPZ-3, PZ-1 TO PZ-3, MW-2, MW-3, MW-5, OW/LS, OW-1 TO OW-11, TW-1 TO TW-4; AND A PIT
5. ADDITIONAL SURVEY COMPLETED JUNE 16+17, 2002. SEE APPENDIX H.

REFERENCE:
BASE MAP SOURCE: YEC, INC.

DRAWING NUMBER	784222D34
APPROVED BY	
CHECKED BY	
DRAWN BY	S. SHKOLNIK 09-19-02
OFFICE	ALBANY, NY

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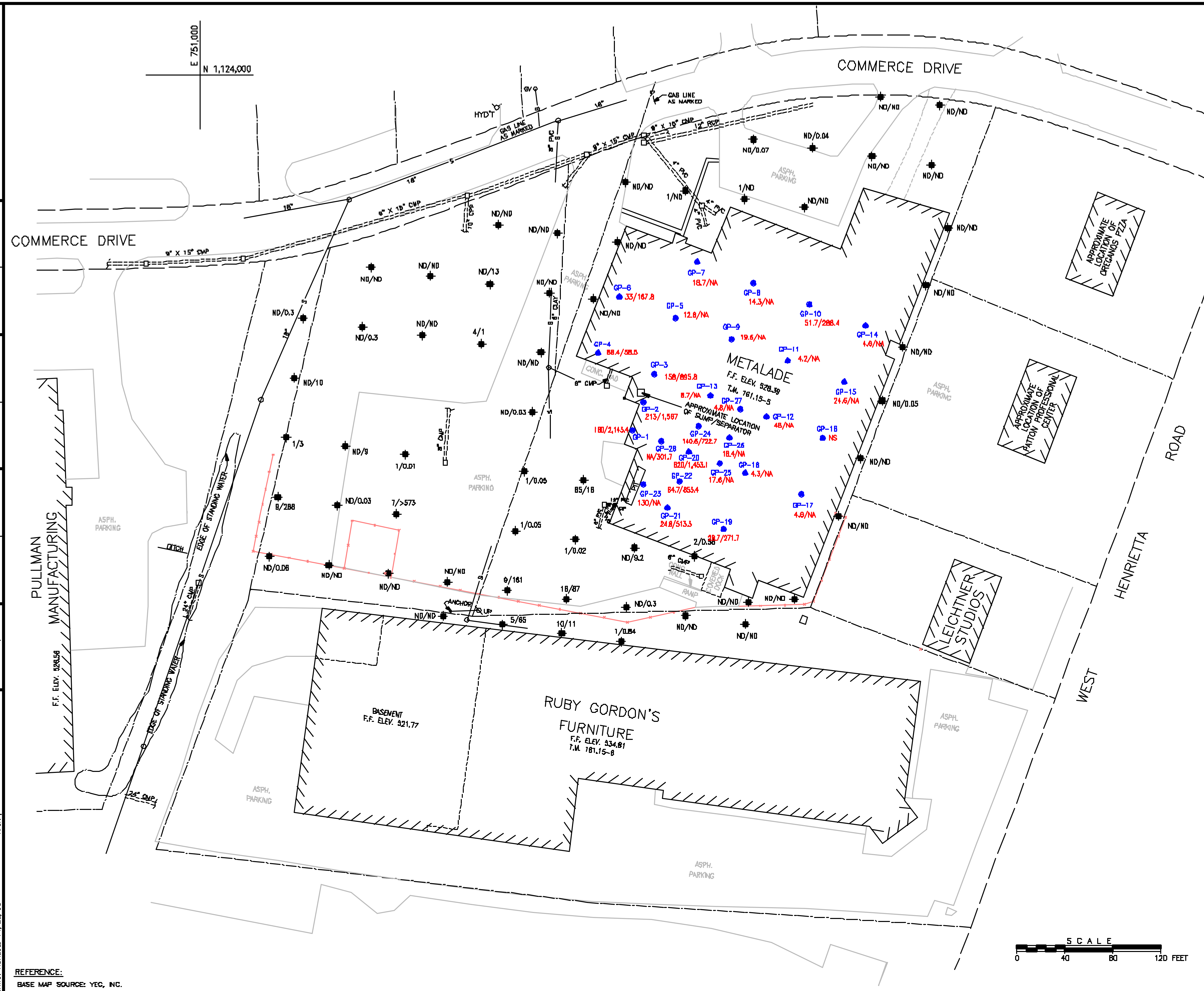
Plot Date/Time: 11/27/02 04:38pm
Format Revised: 11/23/99
Image:
Xref:

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 5-1
PROPOSED INJECTION WELL LOCATIONS
AND NEW MONITORING WELLS
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK



LEGEND

- HISTORICAL SOIL VAPOR SAMPLING LOCATIONS
- BORING LOCATIONS (SEE NOTE 4)

14.3/NA

- PHOTO IONIZATION DETECTOR READING (PARTS PER MILLION)
- TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATION (MICROGRAMS PER KILOGRAM)

NA NOT ANALYZED
NS NOT SAMPLED

1/0.01

- TOTAL ORGANIC VAPOR METER READING (ppm)
- TOTAL TARGET COMPOUND VOLATILE ORGANIC CONCENTRATION (ppm)

NOTES:

1) APPROXIMATE SOIL VAPOR SAMPLING LOCATIONS AND RESULTS FROM FIGURE 4 OF REMEDIAL INVESTIGATION REPORT, STUART-OLVER-HOLTZ SITE, HENRIETTA, NEW YORK, SEPTEMBER 1996.

2) SOIL VAPOR SAMPLE LOCATIONS WERE LOCATED ON AN APPROXIMATE 50 FOOT GRID PATTERN BY GZA BETWEEN SEPTEMBER 22, 1994 AND OCTOBER 18, 1994 (GZA, 1996).

3) FLUCTUATIONS IN SOIL VAPOR MEASURNENTS MAY OCCUR DUE TO SEVERAL FACTORS AND ARE INTENDED AS APPROXIMATE VALUES (GZA, 1996).

4) ADDITIONAL SURVEY COMPLETED JUNE 16+17, 2002. SEE APPENDIX H.

REFERENCE:
BASE MAP SOURCE: YEC, INC.

OFFICE	ALBANY, NY
DRAWN BY	S. SHKOLNIK 09-19-02
CHECKED BY	
APPROVED BY	
DRAWING NUMBER	784222D33

Shaw E&I, Inc.

NYSDEC-SOH

FIGURE 5-2
HISTORICAL SOIL VAPOR DATA AND SOIL VAPOR SAMPLING LOCATIONS
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

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Plot Date/Time: 11/27/02 04:55pm
Format Revised: 11/23/99
Image:
Xref:

APPENDIX A

COST ESTIMATES

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 1
Reactive Barrier

COST ESTIMATE SUMMARY

Site: SOH Henrietta
Location: Henreitta, New York
Phase: Feasibility Study (-30% to + 50%)
Base Year: 2001
Date:

Description: Groundwater Alternative 1 consists of a reactive iron filing barrier wall along the western and northern property boundaries. An ancillary pump and treat system will be installed on the south-western corner of the property at 3 gpm. Capital costs occur in Year 0. Annual O&M costs occur in Years 1-40.

PRESENT VALUE ANALYSIS

COST TYPE	YEAR	TOTAL COST	TOTAL COST PER YEAR	DISCOUNT FACTOR (7%)	PRESENT VALUE	NOTES
Capital Cost	0	$3,185,368	$3,185,368	1	$3,185,368.06	
Annual O&M Co:	1-35	$2,236,480	See Table	See Table	$995,909	See PVA Calculations Table for details
Periodic Cost	5	$15,000	$15,000	0.713	$10,695	5-yr review, update i.c. plan
Periodic Cost	7	$100,000	$100,000	0.623	$62,275	rejuvinate wall
Periodic Cost	10	$15,000	$15,000	0.508	$7,625	5-yr review, update i.c. plan
Periodic Cost	14	$100,000	$100,000	0.388	$38,782	rejuvinate wall
Periodic Cost	15	$15,000	$15,000	0.362	$5,437	5-yr review, update i.c. plan
Periodic Cost	20	$15,000	$15,000	0.258	$3,876	5-yr review, update i.c. plan
Periodic Cost	21	$100,000	$100,000	0.242	$24,151	rejuvinate wall
Periodic Cost	25	$15,000	$15,000	0.184	$2,764	5-yr review, update i.c. plan
Periodic Cost	28	$100,000	$100,000	0.150	$15,040	rejuvinate wall
Periodic Cost	30	$590,000	$590,000	0.131	$77,507	replace 50% of wall
Periodic Cost	35	$15,000	$15,000	0.094	$1,405	5-yr review, update i.c. plan
Periodic Cost	37	$100,000	$100,000	0.082	$8,181	rejuvinate wall
Periodic Cost	40	$13,465	$13,465	0.067	$899	Demobilization and closure
		$6,615,313			$4,439,914	

TOTAL PRESENT VALUE OF ALTERNATIVE **$4,439,914**

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 1
Reactive Barrier

COST ESTIMATE SUMMARY

Site: SOH Henrietta
Location: Henreitta, New York
Phase: Feasibility Study (-30% to + 50%)
Base Year: 2001
Date:

Description: Groundwater Alternative 1 consists of a reactive iron filing barrier wall along the western and northern property boundaries. An ancillary pump and treat system will be installed on the south-western corner of the property at 3 gpm. Capital costs occur in Year 0. Annual O&M costs occur in Years 1-40.

CAPITAL COSTS:

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Mobilization/Demobilization					
Permitting	1	LS	$25,000	$25,000	Environmental permits
Licencing Fee To ETI	1	LS	$186,000	$186,000	15% of Reactive Barrier Construction per ETI
Submittals/Implementation Plans	1	LS	$50,000	$50,000	QAPP, SSHP, etc.
Temporary Facilities & Utilities	1	LS	$10,000	$10,000	Fence, roads, signs, trailers, etc.
Post-Construction Submittals	1	LS	$25,000	$25,000	Post-constr. reports
SUBTOTAL				**$296,000**	
Monitoring, Sampling , Testing, and Analysis					
Monitoring Wells	10	EA	$900	$9,000	Pre-Design Sampling and Analysis
Geotechnical Testing	1	LS	$5,000	$5,000	
Testing	1	LS	$25,000	$25,000	From ETI
SUBTOTAL				**$30,000**	
Site Work					
Surveying	1	LS	$1,500	$1,500	well and wall layout
Site Preparation	1	LS	$10,000	$10,000	
SUBTOTAL				**$11,500**	
Reactive Wall Construction					
Mobilization/Demobilization	1	LS	$50,000	$50,000	From ETI
Construction of Wall	500	ft	$400	$200,000	From ETI
Iron filings	1	LS	$990,000	$990,000	From ETI
SUBTOTAL				**$1,240,000**	
Off-Site Disposal					
Soil Cuttings Disposal	1629.63	ft3	$80	$130,370	
SUBTOTAL				**$130,370**	est as non haz to Class 2 Landfill

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 1
Reactive Barrier

COST ESTIMATE SUMMARY

Ruby-Gordon Intercepor Well and Treatment System					
Extraction Well Installation	1	LS	$7,500	$7,500	
Carbon and Pump and Treat System	1	LS	$10,000	$10,000	includes pump and system
SUBTOTAL				$17,500	
SUBTOTAL				$1,725,370	
Contingency	25	%		$431,343	
SUBTOTAL				$2,156,713	
Procurement	2	%		$43,134	
Project Management	10	%		$215,671	
Remedial Design	20	%		$431,343	
Construction Management	15	%		$323,507	
Institutional Controls					
Institutional Controls Plan	1	LS		$5,000	
Groundwater Use Restriction	1	LS		$5,000	
Site Information Database	1	LS		$5,000	
SUBTOTAL				$15,000	
TOTAL CAPITAL COST				3,185,368	

O&M COSTS (Year 1-40)

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Annual Performance Costs					
Influent and Wall Sampling & Analysis	40	ea	$900	$36,000	20 wells analyzed semi-annually
SUBTOTAL				$36,000	
SUBTOTAL				$36,000	
Contingency	8 %			$2,880	
SUBTOTAL				$38,880	
Project Management	5	%		$1,944	
Technical Support	10	%		$3,888	
Quarterly Reports	4	ea	$1,000	$4,000	Interim reports
TOTAL ANNUAL O&M COST				$48,712	

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 1
Reactive Barrier

COST ESTIMATE SUMMARY

	YEAR	QTY	UNIT	UNIT COST	TOTAL	
ANNUALO&M COSTS (YEARS 1-10)						
Groundwater sampling	1-8	240	samples	$900	$216,000	6 wells tested quarterly
Treatment system sampling	1-8	240	samples	$400	$96,000	Influent and effluent sampling Monthly
Liquid Phase Carbon Replacement	1-8	37	each	$836	$30,932	Carbon replaced every 100 days
SUBTOTAL					**$342,932**	
ANNUALO&M COSTS (YEARS 11-41)						
Groundwater sampling	11-39	240	samples	$900	$216,000	4 wells tested semi-annually
SUBTOTAL					**$216,000**	

	YEAR	QTY	UNIT	UNIT COST	TOTAL	NOTES
PERIODIC COSTS						
YEAR 5						
Five-year Review Report	5	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 7						
Barrier Wall Rejuvenation	7	10000	sf	$10	$100,000	One report
SUBTOTAL					**$100,000**	
YEAR 10						
Five-year Review Report	15	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 14						
Barrier Wall Rejuvenation	14	10000	sf	$10	$100,000	One report
SUBTOTAL					**$100,000**	
YEAR 15						
Five-year Review Report	15	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 1
Reactive Barrier

COST ESTIMATE SUMMARY

YEAR 20						
Five-year Review Report	20	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 21						
Barrier Wall Rejuvenation	21	10000	sf	$10	$100,000	One report
SUBTOTAL					**$100,000**	
YEAR 25						
Five-year Review Report	25	1	ea	$15,000	$15,000	One report
SUBTOTAL					$15,000	
YEAR 28						
Barrier Wall Rejuvenation	28	10000	sf	$10	$100,000	One report
SUBTOTAL					**$100,000**	
YEAR 30						
Mob/Demob	30	1	LS	$25,000	$25,000	From ETI
Replacement Construction of Iron Filing Wall (50%)of Wall	30	1	LS	$100,000	$100,000	From ETI
Replacement of 50% of Iron Filings		1	LS	$450,000	$450,000	From ETI
Five-year Review Report	30	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$590,000**	
YEAR 35						
Five-year Review Report	35	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 37						
Barrier Wall Rejuvenation	37	10000	sf	$10	$100,000	One report
SUBTOTAL					**$100,000**	
YEAR 40						
Well Abandonment	6	6	EA	$500	$3,000	
Contingency (% of Sum)		10	%		$300	% of construction activities
Project Mgt. (% Sum + Contingency)		5	%		$165	% of constr. +contingency
Remedial Action Report	35	1	ea	$10,000	$10,000	
SUBTOTAL					**$13,465**	

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 1

Reactive Barrier

PVA CALCULATIONS

Site: SOH Henrietta

YEAR	O&M	Discount Factor 7%		CUMMULATIVE DISCOUNTED	CUMMULATIVE UNDISCOUNTED
1	91,579	0.934579439	85,587	85,587	91,579
2	91,579	0.873438728	79,988	165,576	183,157
3	91,579	0.816297877	74,755	240,331	274,736
4	91,579	0.762895212	69,865	310,196	366,314
5	91,579	0.712986179	65,294	375,490	457,893
6	91,579	0.666342224	61,023	436,513	549,471
7	91,579	0.622749742	57,030	493,543	641,050
8	91,579	0.582009105	53,300	546,843	732,628
9	91,579	0.543933743	49,813	596,655	824,207
10	91,579	0.508349292	46,554	643,209	915,785
11	55,912	0.475092796	26,563	669,772	615,032
12	55,912	0.444011959	24,826	694,598	670,944
13	55,912	0.414964448	23,201	717,800	726,856
14	55,912	0.387817241	21,684	739,483	782,768
15	55,912	0.36244602	20,265	759,748	838,680
16	55,912	0.338734598	18,939	778,688	894,592
17	55,912	0.31657439	17,700	796,388	950,504
18	55,912	0.295863916	16,542	812,930	1,006,416
19	55,912	0.276508333	15,460	828,390	1,062,328
20	55,912	0.258419003	14,449	842,839	1,118,240
21	55,912	0.241513087	13,503	856,343	1,174,152
22	55,912	0.225713165	12,620	868,963	1,230,064
23	55,912	0.210946883	11,794	880,757	1,285,976
24	55,912	0.19714662	11,023	891,780	1,341,888
25	55,912	0.184249178	10,302	902,082	1,397,800
26	55,912	0.172195493	9,628	911,710	1,453,712
27	55,912	0.160930367	8,998	920,707	1,509,624
28	55,912	0.150402212	8,409	929,117	1,565,536
29	55,912	0.140562815	7,859	936,976	1,621,448
30	55,912	0.131367117	7,345	944,321	1,677,360
31	55,912	0.122773007	6,864	951,185	1,733,272
32	55,912	0.114741128	6,415	957,601	1,789,184
33	55,912	0.107234699	5,996	963,596	1,845,096
34	55,912	0.100219345	5,603	969,200	1,901,008
35	55,912	0.093662939	5,237	974,437	1,956,920
36	55,912	0.087535457	4,894	979,331	2,012,832
37	55,912	0.081808838	4,574	983,905	2,068,744
38	55,912	0.076456858	4,275	988,180	2,124,656
39	55,912	0.071455008	3,995	992,175	2,180,568
40	55,912	0.066780381	3,734	995,909	2,236,480

Cost Estimates

Focused Feasibility Study
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Reevaluated Site Wide Alternative with Reactive Barrier:
- Passive trench with zero valence iron.
- Bedrock institutional controls.
- Off-site disposal of hazardous surface soils and sediments.
- Off-site treatment and disposal of hazardous site sump contents.

Item No.	Description	Capital Cost	O&M Present Worth
1	Passive trench with zero valence iron.	$3,185,368	$1,254,546
2	Bedrock institutional controls.	$47,000	$393,630
3	Off-site disposal of hazardous surface soils and sediments.	$373,715	$59,750
4	Off-site treatment and disposal of hazardous site sump contents.	$8,950	$0
Subtotal		$3,615,033	$1,707,926
Engineering (25%)		$903,758	
Contingency (15%)		$542,255	
Administration (10%)		$361,503	
TOTAL		$5,422,550	$1,707,926

Net Present Worth

Capital Cost	$5,422,550
Present worth of annual O&M cost	$1,707,926
TOTAL NET PRESENT WORTH =	$7,130,476

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 2
Permanganate Injection/Augmented Bioremediation

COST ESTIMATE SUMMARY

Site: SOH Henrietta
Location: Henreitta, New York
Phase: Feasibility Study (-30% to + 50%)
Base Year: 2001
Date:

Description: Groundwater Alternative 2 consists of a permanganate injection and augmented bioremediation system over a 300 ft x 300 ft area. An ancillary pump and treat system will be installed on the south-western corner of the property at 3 gpm. Capital costs occur in Year 0. Annual O&M costs occur in Years 1-30. Due to diminishing carbon usage and groundwater monitoring requirements, additional O&M costs associated with those factors are calculated over 5-year periods.

CAPITAL COSTS:

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Mobilization/Demobilization					
Permitting	1	LS	$10,000	$10,000	Environmental permits
Submittals/Implementation Plans	1	LS	$30,000	$30,000	QAPP, SSHP, etc.
Temporary Facilities & Utilities	1	LS	$10,000	$10,000	Fence, roads, signs, trailers, etc.
Post-Construction Submittals	1	LS	$25,000	$25,000	Post-constr. reports
SUBTOTAL				**$75,000**	
Monitoring, Sampling , Testing, and Analysis					
Pre-permanganate injection	30	EA	$900	$27,000	Pre-injection sampling and Analysis
Pre-carbon source injection	15	EA	$900	$13,500	Pre-injection sampling and Analysis
Bio-optimization Pilot test	1	LS	$25,000	$25,000	Bioremediation Bench-scale
SUBTOTAL				**$65,500**	
Site Work					
Surveying	1	LS	$1,500	$1,500	Well layout
SUBTOTAL				**$1,500**	
Well Construction					
Injection Wells	69	each	$2,500	$172,500	Additonal 69 injection wells
SUBTOTAL				**$172,500**	
Pre-Fab Treatment Bldg and Installation	1	LS	$55,000	$55,000	40' x 80' Building
SUBTOTAL				**$55,000**	
Permanganate System Capital Costs					
Permanganate Injection Equipment	1	LS	$17,500	$17,500	
Permanganate	235,725	lbs	$1.28	$301,964	
Permanganate Shipping	8	trucks	$1,550	$12,398	
Drum Disposal	565	drum	$40	$22,600	
Container Mixing and Storage Rental	4	month	$18,000	$72,000	
Return Container	4	trucks	$700	$2,800	
SUBTOTAL				**$429,262**	
Augmented Bioremediation System Capital Costs					
Carbon Source Injection Equipment	1	LS	$6,500	$6,500	
Molasses	32	drums	$68.00	$2,176	
Molasses Shipping	32	drum	$35	$1,120	
Drum Disposal	32	drum	$40	$1,280	
Storage Shed	1	ls	$30,000	$30,000	
SUBTOTAL				**$41,076**	
SUBTOTAL				**$839,838**	

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 2
Permanganate Injection/Augmented Bioremediation

COST ESTIMATE SUMMARY

O&M COSTS (Year 1-30)

DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
Groundwater Monitoring					
Monitoring well sampling and analysis	24	ea	$900	$21,600	6 wells analyzed quarterly
SUBTOTAL				**$21,600**	
SUBTOTAL				**$21,600**	
Contingency	15	%		$3,240	
SUBTOTAL				**$24,840**	
Project Management	5	%		$1,242	
Technical Support	10	%		$2,484	
Institutional Controls - Site Info Database	1	LS	$10,000	$10,000	Update and maintain database
Quarterly Reports	4	ea	$1,000	$4,000	Interim reports
TOTAL ANNUAL O&M COST				**$42,566**	

PERIODIC COSTS

	YEAR	QTY	UNIT	UNIT COST	TOTAL	NOTES
YEAR 5						
Five-year Review Report	5	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 10						
Five-year Review Report	15	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 15						
Five-year Review Report	15	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 20						
Five-year Review Report	20	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 25						
Five-year Review Report	25	1	ea	$15,000	$15,000	One report
SUBTOTAL					**$15,000**	
YEAR 35						
Well Abandonment	35	32	EA	$500	$16,000	
Contingency (% of Sum)		25	%		$4,000	% of construction activities
Project Mgt. (% Sum + Contingency)		5	%		$1,000	% of constr. +contingency
Remedial Action Report	35	1	ea	$10,000	$10,000	
SUBTOTAL					**$31,000**	

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 2

Permanganate Injection/Augmented Bioremediation

PVA CALCULATIONS

YEAR	O&M	Discount Factor 7%		CUMMULATIVE DISCOUNTED	CUMMULATIVE UNDISCOUNTED
1	42,566	0.9350	39,799	39,799	42,566
2	42,566	0.8730	37,160	76,959	85,132
3	42,566	0.8160	34,734	111,693	127,698
4	42,566	0.7629	32,474	144,167	170,264
5	42,566	0.7130	30,350	174,516	212,830
6	42,566	0.6664	28,366	202,882	255,396
7	42,566	0.6228	26,510	229,392	297,962
8	42,566	0.5820	24,773	254,166	340,528
9	42,566	0.5439	23,152	277,317	383,094
10	42,566	0.5084	21,641	298,958	425,660
11	42,566	0.4751	20,223	319,181	468,226
12	42,566	0.4440	18,899	338,080	510,792
13	42,566	0.415	17,665	355,745	553,358
14	42,566	0.3878	16,507	372,252	595,924
15	42,566	0.3625	15,430	387,683	638,490
16	42,566	0.3387	14,417	402,100	681,056
17	42,566	0.3166	13,476	415,576	723,622
18	42,566	0.2959	12,595	428,171	766,188
19	42,566	0.2765	11,769	439,941	808,754
20	42,566	0.2584	10,999	450,940	851,320
21	42,566	0.2415	10,280	461,220	893,886
22	42,566	0.2257	9,607	470,827	936,452
23	42,566	0.2110	8,981	479,808	979,018
24	42,566	0.1972	8,394	488,202	1,021,584
25	42,566	0.1843	7,845	496,047	1,064,150
26	42,566	0.1722	7,330	503,377	1,106,716
27	42,566	0.1609	6,849	510,226	1,149,282
28	42,566	0.1504	6,402	516,628	1,191,848
29	42,566	0.1406	5,985	522,613	1,234,414
30	42,566	0.1314	5,593	528,206	1,276,980

REMEDIAL ALTERNATIVE COST SUMMARY

Groundwater Alternative 2
Permanganate Injection/Augmented Bioremediation

COST ESTIMATE SUMMARY

Site: SOH Henrietta
Location: Henrietta, New York
Phase: Feasibility Study (-30% to + 50%)
Base Year: 2001
Date:

Description: Groundwater Alternative 2 consists of a permanganate injection and augmented bioremediation system over a 300 ft x 300 ft area. An ancillary pump and treat system will be installed on the south-western corner of the property at 3 gpm. Capital costs occur in Year 0. Annual O&M costs occur in Years 1-30. Due to diminishing carbon usage and groundwater monitoring requirements, additional O&M costs associated with those factors are calculated over 5-year periods.

PRESENT VALUE ANALYSIS

COST TYPE	YEAR	TOTAL COST	TOTAL COST PER YEAR	DISCOUNT FACTOR (7%)	PRESENT VALUE	NOTES
Capital Cost	0	$1,619,931	$1,619,931	1	$1,619,931	
Annual O&M Cost	1-35	$1,276,980	See Table	See Table	$528,206	See PVA Calculations Table for details
Periodic Cost	5	$15,000	$15,000	0.713	$10,695	5-yr review, update i.c. plan
Periodic Cost	10	$15,000	$15,000	0.508	$7,620	5-yr review, update i.c. plan
Periodic Cost	15	$15,000	$15,000	0.363	$5,445	5-yr review, update i.c. plan
Periodic Cost	20	$15,000	$15,000	0.258	$3,870	5-yr review, update i.c. plan
Periodic Cost	25	$15,000	$15,000	0.184	$2,760	5-yr review, update i.c. plan
Periodic Cost	30	$31,000	$31,000	0.131	$4,061	
		$3,002,911			$2,182,587	

TOTAL PRESENT VALUE OF ALTERNATIVE $\boxed{\$2,182,587}$

Cost Estimates

Focused Feasibility Study
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Reevaluated Site Wide Alternative with Permanganate/Augmented Bioremediation:
Permanganate injection/augmented bioremediation.
Bedrock institutional controls.
Off-site disposal of hazardous surface soils and sediments.
Off-site treatment and disposal of hazardous site sump contents.

Item No.	Description	Capital Cost	O&M Present Worth
1	Permanganate injection/augmented bioremediation.	$1,619,931	$562,657
2	Bedrock institutional controls.	$47,000	$393,630
3	Off-site disposal of hazardous surface soils and sediments.	$373,715	$59,750
4	Off-site treatment and disposal of hazardous site sump contents.	$8,950	$0
Subtotal		$2,049,596	$1,016,037
Engineering (25%)		$512,399	
Contingency (15%)		$307,439	
Administration (10%)		$204,960	
TOTAL		$3,074,393	$1,016,037

Net Present Worth

Capital Cost	$3,074,393
Present worth of annual O&M cost	$1,016,037

TOTAL NET PRESENT WORTH = $4,090,430

APPENDIX B

BOREHOLE LOGS

Drilling Log

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Soil Boring **SB-1**

See Site Map For Boring Location

COMMENTS:

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *40 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/18/00* Permit # ______
Checked By ______ License No. ______

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Tan, dry, clay, trace coarse sand, grey mottled color.
	10.6	8-6-7-9 98%		OL	
6					6-8': Tan/red, moist clay/sand (medium grained-coarse grained), trace gravel.
	11.9	4-13-13-7 98%		CL	
8					8-10': Tan/brown silty sand (equal parts), trace fine gravel to ~8-9' grades into medium-coarse grained sand, trace clay, little silt, trace gravel, wet.
	39.7	3-6-13-18 90%		SM-SP	
10					10-12': Brown, wet, medium-coarse sand, little silt, trace gravel.
	234	8-9-10-14 85%		SP	
12					12-14': Brown medium-coarse sand, trace silt, gravel, cobble to ~13.5, last 5", brown silty sand, trace gravel, very dense.
	64.7	8-14-19-21 80%		SM	
14					14-16': Brown, moist, silty sand, trace gravel, cobble [illegible]

Drilling Log

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Soil Boring **SB-1**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24–26	0.0	50/.4 15%		GM	24-26': Brown, moist, silty sand, trace gravel, cobble, very dense.
26–28	NA	50/.4 0%			26-28': No recovery.
28–30	0.0	50/.3 10%		GM	28-30': Brown, dry, silty sand, trace gravel, cobble, very dense.
30–32	0.4	80/.4 15%		GM	30-32': Same as above.
32–34	1.0	24-21-28-19/98%		SM	32-34': Brown, wet, silty sand (equal parts), trace cobble last 6" brown, wet, medium-coarse sand, trace fine gravel.
34–36	0.0	50/.3 15%		SM	34-36': Brown, wet, silty sand, trace fine gravel, clay.
36–38	0.0	35-50/.4 25%		SM	36-38': Brown, wet, silty sand (equal parts), wet.
38–40	0.0	28-31-50-50/.4 70%		SM	38-40': Brown, moist, silty sand, dense, trace gravel, refusal on shale.
40–46					

Drilling Log

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Soil Boring **SB-2**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *42 ft.* Diameter ____
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia ____ Length ____ Type/Size ____
Casing: Dia ____ Length ____ Type ____
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/19/00* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-4': Augered to 4'.
2						
4						4-6': Tan, dry, clay, little gravel, trace cobble, medium grained sand.
	77.7		9-8-10-12 98%			
6					OL	6-8': Same as above.
	148		12-25-31-8 98%			
8						8-10': No recovery.
	NA		0%			
10						10-12': Brown/tan, wet, silty sand (equal parts), trace fine gravel.
	214		4-5-9-7 90%			
12						12-14': Same as above, wet.
	224		10-11-9-14 85%			
14						14-16': Brown, moist, silty sand, little gravel, trace cobbles

Drilling Log

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Soil Boring **SB-2**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	18.4	49-50/.4 60%		SM	24-26': Brown, silty sand, trace medium sand , gravel.
26	6.9	29-50/.4 30%			26-28': Brown, moist, silty sand little gravel, trace cobble, dense.
28	1.2	50/.4 20%			28-30': Brown, moist, silt, trace fine grained sand, gravel, clay.
30	0.4	50/.4 15%			30-32': Brown, moist, silty sand, little gravel, cobbles, TILL.
32	41.2	34-50/.4 45%			32-34': Brown, moist, silty sand, little gravel, trace cobbles, TILL.
34	361	8-15-15-15 70%		GM	34-36': Same as above, TILL.
36	125	25-11-7-5 80%			36=38': Same as above.
38	310	1-2-5-2 30%			38-40': Brown, wet, silty sand, little clay, trace gravel and broken pieces of weathered shale, soupy.
40	865	28-25-50/.2 2%			40-42': Brown, wet, silty sand, little clay, trace gravel and broken weathered shale to 41.6', 41.6-42' shale, red and green shale, interbedded w/glacial TILL.
42					
44					
46					

Drilling Log

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Soil Boring **SB-3**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/22/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Tan/brown, moist, silty sand, trace fine gravel, cobble (coarse sand top 6").
6	158	9-7-10-12 98%			6-8': Brown, wet medium sand top 1" grades to brown, wet, silty sand, trace fine gravel, sand, cobble, increasing density.
8	130	12-20-22-18 75%		SM	8-10': Brown, wet, silty sand (equal parts), trace fine gravel, cobble grades to silty sand (more silt than sand), trace fine gravel.
10	77.6	12-27-37-24 40%			10-12': No recovery.
12	NA	50/.3			12-14': No recovery (refusal on boulder).
14	NA	50/.3			14-16': Brown, moist, silty sand, trace fine gravel, crumbly

Drilling Log

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Soil Boring **SB-3**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	2000	16-29-35-50 55%		SM	24-26': Brown, wet medium grained sand, little silt, little coarse sand top 6".
26	2000	3-15-22-21 50%		SM	26-28': Brown, wet silty sand (equal parts), trace gravel, medium sand.
28	2000	50/.4 40%		SM	28-30': Brown, wet medium sand little silt, top 8", grades to silty sand, trace fine gravel.
30	2000	50/.3 13%		GM	30-32': Brown, moist, silty sand, little gravel, trace cobbles, dense.
32	1435	50/.2 2%		GM	32-34': Same as above.
34	418	50/.4 8%		GM	34-36': Same as above.
36	188	50/.4 12%		GM	36-38': Same as above.
38	NA	50/.3			38-40': No recovery.
40	163	50-50/.3 25%		GM	40-42': Brown, wet, silty sand, little gravel, trace cobbles, dense shale bottom 1".
42					
44					
46					

Drilling Log

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Soil Boring SB-4

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/11/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0–4': Augered to 4'.
2					
4					4–6': Brown, dry, clayey sand, little fine subangular gravel.
	0.0	8-9-12-14 70%		SC	
6					6–8': Brown, wet w/depth, silty sand, trace fine gravel, 7–8' same as above, trace coarse gravel.
	0.0	11-11-11-17 40%			
8					8–10': Same as above, coarsening w/depth, last 6" has some medium to coarse sand, little fine–coarse gravel, wet.
	0.0	12-14-24-25 70%			
10				GM	10–12': Brown, wet, silty fine sand, some medium sand, little fine- coarse gravel, becoming tight w/depth.
	0.0	4-18-25-28 50%			
12					12–14': Brown, wet, silty sand, trace fine-gravel, some medium grained sand, little coarse gravel throughout.
	0.0	25-27-38-38 45%			
14					14–16': Medium, saturated sand, fine–coarse gravel, last 6" is brown

Drilling Log

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Soil Boring **SB-4**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	NA	50/.4 0%			24–26': No recovery.
26	0.0	48–50/.3		SM	26–28': Brown-grey, moist, fine silty sand, little medium sand & fine- coarse gravel, tight.
28	NA	50/.4 0%			28–30': No recovery.
30	0.0	50/.4 10%		GM	30–32': Brown-grey, wet, fine silty sand, little medium-coarse sand, some coarse gravel, very dense.
32	0.0	45–50/.2 10%			32–34': Same as above.
34	1.0	18–50/.5 25%			34–36': Brown-grey, wet, fine silty sand, trace fine gravel, very dense.
36	0.0	20–50–50–38			36=38': Same as above.
38	0.0	8–11–18–22 70%			38–40': Brown, wet, fine silty sand, trace clay, less dense, some very coarse gravel, some fine gravel.
40	0.0	21–20–20–20 10%		SW	40–42': Brown, wet, coarse-medium sand, trace cobble, coarse gravel.
42					
44					
46					

Drilling Log

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Soil Boring **SB-5**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/12/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Tan, dry, clay.
	0.0	8-5-10-12 85%			
6					6-8': Tan, dry, clay, little sand.
	0.0	16-19-38 80%		OL	
8					8-10': Clay, dry, little medium sand, grades to medium-coarse sand last 6" some gravel.
	0.0	48-21-20-50 5%			
10					10-12': Brown, dry silty sand, trace coarse sand, fine-medium gravel.
	6.0	10-36-50-50 70%			
12				SP	12-14': Same as above.
	3.2	30-40-50/.4 40%			
14					14-16': No recovery

Drilling Log

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Soil Boring **SB-5**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': Brown, silty sand, some gravel last 6", dense.
	1078	28-50-50/ .3 50%		SM	
26					26-28': Brown, wet, silty sand, some gravel (medium-fine), trace cobble, dense.
	338	50-50/.4 20%			
28					28-30': Brown, wet, silty sand, trace gravel, dense.
	195	40-50/.3 10%			
30				GM	30-32': Same as above.
	295	50-50/.2 10%			
32					32-34': Brown, moist, silty sand, trace fine gravel, dense.
	255	50-50/.2 30%			
34					34-36': No recovery.
	NA	25-30-10- 15 0%			
36					36=38': No recovery.
	NA	2-2-2-2 0%			
38					38-40': Brown, wet, silty sand, some clay, trace gravel.
	0.0	10-15-10- 20 5%			
40				GM	40-42': Same as above, shale bottom 4".
	13.7	1-1-1-50/ .3 10%			
42					
44					
46					

Drilling Log

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Soil Boring **SB-6**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *44 ft.* Diameter ____
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia ____ Length ____ Type/Size ____
Casing: Dia ____ Length ____ Type ____
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/15/00* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-4': Augered to 4'.
2						
4						4-6': Tan, dry clay, trace medium sand, 5-6' brown silty sand, trace fine gravel.
	88.1		27-20-30-15 80%		OL	
6						6-8': Tan-brown, wet silty sand, 3" fill?, trace fine-medium gravel, 2" lens coarse sand at 7.5'.
	48		20-21-23-25 98%			
8						8-10': Brown, silty sand (equal parts), wet, trace gravel.
	25.8		14-18-20-22 80%		SM	
10						10-12': Same as above.
	77.7		NA 80%			
12						12-14': No recovery (sluff from above).
	NA		21-23-35-48 0%			
14						14-16': No recovery; spoon refusal on a rock

IT CORPORATION
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Drilling Log

Soil Boring **SB-6**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	0.0	50/.3 5%		GM	24-26': Brown, moist, silty sand, trace fine gravel, cobble, very dense.
26	1.7	50/.3 5%		GM	26-28': Same as above.
28	NA	50/0 0%			28-30': Spoon refusal on a boulder.
30	0.0	50/.3 0%		GM	30-32': Brown, moist, silty sand, trace fine gravel, very dense.
32	NA	50/.3 0%			32-34': No recovery.
34	5.9	18-50-50/ 0 10%		GM	34-36': Brown, moist, silty sand, fine gravel, very dense.
36	8.4	30-50/.3 35%		GM	36-38': Brown, moist, silty sand, trace fine gravel, very dense.
38	NA	20-50/.4 2%			38-40': No recovery.
40	NA	21-30-50/ .3 2%			40-42': No recovery.
42	17.5	50/.2 2%		GM	42-44': Brown, moist, silty sand, trace fine gravel, some feldspar (crushed).
44					
46					

Drilling Log

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Soil Boring **SBX-6**

Project *SOH* Owner *Metelade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *42 ft.* Diameter ____
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia ____ Length ____ Type/Size ____
Casing: Dia ____ Length ____ Type ____
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/17/00* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Sampled w/3" spoon, 300lb hammer.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Brown, moist, silty sand, trace clay top 6", trace fine gravel.
	734	11-12-4-8 98%			
6				SC	6-8': Brown/tan, wet, silty sand, trace fine gravel, clay.
	247	18-25-35-20 80%			
8					8-10': No recovery (sluff from above).
	NA	48-37-50/.3 0%			
10					10-12': Brown, wet, silty sand (equal parts), trace gravel (medium- fine).
	173	18-13-25-27 98%			
12				SM	12-14': Top 6" brown, wet, silty sand (equal parts), trace gravel, soupy, 12.6-14' brown, moist silty sand (equal parts), trace gravel, dense.
	70.8	42-50/.4 70%			
14					14-16': No recovery

Drilling Log

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Soil Boring **SBX-6**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24–26	3.6	43-50/.3 20%		GM	24-26': Brown, dry, silty sand, trace fine gravel, cobbles, dense.
26–28	1.6	50/.4 10%		GM	26-28': Same as above.
28–30	4.9	3-35-50/.3 20%		GM	28-30': Brown, dry silty sand, little cobbles, dense.
30–32	8.3	50/.4 25%		GM	30-32': Same as above.
32–34	1.4	0-45-50/.3 10%		GM	32-34': Same as above.
34–36	1.3	0-45-50/.3 45%		SM	34-36': Brown, moist, silty sand, not very dense, trace fine gravel.
36–38	3.7	33-50/.2 30%		SM	36=38': Brown, moist, silty sand, little coarse gravel, trace fine gravel.
38–40	23.2	50-50/.2 15%		GM	38-40': Brown, wet, silty sand, little gravel, some cobbles, very dense.
40–42	278	80%		GM	40-42': Brown, wet, silty sand, some gravel, trace cobbles, trace clay last 4", VERY DENSE, shale in tip.
42–46					

Drilling Log

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Soil Boring **SB-7**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *M. Puglisi* Date *05/09/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Sampled using 3" spoon.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': No recovery.
	NA	9-10-11-9 0%			
6				OL	6-8': 6" reddish brown clay, last 6" silty fine sand, trace brown medium sand.
	0.0	21-21-18-23 50%			
8					8-10': Wet, silty fine sand, some fine gravel, trace coarse.
	0.0	20-22-18-24 75%			
10					10-12': Same as above, some coarse gravel, little coarse sand.
	0.0	15-18-21-22 75%			
12				SM	12-14': Same as above, becoming more grey and tighter, very wet to saturated, becoming drier.
	1.4	21-34-50/.3 75%			
14					14-16': No recovery

Drilling Log

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Soil Boring **SB-7**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	NA	50/.4 0%			24-26': Same as above.
26	NA	50/.3 0%			26-28': Same as above.
28	NA	50/.2 0%			28-30': Same as above.
30	NA	50/.3 0%			30-32': Same as above.
32	NA	50/0 0%		GM	32-34': Same as above.
34	1.7	37-50/.3			34-36': Grey, wet, fine silty sand and fine-coarse gravel.
36	0.0	15-39-38-22 50%			36-38': Same as above, drier bottom 6" is coarse gravel and fine silty sand.
38	0.0	15-25-50/.3 50%			38-40': Water in spoon, fine silty sand, some fine-coarse gravel, tight.
40	NA	38-50/.2 25%			40-42': Rock fragments-bedrock.
42					
44					
46					

Drilling Log

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Soil Boring **SB-8**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *40 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *M. Puglisi* Date *05/08/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					Blacktop
	4.5	25-18-10-20 50%			0-2': Brown, fine-medium sand and fine-coarse gravel, bottom 3" is saturated.
2					2-4': No recovery.
	NA	22-13-8-8 0%			
4					4-6': Reddish brown, wet, trace medium sand, silty clay.
	0.0	10-12-8-9 50%		OL	
6					6-8': Wet, same as above.
	0.0	10-15-11-13 25%			
8					8-10': Brown, fine silty sand, trace medium coarse sand, 8.5-9.5' is saturated, 9.5-10' is becoming drier.
	0.4	16-18-10-7 75%			
10					10-12': 11-11.5' same as above, some fine-coarse gravel, 11.5-12' fine silty sand, wet.
	3.0	7-20-23-23 50%			
12					12-14': Same as 11-11.5', bottom 6" fine-medium sand, brown-grey.
	11.4	23-24-13-19 50%		SM	
14					14-16': Very light brown-grey fine silty sand, trace medium and coarse

Drilling Log

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Soil Boring **SB-8**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': Same as above, not as tight, some medium sand, wet.
	1956	19-26-16-14 50%			
26					26-28': First 6" is fine-medium sand, saturated, the bottom foot is fine silty sand, trace medium sand, grey, wet.
	>2000	17-26-27-44 75%			
28					28-30': Grey, wet, fine silty sand.
	1948	20-22-30-20 50%			
30					30-32': Same as above.
	1586	20-20-50/.4 50%			
32				GM	32-34': Same as above, some fine gravel, more tight.
	1497	10-22-20-30 50%			
34					34-36': Sluff, a few pieces of coarse gravel, not enough soil to sample
	NA	20-19-40-56 25%			
36					36-38': Grey, fine silty sand and fine-coarse gravel, tight.
	77.3	12-20-32-48 50%			
38					38-40': Sluff and rock fragments, possibly weathered bedrock.
	NA	58-50/.1 5%			
40					40-42': No recovery.
	NA	50-26-16-18 0%			
42					42-44': Spoon had refusal at 42.7' BG, rock fragments-grey green shale.
	NA	42-50/.2 5%		GM	
44					
46					

Drilling Log

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Soil Boring **SB-9**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *40 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *M. Puglisi* Date *05/05/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-4': Augured through.
2						
4						4-6': Brown, fine silty sand, little fine gravel.
	0.0		31-28-28-33 50%			
6						6-8': Same as above.
	0.0		18-18-27-33 50%			
8						8-10': Same as above, trace of gravel in last 6".
	0.0		35-25-30-32 50%			
10					SM	10-12': Same as above.
	0.0		15-11-23-33 50%			
12						12-14': Same as above, becoming tight.
	0.1		54-50/.2 25%			
14						14-16': Same as above, grey till, fine silty sand, little fine gravel

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Drilling Log

Soil Boring **SB-9**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': No recovery.
	NA	50/.4 0%			
26					26-28': Water in spoon, no recovery.
	NA	50/.2 0%			
28					28-30': Not enough to sample, fine silty sand and fine gravel, very tight.
	NA	50/.4 2%			
30				GM	30-32': Same as above.
	NA	50/.3 2%			
32					32-34': Fine silty sand, some fine to coarse gravel, tight.
	0.0	83-100-100 50%			
34					34-36': Same as above, sample is very warm due to lack of water in hole.
	1.9	50/.3 10%			
36					36-38': Small amount of rock fragments.
	NA	83-100/.2			
38					38-40': Fine silty sand and gravel, last 2" is small rock fragments.
	0.1	12-10-28-50/.2 50%		GM	
40					
42					
44					
46					

Drilling Log

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Soil Boring **SB-10/10A**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *M. Puglisi* Date *05/01/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
	5.5	4-6-12 50%			0-2': Dark brown, fine silty sand and gravel, tight, moist, no odor or staining (Fill).
2					2-3': Same as above.
	5.2	10-9-6-8 75%			3-3.5': Brown, grey, moist, fine sand.
4					3.5-4': Reddish-silty clay, dense, no stains or odor in spoon.
					4-6': Reddish-silty clay.
	0.0	4-4-5-7 25%		OL	
6					6-8': Same as above, bottom 2" has trace fine sand and gravel.
	0.0	14-15-19-20 75%			
8					8-10': 3" of fine sand and gravel and reddish clay, rest of spoon is brown, wet, fine sand w/some fine rounded gravel.
	0.0	8-12-13-18 75%			
10					10-12': Moist-wet, fine sand and gravel, no odor or staining.
	0.2	12-14-20-20 50%			
12					12-14': Moist-wet, Fine sand and gravel, little medium sand.
	2.9	55-45-53-54 50%		SM	
14					14-16': 1" of medium-fine sand, fine silty sand and angular-gravel, last 6" of

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Drilling Log

Soil Boring **SB-10/10A**

Project SOH Owner Metalade
Location Henrietta, NY Proj. No. 784222

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24–26	3.8	34-42-85-42 50%	SM	24-26': Brown, moist to wet, fine sand & gravel, some medium sand, trace coarse gravel.
26–28	32.3	8-10-19-17 75%	SM	26-28': Wet, fine sand, little medium sand, trace fine gravel, loose.
28–30	27.1	9-18-20-18 50%	SM	28-30': Wet, fine silty sand, trace fine gravel.
30–32	334	50%	SM	30-32': Brown-grey, saturated, fine sand, little silt.
32–34	732	12-13-14-15 75%	SM	32-33': Fine silty sand. 33-34': Silt, little fine sand, wet-saturated.
34–36	130	8-9-18-25 50%	GM	34-36': Same as above, saturated, fine silty sand some fine gravel, tight, till like.
36–38	14.9	78-100/.4 25%	GM	36-38': Same as above.
38–40		4-8-9-11		38-40': No recovery, stone in foot of spoon.
40–42		8-8-9-38 25%	GM	40-42': Weathered shale, rock fragments, no sample.
42–44		100/.1 0%	GM	42-44': Rock fragments, no sample.

Drilling Log

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Soil Boring **SB-11**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *46 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *M. Puglisi* Date *05/01/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
	0.0	14-28-30 25%			0-2': Fine to medium gravel-fill for parking lot.
2					2-4': 6" of fine-medium sand, reddish clay.
	0.3	13-14-15-15 75%			
4					4-6': Reddish clay.
	2.2	1-10-28-23 50%			
6				OL	6-8': Same as above.
	1.1	21-23-24-32 50%			
8					8-10': 2" of reddish clay, rest of spoon is wet, fine sand & gravel w/ little medium sand, possible from rain overnight, no odor or staining.
	0.5	37-48-35-39 50%			
10				SM	10-12': Same as above, grading to fine silty sand last 6", fine silty sand becoming fine sand and gravel.
	0.0	95-54-37-50 50%			
12					12-14': Fine silty sand, some fine gravel, trace coarse gravel, very tight.
	0.0	19-39-49-38 50%			
14					14-16': Same as above.

Drilling Log

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Soil Boring **SB-11**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': No recovery.
	NA	50-100/.2 0%			
26					
28					
30					30-32': No recovery.
	NA	100/0 0%			
32					32-34': No recovery.
	NA	100/.2 0%			
34					34-36': No recovery.
	NA	100/.2 0%			
36					36-38': No recovery.
	NA	100/.3 0%			
38					38-40': Brown, moist, fine silty sand, some medium sand, little fine- coarse gravel, very tight.
	349	25-58-49-37 50%			
40					40-42': Same as above, wet, last 2" of spoon was broken rock fragment, possibly weathered bedrock (shale).
	1104	55-33-42-38 50%			
42				GM	42-44': No recovery, spoon had refusal at 42.2', will try w/augers.
	NA	100/.2 0%			
44					44-46': Only recovery is small rock fragments, shale, no soil, wet.
	NA	100/.2 100%			
46					46-48': No recovery.

Drilling Log

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Soil Boring **SB-12**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *M. Puglisi* Date *05/04/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
	NA	33-8-8 20%			0-2': Gravel fill, no sample, all rock.
2					2-4': Same as above.
	NA	10-13-16-20 0%			
4					4-6': Moist, light brown, fine silty sand and fine gravel, no staining or odor.
	0.0	4-10-13-21 75%			
6					6-7': Same as above to 6.5', saturated fine to medium sand.
	0.0	28-33-32-29 100%			7-8': Wet.
8				SM	8-10': Brown-grey fine silty sand, little coarse-fine gravel.
	0.2	37-28-33-32 50%			
10					10-12': Same as above, moist, trace coarse gravel.
	0.0	28-34-42-53 75%			
12					12-14': No recovery.
	NA	50/.3 0%			
14					14-16': Grey fine silty sand, some coarse sand and fine gravel, trace...

Drilling Log

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Soil Boring **SB-12**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24–26	15.7	9-18-21-35 50%		GM	24–26': Fine silty sand, saturated.
26–28	16.6	28-53-50/.3 75%		GM	26–28': Same as above.
28–30	NA	50/.3 0%			28–30': No recovery.
30–32	NA	50/.2 0%			30–32': No recovery.
32–34	0.0	50-36-22-20 50%		GM	32–34': Brown, fine silty sand, some fine gravel, till.
34–36	0.0	10-14-15-11 50%		GM	34–36': Same as above, little coarse gravel.
36–38	0.0	13-18-10-10 25%		GM	36–38': Same as above.
38–40	0.0	8-10-10-8 25%		GM	38–40': Same as above.
40–42	NA	5-12-50/.2 0%			40–42': No recovery.
42–44		50/.1 0%			42–44': No recovery, some rock fragments in foot.
44–46					

Drilling Log

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Soil Boring **SB-15**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/23/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Brown, dry, silty sand, little gravel, trace cobbles, clay, Till.
	179	NA 80%			
6				GM	6-8': Brown, moist, silty sand, little gravel, trace cobbles, Till.
	48.3	17-17-17-17 90%			
8					8-10': Brown, wet, silty sand (equal parts), 3" lens of coarse sand and gravel at 8.5', trace fine gravel, cobble.
	107	2-25-18-10 95%			
10				SM	10-12': Brown, wet, silty sand (equal parts), trace gravel, medium sand.
	99.8	15-35-48-45 98%			
12					12-14': Brown, moist-wet silty sand, little gravel, trace cobble, dense, Till.
	39.7	44-50/.4 10%		GM	
14					14-16': No recovery

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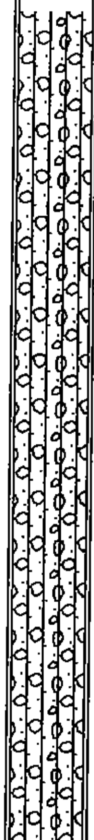
Drilling Log

Soil Boring **SB-15**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
	257	50-50/.3 25%			
26					26-28': Same as above.
	13.2	50/.3 10%			
28					28-30': Same as above, little medium grained sand, Till.
	1.7	50/.3 10%			
30					30-32': Same as above.
	87.4	50/.3 10%			
32					32-34': Same as above.
	83.2	50/.3 10%		GM	
34					34-36': Same as above.
	27.5	50/.4 10%			
36					36=38': Same as above.
	1.1	50/.3 7%			
38					38-40': Same as above.
	13.3	50/.4 10%			
40					40-42': Same as above, weathered shale in tip of spoon.
	3.1	50/.5 15%			
42					
44					
46					



Drilling Log

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Soil Boring **SB-16**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *46 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *06/08/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Brown, dry, medium grained sand, some silt, little fine gravel, trace cobble.
	111	4-3-18-14 25%			
6				SM	6-8': Brown, dry, sandy silt, little fine gravel, trace clay, top 6" mottled grey.
	103	8-12-10-10 80%			
8					8-10': Brown, moist, silty sand, trace fine gravel, cobble grades to brown, moist, silty sand, dense, trace clay, till.
	75.8	5-12-18-14 50%			
10				GM	10-12': Brown, moist, silty sand, trace gravel, trace cobble, dense, till.
	177	15-30-30-29 80%			
12					12-14': Brown, moist-wet silty sand, trace gravel.
	182	50-50-30-35 85%			
14					14-16': Brown, moist, silty sand, trace gravel, till

Drilling Log

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Soil Boring **SB-16**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	2000	19-50/.3 20%		SM	24-26': Brown, moist, silty sand, trace medium sand, gravel, not as dense.
26	2000	10-50/.4 15%		GM	26-28': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
28	820	35-50/.1 20%		GM	28-30': Brown, moist, silty sand, little gravel, trace cobble, dense, Till.
30	1495	NA 50%		GM	30-32': Same as above.
32	2000	25-50/.2 10%		GM	32-34': Same as above.
34	836	45-50/.3 20%		GM	34-36': Same as above.
36	2000	18-40-22-50/.3 90%		SM	36-38': Same as above top 6", moist-wet w/depth brown, wet, silty sand (more silt than sand).
38	825	30-50/.4 15%		GM	38-40': Brown, wet, silty sand, little gravel, trace cobble, dense, Till.
40	151	14-35-42-42 50%		GM	40-42': Same as above.
42	68.9	10-50/.4 35%		GM	42-44': Same as above.
44	201	12-14-13-18 40%		GM	44-46': Same as above, shale in tip.
46					

Drilling Log

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Soil Boring **SB-17**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *30 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/12/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Brown, silty sand, trace fine gravel to 3", dry.
	28.2	8-12-14-18 80%			
6					6-8': Brown moist-wet w/depth, silty sand, some medium sand last 2", grey mottling at ~7-8'.
	59.7	12-17-24-28 98%			
8				SM	8-10': Brown, wet, silty sand, little medium sand, trace fine gravel, cobble.
	45.5	8-12-28-15 55%			
10					10-12': Brown, moist, silty sand, trace medium sand, fine gravel, density increases w/depth.
	87.3	NA 80%			
12					12-14': Brown, moist, silty sand, little clay throughout, dense, little (+) some gravel.
	10.5	38-30-35-34 85%		SC	
14					14-16': Brown, moist, silty sand, little gravel, trace cobble, dense. Till

Drilling Log

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Soil Boring **SB-17**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24				SM	24-26': Brown, wet silty sand, grades to brown wet medium grained sand, trace gravel then grades to brown, wet silty sand, little gravel, trace cobble, dense.
	400	27-50/.3 85%		GM	
26					26-28': No recovery.
	NA	-			
28					28-30': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
	7.8	30-50/.1 15%		GM	
30					
					Auger refusal at 29'.
32					
34					
36					
38					
40					
42					
44					
46					

Drilling Log

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Soil Boring **SB-18**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *06/15/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Brown, dry, silty sand, some gravel, little medium-coarse sand, trace cobble clay, 2" lens of black, dry, medium-coarse soil, little gravel, trace silt.
	22.0	2-10-14-15 80%			
6					6-8': Brown, moist-wet w/depth, silty sand, trace fine gravel.
	40.2	1-20-20-21 85%			
8				SM	8-10': Brown, wet, silty sand, trace fine gravel.
	87.7	5-10-11-14 80%			
10					10-12': Brown, wet, silt.
	299	1[illegible]-19-20-24 100%			
12					12-14': Brown, wet silty sand top 8", brown, wet-moist silty sand, trace fine gravel, clay.
	178	25-30-30-45 100%			
14				GM	14-16': Brown, moist, silty sand, trace fine gravel, cobble, clay.

Drilling Log

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Soil Boring **SB-18**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': Brown, moist, silty sand, little gravel, trace cobble, dense, Till.
	83.2	40-50/.2 25%			
26				GM	26-28': Same as above.
	78.1	50-50/.3 20%			
28					28-30': No recovery.
	NA	50/.4 0%			
30					30-32': Brown, moist, silty sand, little gravel, trace cobble, crumbly.
	8.4	45-50/.4 10%		GM	
32					32-34': No recovery.
	NA	45-50/.4 0%			
34					34-36': No recovery.
	NA	9-18-12-17			
36					36=38': Brown, wet, silty sand, little fine gravel, trace cobble.
	18.8	14-9-8-8 30%			
38					38-40': Same as above.
	35.2	8-8-22-11 50%			
40					40-42': Same as above.
	25.1	8-7-7-7 20%			
42					
44					
46					

Drilling Log

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Soil Boring **SB-19**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *06/14/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0-4': Augered to 4'.
2					
4					4-6': Brown, moist, silty sand, trace medium grained sand.
6	25.7	4-12-18-23 40%			6-8': Brown, wet, silty sand, trace medium sand, trace cobble (last 2").
8	4.5	-14-43-34 100%		SM	8-10': Brown, wet, silty sand, trace medium sand.
10	8.07	5-19-44-21 50%			10-12': Brown, wet, silty sand, trace fine gravel.
12	0.9	8-17-20-23 80%			12-14': Brown, wet silty sand, trace fine gravel, clay last 4".
14	0.2	53-50/.4 30%		SC	14-16': Brown, moist, silty sand, little fine gravel, trace cobble, dense. Till

Drilling Log

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Soil Boring **SB-19**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': Brown, wet, silty sand, little gravel, trace cobble, dense, Till.
	23.8	0-14-50/.3 40%			
26					26-28': Same as above.
	28.2	50/.2 20%		GM	
28					28-30': Same as above.
	18.2	50/.4 15%			
30					30-32': No recovery.
	NA	50/.4 5%			
32					32-34': No recovery.
	NA	50/.4 5%			
34					34-36': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
	19.7	48-50/.3 20%		GM	
36					36=38': No recovery.
	NA	0%			
38					38-40': Brown, moist, silty sand, little gravel, trace cobble, very dense.
	4.7	48-50/.3 40%			
40				GM	40-42': Same as above, feldspar in tip, Till.
		48-50/.1 15%			
42					
44					
46					

Drilling Log

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Soil Boring **SB-20**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *40 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *06/19/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0-4': Augered to 4'.
2						
4	2000		25-4-8-10 75%		CL	4-6': Tan, dry, silty sand, trace gravel, some clay, medium plastic.
6	255		8-12-8-8 80%		OL	6-8': Tan/brown, moist-wet w/depth, silty sand, trace gravel, cobble, little clay, medium plastic.
8	1.7		3-8-13-18 85%		SM	8-10': Tan, brown, wet, silty sand, trace cobble, clay (equal parts).
10	170		32-45-50/.4 65%		SM	10-12': Brown, silty sand, trace medium sand, last 4" mottled, grey, trace cobble, wet.
12	NA		50/.3 5%			12-14': No recovery.
14						14-16': Brown, wet, silty sand, trace gravel

Drilling Log

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Soil Boring **SB-20**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					24-26': Brown, silty sand, wet, trace gravel.
	854	20-15-50/.2 50%			
26					26-28': Same as above.
	57.9	8-42-37-50/.4 80%		SM	
28					28-30': Same as above.
	324	32-45-50/.4 70%			
30					30-32': No recovery.
	NA	-			
32					32-34': Brown, moist, silty sand, little gravel, trace cobble, dense, Till.
	179	30-50/.3 20%			
34					34-36': Same as above.
	65.0	14-23-50-50/.4 50%		GM	
36					36-38': Top 6" brown, wet, gravely silty sand, brown, wet-moist, silty sand, little gravel, trace cobble, dense.
	98.8	23-30-22-50/.4 80%			
38					38-40': Shale at 38.6'.
	NA	30-50/.3 0%			
40					
42					
44					
46					

Drilling Log

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Soil Boring **B-2**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/30/00* Permit # ______
Checked By ______ License No. ______

See Site Map
For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0–4': Augered to 4'.
2					
4	2.5	7-7-8-10 95%		SW	4–6': Brown, dry, medium sand, trace gravel, organic materials, silt.
6	2.4	7-11-12-13 30%		SM	6–8': Brown, dry, silty sand, trace gravel, medium sand.
8	0.7	7-5-11-8 10%		OL	8–10': Tan/brown, dry, clay.
10	1.8	8-11-12-15 40%		OL	10–12': Same as above.
12	NA				12–14': Shelby tube, ~3/4 full.
14					14–16': Brown, wet, silty clay, trace fine–medium sand, trace gravel, plastic

Drilling Log

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Soil Boring **B-2**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	NA					24-26': Shelby tube attempt/crushed, no recover.
26	NA					26-28': Same as above.
28	1.8		50/.2 8%		GM	28-30': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
30	4.3		50/.4 10%		GM	30-32': Same as above.
32	2.4		50/.4 5%		GM	32-34': Same as above.
34	1.2		50/.2 5%		GM	34-36': Same as above.
36	1.4		50/.2 5%		GM	36-38': Same as above.
38	NA					38-40': Shelby tube collected.
40	1.7		50/.2 5%		GM	40-42': Brown, wet, medium grained sand, trace cobble, gravel, little silt last 3", weathered shale.
42						
44						
46						

Drilling Log

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Soil Boring **B-2**

See Site Map
For Boring Location

COMMENTS:

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia ______ Length ______ Type/Size ______
Casing: Dia ______ Length ______ Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/30/00* Permit # ______
Checked By ______ License No. ______

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					0–4': Augered to 4'.
2					
4					4–6': Brown, dry, medium sand, trace gravel, organic materials, silt.
	2.5	7-7-8-10 95%		SW	
6					6–8': Brown, dry, silty sand, trace gravel, medium sand.
	2.4	7-11-12-13 30%		SM	
8					8–10': Tan/brown, dry, clay.
	0.7	7-5-11-8 10%			
10				OL	10–12': Same as above.
	1.6	8-11-12-15 40%			
12					12–14': Shelby tube, ~3/4 full.
	NA				
14					14–16': Brown, wet, silty clay, trace fine–medium sand, trace gravel, plastic

Drilling Log

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Soil Boring **B-2**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	NA				24-26': Shelby tube attempt/crushed, no recover.
26	NA				26-28': Same as above.
28	1.6	50/.2 6%			28-30': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
30	4.3	50/.4 10%			30-32': Same as above.
32	2.4	50/.4 5%		GM	32-34': Same as above.
34	1.2	50/.2 5%			34-36': Same as above.
36	1.4	50/.2 5%			36-38': Same as above.
38	NA				38-40': Shelby tube collected.
40	1.7	50/.2 5%		GM	40-42': Brown, wet, medium grained sand, trace cobble, gravel, little silt last 3", weathered shale.
42					
44					
46					

Drilling Log

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Monitoring Well **B-4/PZ-1**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *40.8 ft.* Diameter ____
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia *2 in.* Length *15 ft.* Type/Size ____
Casing: Dia *2 in.* Length *8.5 ft.* Type ____
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/25/00* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0–4': Augered to 4'.
2						
4						4–6': Tan, dry clay, dense.
		4.9	4-5-2-7 70%			
6					OL	6–8': Same as above.
		2.2	11-15-17-10 70%			
8						8–10': Shelby tube crushed, no recovery.
		NA				
10						10–12': Tan, clay, dry, dense, last 3" brown, silty sand (equal parts), wet.
		102	7-7-9-14 90%		OL	
12						12–14': Brown/tan, clay to ~12.8', grades to brown, silty sand (equal parts), wet.
		101	7-7-10-7 80%		SM	
14						14–16': Shelby tube

Drilling Log

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Monitoring Well **B-4/PZ-1**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24		NA	50/0 0%			24-26': Spoon refusal on rock.
26		0.8	50/.4			26-28': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
28		1.1	50/.4		GM	28-30': Same as above.
30		1.3	21-47-41-48			30-32': Same as above.
32		NA	50/.4 0%			32-34': No recovery (sluff).
34		NA	48-45-49-49 0%			34-36': Same as above.
36		NA	25-17-7-12 20%			36-38': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
38		NA	50/.4 15%		GM	38-40': Same as above.
40		NA	50/.3 10%			40-42': Same as above, weathered shale at 40.8'.
42						
44						

Drilling Log

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Monitoring Well B-3/PZ-2

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *42 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia *2 in.* Length *15 ft.* Type/Size ______
Casing: Dia *2 in.* Length *14.5 ft.* Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/25/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0–4': Augered to 4'.
2						
4						4–6': Attempted shelby tube, crushed.
6		NA				6–8': Shelby tube #3, ~3/4 full.
8		NA				8–10': Tan-brown, dry clay, dense.
10		11.1	9-7-11-14 98%			10–12': Tan-brown, dry clay, dense bottom 3", little medium sand.
12		10.7	15-14-20-19 95%		OL	12–14': Tan/brown, dry, clay, dense.
14		15.2	12-11-11-10 80%			14–16': Tan/brown, moist clay, dense, black discoloration in a

Drilling Log

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Monitoring Well B-3/PZ-2

Project SOH Owner Metalade
Location Henrietta, NY Proj. No. 784222

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24–26		4.5	50/.4 15%		GM	24–26': Brown, moist silty sand, little gravel, trace cobble, dense, Till.
26–28		5.2	50/.4 10%		GM	26–28': Same as above, very dense.
28–30		7.1	50/.3 15%		GM	28–30': Same as above.
30–32		2.8	50/.3 10%		GM	30–32': Same as above.
32–34		5.2	50/.4 20%		GM	32–34': Same as above.
34–36		NA	50/.2 5%			34–36': No recovery (sluff only).
36–38		8.3	50/.4 10%		GM	36–38': Brown, moist, silty sand, little gravel, trace cobble, very dense, Till.
38–40		NA	50/0 0%			38–40': No recovery (rock in spoon).
40–42		5.4	50/.4 20%		GM	40–42': Brown, silty sand, little gravel, trace cobble, feldspar in basket.

Depth scale: 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46

Drilling Log

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Monitoring Well B-1/PZ-3

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *37.7 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia *2 in.* Length *15 ft.* Type/Size ______
Casing: Dia *2 in.* Length *6.5 ft.* Type ______
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *05/24/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Shelby to be collected 0–30" from ground surface.

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2				
0				0–4': Augered to 4'.
4				4–6': Brown/tan, dry, clay, medium dense.
	0.0	7-12-14-18 100%	OL	
6				6–8': Brown, dry-moist w/depth, medium grained sand, some silt, little coarse sand, fine gravel, trace clay.
	0.3	99%	SP	
8				8–10': Shelby tube crushed, no recovery.
	NA			
10				10–12': Same as above.
	NA			
12				12–14': Brown, wet, silty sand, some gravel, little medium-coarse grained sand, trace cobble.
	6.3	0-15-21-27 80%		
14				14–19': Brown, wet, silty sand, little gravel, trace cobble, dense. Till

Drilling Log

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Monitoring Well **B-1/PZ-3**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24		2.0	50-50/ .3 35%		GM	24-26': Brown, wet, silty sand, little gravel, trace cobble, very dense.
26		NA	50/0 0%			26-28': No recovery.
28		5.5	25-50/.2		GM	28-30': Brown, moist, silty sand, little gravel, trace cobble, very dense, trace medium sand.
30		NA				30-32': Auger refusal at ~30', refusal on rock.
32		NA	50/.1 0%			32-34': No recovery.
34		NA	50/.1 0%			34-37.7': No recovery.
36						
38						Auger refusal at 37.7'.
40						
42						
44						

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Drilling Log

Monitoring Well **IW-1**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *24 ft.* Diameter ______
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia *2 in.* Length *10 ft.* Type/Size *Sch 80 PVC in.*
Casing: Dia *2 in.* Length *14 ft.* Type *Sch 80 PVC*
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *A. Morris* Log By *T. Maynard* Date *06/28/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
0–4				0-4': Augered to 4'.
4–6	98.2	5-8-7-12 75%	GM	4-6': Tan/brown, silty sand, trace medium sand, gravel, cobble, dry, trace clay.
6–8	119	7-9-12-12 80%	SM	6-8': Brown, moist-wet w/depth, silty sand (equal parts), trace clay to 6", trace fine gravel.
8–10	229	9-12-18-23 50%	SM	8-10': Brown, wet, silty sand, little gravel.
10–12	104	23-20-38-42 75%	GM	10-12': Brown, top 6" wet, moist w/depth, silty sand, little gravel throughout, dense w/depth, bottom foot, till.
12–14	440	40-40-50-50/.3 75%	SM	12-14': Brown, wet, silty sand (equal parts), bottom 1', top 6" is brown, wet, silty sand, more dense, little gravel, trace cobble throughout.

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Drilling Log

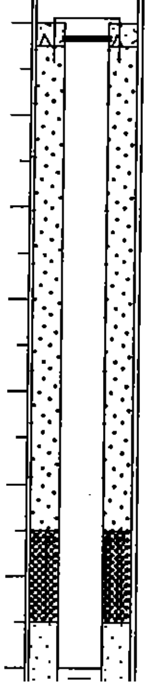
Monitoring Well IPZ-1

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *24 ft.* Diameter *4 1/4 in.*
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia *2 in.* Length *10 ft.* Type/Size *0.02 in.*
Casing: Dia *2 in.* Length *14 ft.* Type *PVC*
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller ____ Log By *T. Maynard* Date *06/27/00* Permit # ____
Checked By ____ License No. ____

See Site Map
For Boring Location

COMMENTS:

Well not sampled for soil.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2							
4							
6							
8							
10							
12							
14							

Drilling Log

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Monitoring Well **IPZ-2**

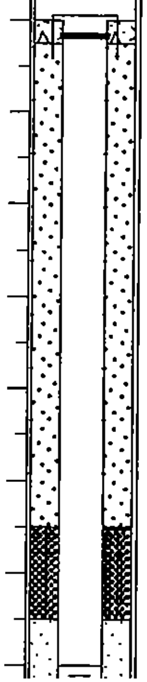
Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *24 ft.* Diameter *4 1/4 in.*
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia *2 in.* Length *10 ft.* Type/Size *0.02 in.*
Casing: Dia *2 in.* Length *14 ft.* Type *PVC*
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller ______ Log By *T. Maynard* Date *06/27/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Well not sampled for soil.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2							
4							
6							
8							
10							
12							
14							



Drilling Log

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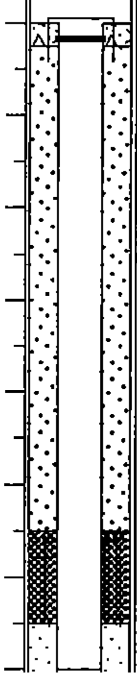
Monitoring Well **IPZ-3**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *24 ft.* Diameter *4 1/4 in.*
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia *2 in.* Length *10 ft.* Type/Size *0.02 in.*
Casing: Dia *2 in.* Length *14 ft.* Type *PVC*
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller ____ Log By *T. Maynard* Date *06/28/00* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Well not sampled for soil.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2							
4							
6							
8							
10							
12							
14							

Drilling Log

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Monitoring Well **TW-1**

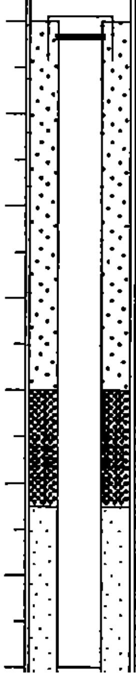
Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *24 ft.* Diameter *4 1/4 in.*
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia *2 in.* Length *10 ft.* Type/Size *PVC slot 0.010 in.*
Casing: Dia *2 in.* Length *14 ft.* Type *PVC*
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *K. Fuller* Log By *MEF* Date *9/18/00* Permit # ______
Checked By ______ License No. ______

See Site Map For Boring Location

COMMENTS:

Obervation Monitoring well construction log. Well not sampled for soil.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/	% Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2								
0								
2								
4								
6								
8								
10								
12								
14								



Drilling Log

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Monitoring Well **TW-2**

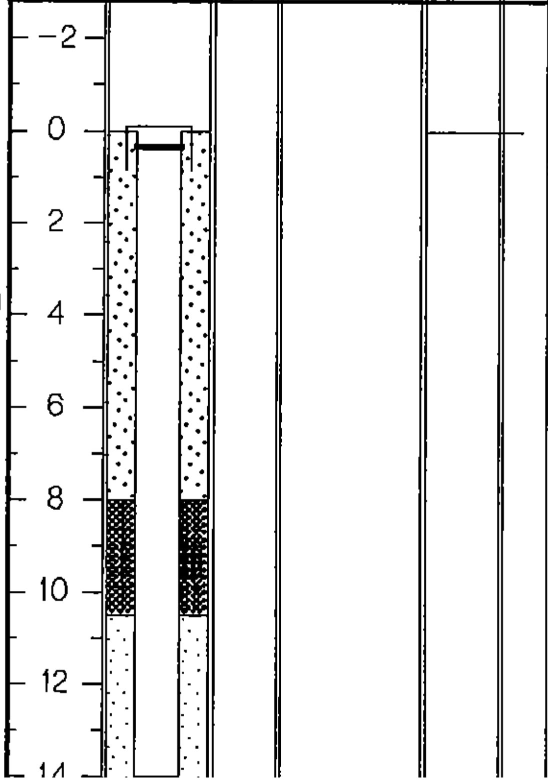
Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *24 ft.* Diameter *4 1/4 in.*
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia *2 in.* Length *10 ft.* Type/Size *PVC slot 0.010 in.*
Casing: Dia *2 in.* Length *14 ft.* Type *PVC*
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller *K. Fuller* Log By *MEF* Date *9/18/00* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Obervation Monitoring well construction log. Well not sampled for soil.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/	% Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%



IT CORPORATION
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Drilling Log

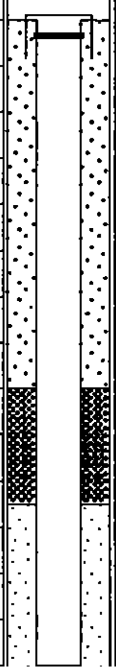
Monitoring Well **TW-3**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ____ Total Hole Depth *24 ft.* Diameter *4 1/4 in.*
Top of Casing ____ Water Level Initial ____ Static ____
Screen: Dia *2 in.* Length *10 ft.* Type/Size *PVC slot 0.010 in.*
Casing: Dia *2 in.* Length *14 ft.* Type *PVC*
Fill Material ____ Rig/Core ____
Drill Co. *SJB* Method *HSA*
Driller *K. Fuller* Log By *MEF* Date *9/19/00* Permit # ____
Checked By ____ License No. ____

See Site Map For Boring Location

COMMENTS:

Obervation Monitoring well construction log. Well not sampled for soil.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/	% Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2								
0								
2								
4								
6								
8								
10								
12								
14								

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **TW-4**

Project *SOH* Owner *Metalade*
Location *Henrietta, NY* Proj. No. *784222*
Surface Elev. ______ Total Hole Depth *24 ft.* Diameter *4 1/4 in.*
Top of Casing ______ Water Level Initial ______ Static ______
Screen: Dia *2 in.* Length *10 ft.* Type/Size *PVC slot 0.010 in.*
Casing: Dia *2 in.* Length *14 ft.* Type *PVC*
Fill Material ______ Rig/Core ______
Drill Co. *SJB* Method *HSA*
Driller *K. Fuller* Log By *MEF* Date *9/19/00* Permit # ______
Checked By ______ License No. ______

See Site Map
For Boring Location

COMMENTS:

Obervation Monitoring well construction log. Well not sampled for soil.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/	% Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
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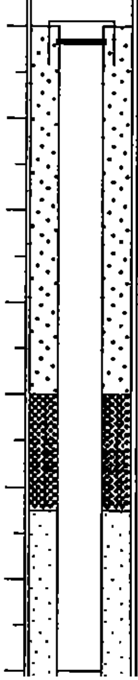
0								
2								
4								
6								
8								
10								
12								
14								



DESCRIPTION OF SURFACE SOIL SAMPLES
NYSDEC-SOH, Henrietta, NY

SAMPLE ID	SAMPLE DESCRIPTION
DD-1	Tan, sandy silt, some cohesion, organic, wet
DD-2	Tan sand, organic, wet
DD-3	Brown silty clay, good cohesion, organic (roots), damp
DD-4	Brown clay, some silt, trace gravel, trace organic, damp
DD-5	Brown silt, some clay, organic, wet
DD-6	Brown silt, some clay, good cohesion, organic
DD-7	Brown silt, some sand, little clay, some gravel, trace cobble
DD-8	Brown silt, some clay, good cohesion, organic
DD-9	Brown clay with silt, trace gravel, organic
DD-10	Brown silt & Gravel, little sand
DD-11	Black silt and organic
DD-12	Black sandy silt to red clay
DD-13	Black silt and organic
DD-14	Brown sandy silt, trace organic, dry
DD-15	Brown silt , little clay, little organics

Note: Samples collected November 30, 2000

APPENDIX C

LARSEN ENGINEERING'S REPORT

LARSEN ENGINEERS
700 West Metro Park
Rochester, New York 14623
(716) 272-7310 Fax (716)272-0159
E-Mail Address: info@larsen-engineers.com
WEB Page: LARSEN-ENGINEERS.COM

LETTER OF TRANSMITTAL

DATE: March 15, 2001	JOB NO. 25-4-5361
ATTENTION:	
RE:	

TO The IT Corporation
Attn: Paul Angelillo
2200 Cottontail Lane
Somerset, New Jersey 08873

WE ARE SENDING YOU ■ Attached ☐ Under separate cover via U.S. Postal Service (Regular Mail) the following items:

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ ______

COPIES	DATE	NO.	DESCRIPTION
1			A draft copy of the SOH Drain System Investigation Report

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ______ copies for approval

☐ For your use ☐ Reviewed as noted ☐ Submit ______ copies for distribution

STUART OLVER HOLTZ, INC. (SOH) DRAIN SYSTEM INVESTIGATION / FIELD REPORT

and

PRELIMINARY FINDINGS

Prepared for:

IT Corporation
2200 Cottontail Lane
Somerset, New Jersey

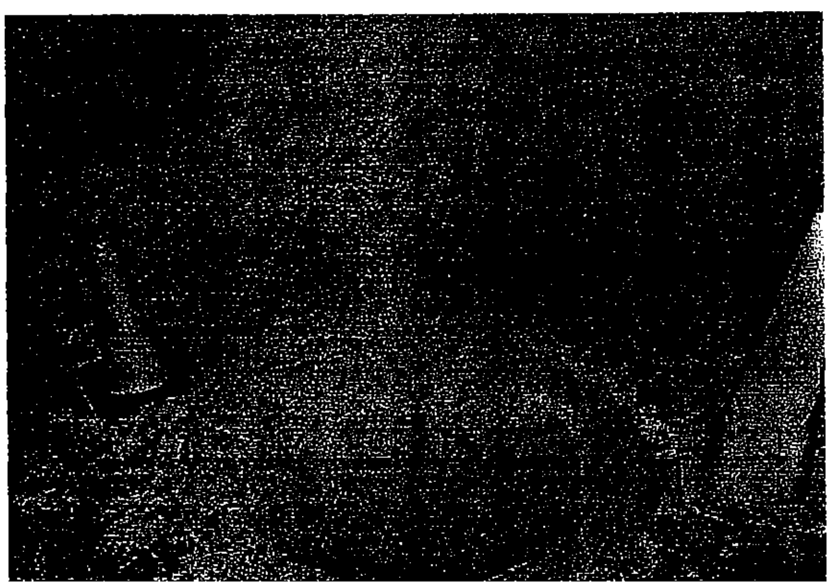


TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

Larsen Engineers was contracted by International Technologies Corporation (IT Corp) to conduct a Smoke Test Investigation per standard protocol for SSES investigation of the former Stuart Olver Holtz, Inc. (SOH) facility located at 39 Commerce Drive in the Town of Henrietta, County of Monroe, State of New York (Appendix A). A summary of all significant findings identified as per the results of this investigation is included in this preliminary field report.

2.0 PURPOSE

The purpose of this investigation was to confirm interior and exterior pathways of abandoned, uncapped, combined, or cross-connected storm and sanitary sewer lines identified at the SOH site. This investigation will link interior sewer pathways with confirmed public sanitary and storm sewer lines located adjacent to the SOH facility. Furthermore, this investigation will aid in identifying potential migration pathways of metal washing solvents; buffing, plating, or coating materials; and paints previously used in the operation of this metal finishing facility to the surrounding environment.

3.0 SITE HISTORY

3.1 Operational History

The project area was first developed in 1962 as Electro Chemical Products, Inc.; however, was soon evolved into the Stuart Olver Holtz, Inc. as the business and is associated property was passed on to successors. The SOH facility operated as a specialty metal finishing business, which painted, buffed and plated metal components/parts.

The SOH facility accumulated a significant number of waste solvent drums as part of its manufacturing operation. As such, SOH applied for a permit to operate a waste solvent recovery unit in 1980; however, due to changes in New York State regulation, the permit application was denied. Accordingly, the New York State Department of Environmental Conservation (NYSDEC) issued an enforcement order against SOH requiring the removal of all waste solvent containers known to be on-site (Note: a portion of these drums were observed leaking liquid materials into the surrounding environment). Subsequently, the SOH properly removed 200 waste solvent contained drums; however, only partially complied with the enforcement action as more than 100 drums remained on-site. After efforts to have the SOH facility instate a clean-up initiative were not successful, the site was listed as an inactive hazardous waste site.

In 1986 the SOH facility filed for Chapter 11 Bankruptcy and the property, which included the manufacturing facility, was transferred to Metalade, Inc., which owns, maintains and operates a

In 1987, a sub-surface site investigation revealed elevated readings of Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs) and Heavy Metal contamination within the property boundary of the SOH facility. Specifically, soil and groundwater samples were collected throughout the site, particularly in the vicinity of the drum storage area and analyzed to identify areas of the SOH site, which exhibited significant levels of contamination. In response to this discovery, the NYS DEC initiated and completed a Remedial Investigation (RI) to determine the nature and extent of any contamination present on the SOH site, which may have been released during past operational activities.

In general, the RI has confirmed that the SOH site contains VOC, SVOC, and Heavy Metal contamination at levels significantly above those of concern and could represent a potential public health risk. As such, soil and groundwater sample results indicated elevated readings of contamination above the NYSDEC Ambient Water Quality Standards or Guidance Values; and the NYSDEC Technical Assistance Guidance Memorandum (TAGM) 4046 for soil standards.

4.0 EXISTING SITE CONDITION

4.1 Exterior Conditions

The site occupies approximately 3.8 acres of mixed commercial-industrial land in the Town of Henrietta and includes a manufacturing building that occupies approximately 1.8 acres along the eastern portion of the site. The remaining portions of the facility constitute parking areas, an asphalt driveway and grass covered / landscaped areas.

The site is relatively flat and drains to the northwest; however, all impervious areas are drained via storm sewers and associated catch basins. Furthermore, a woody shrub and grass-covered swale, located along the western property boundary aids in draining the west portion of the site.

The site is bound on the east by several small businesses; on the west by Pullman Manufacturing; on the south by Ruby Gordon; and on the north by Commerce Drive and several other commercial properties.

The Town of Henrietta was contacted to review as-built sewer plans within the general vicinity of the project area. As such, these plans indicate two (2) sanitary sewer laterals, both extending in a north/south direction; however, one (1) is located beneath the SOH driveway / parking area, while the other is located along the western property boundary of the site. Each of the identified sanitary laterals ultimately connects to the sanitary sewer main along Commerce Drive. Note: the location of any public or private storm sewers and associated catch basins were field

The open trench system was presumably used not only as a drainage catch basin for liquids used in different operational stages of metal finishing, but also as one (1) method for routing interior sanitary/storm sewer piping throughout the facility. Generally, a open-grate trench typically identified within the SOH facility were approximately 2 feet wide by 2.5 feet deep and traversed throughout the operational portions of the building. At the time of the site investigation, various trench systems throughout the facility were missing open steel grate covers and were partial filled with saturated sediments.

The two (2) below grade vault areas are located in the northeastern portion of the facility, which according to the as-built sewer plan, are within the Plating room and Buffing room areas. The Plating room vault is approximately 6 feet wide by 8 feet in length and is presently covered with rotting plywood. At the time of the site investigation, the depth of this vault was undeterminable as there was no safe method of measurement and visual inspection was limited (poor lighting). It appears that this vault is laden with an unknown liquid material (Note: no liquid samples were taken from this area for laboratory identification/analysis). The Buffing room vault is currently accessed via a manhole located in the central portion of the room. The vault is approximately 8 feet wide by 16 feet in length and filled with a orangish-brown liquid substance. The depth of this vault was measured to be approximately 6 feet. (Note: two (2) liquid samples were collected from this vault area.)

An oil/water separator or sump structure, located in the shipping and receiving portion of the facility was also observed during the site investigation. The separator/sump structure is approximately 4 feet in diameter and contains varying amounts of water and sediment at a depth of 10 feet below the existing floor grade (Note: the separator/sump structure is covered by a manhole). A total of four (4) pipes, varying in size from 4 inch to 8 inch, drain to this detention area, and one (1) 8-inch pipe appears to exit the separator/sump structure and extend towards a public sanitary sewer. Note: The bottom depth of the separator/sump structure was undetermined; however, there is approximately 10 to 12 feet of sediment and water within this detention area.

5.0 METHODOLOGY USED DURING SMOKE TEST INVESTIGATION

A smoke test investigation will utilize liquid-smoke technologies to safely identify sanitary versus storm sewer connections and/or sewer cross-connections particularly associated with the interior plumbing layout of the SOH facility. All public sanitary and storm sewer lines have been identified and appropriately marked. Specifically, any identified public sanitary sewer has been identified as "PSS-##", where as all public storm sewers have been identified as "PST-##". Similarly, each identified sanitary sewer man-hole has been designated as SSMH-01 through SSMH-03, where as each public storm sewer manhole has been designated STSMH-01 through STSMH-03 (Appendix B) interior catch basins, interior manholes, and/or restroom locations. Photographic and video-graphic documentation of areas identified as "smoking" has been included as part of this preliminary report.

Note: The smoke test investigation was initiated on January 30, 2001; however, due to heavy rains and the seasons first significant snow melt, certain investigative measures could not be completed as planned. Therefore, a second field investigation was conducted on February 15, 2001 to complete all three (3) sanitary sewer manholes and three (3) storm sewer manholes. Furthermore, a roof drain observation was not conducted as part of this investigation.

6.0 FINDINGS

*Note: A interior floor plan sketch of the SOH facility, provided in Appendix B illustrate all injection point manholes, as well as designated sanitary or storm sewers.

6.1 Injection Point SSMH No. 1

The first "smoke" injection point was initiated at sanitary manhole SSMH-01, located in the driveway area of the SOH site, approximately 45 feet from the corner of the assembly portion of the building structure. As liquid smoke was injected into sanitary manhole SSMH-01, the field crew observed, "smoke" in the separator/sump detention area (SSMH-2). The separator/sump structure manhole was opened and "smoke" was observed emitting from an 8-inch pipe within the detention structure (Appendix C: PL-01). It appears that this pipe exits the separator/sump structure and according to the as-built sewer plans created for the SOH facility, drains into public sanitary sewer line PSS-1.

This 8-inch pipe, now identified as SS-A, can be designated as a sanitary line that connects the separator/sump structure in the shipping and receiving area to the public sanitary line (PSS-1) in the driveway area.. Furthermore, the separator/sump structure contains four (4) additional pipes, varying in size from 4-inch to 8-inch in diameter, which appear to drain the southern portion of the facility (inspection, stripping, scuff, storage, treatment and washer areas); however, no other "smoke" was identified within the building structure.

Additionally, sanitary line SS-A was video recorded for purposes of determining the internal condition of the sewer line. Based on the result of the analysis, the line appears to be severely corroded and may potentially contain minor cracking. There was no evidence of serve pipe failure.

6.2 Injection Point SSMH No. 2

rooms in the southeast portion of the facility as well as traverse through the inspection area. These identified lines follow the existing open-grate trench system and ultimately drain into the separator/sump detention area in the shipping and receiving room.

As liquid smoke was injected into sanitary manhole SSMH-02, the field crew observed, "smoke" in the northwest corner of the stripping room (Appendix C: PL-03). No other "smoke" was observed through the building structure as the result of initiating the smoke test at injection point SSMH-02.

Of the four (4) lines identified in the separator/sump structure, two (2) lines (SS-A and SS-B), which are not shown on the as-built drawings, are directed from the separator/sump structure to the northwest corner of the stripping room and where the lines that produced "smoke." The remaining lines, SS-D and SS-E appear to traverse the remaining southern portion the building; however, no other "smoke" was emitted. Note: many the floor drains and internal catch basins identified in the southern portion of the facility were choked with sediment and other foreign materials; therefore, the observable locations of "smoke" were limited.

Furthermore, sanitary lines SS-B, SS-C, SS-D, and portions of SS-E were video recorded for purposes of determining the internal condition of the sewer line. Based on the result of the analysis, these lines appear to be severely corroded and may potentially contain minor cracking; however, there was no evidence of serve pipe failure.

6.3 Injection point SSMH No. 3

The third smoke injection point was initiated at sanitary sewer manhole SSMH-03, located in the northeast corner of the site, directly adjacent to the building structure. According to the as-built sewer plans, this storm sewer line serves the north-central portion of the building, including the men's room, the screen print room, and the machine and spinning rooms. The purpose of this injection point was to better identify the purpose, origin, and condition of all the sanitary lines identified, via the as-built drawings.

As liquid smoke was injected into sanitary manhole SSMH-03, the field crew observed no "smoke" in any of the floor drains, vents, or restroom facilities located in the north-central portion of the building structure. Note: video recording these lines was not accomplished as partial capped lines prevent camera entry.

6.4 Injection Point STS No. 1

The fourth smoke injection point was initiated at storm sewer manhole STS-03, located along the

Furthermore, this storm line was video recorded for purposes of determining the internal condition of the pipe. Based on the result of the analysis, the line appears contains large amounts of sediment/rock. There was no evidence of serve pipe failure.

6.5 Injection Point STS No. 2

The fifth smoke injection point was initiated at storm sewer manhole STS-02, located in the driveway area, directly adjacent to Commerce Drive. This sewer line is shown on the as-built drawings as a storm sewer line-serving floor drains in the assembly room, the paint shop, and in the men's room, as well as various roof drains. Note: a roof drain observation was not conducted as part of this investigation.

As liquid smoke was not injected into storm sewer manhole STSH-02, as the sewer pipe was completely inundated with storm water.

Furthermore, this storm line was not video recorded as the storm sewer pipe was completely inundated with storm water.

6.6 Injection Point STS No. 3

The sixth smoke injection point was initiated at storm sewer manhole STS-01, which is located in the northeastern portion of the site (in the lawn area). This manhole line is not shown on the as-built drawings; however, two (2) storm water lines appear to extend into the building structure.

As liquid smoke was injected into storm sewer manhole STSH-01, the field crew observed no "smoke" in any of the floor drains, or restroom facilities located within the building structure.

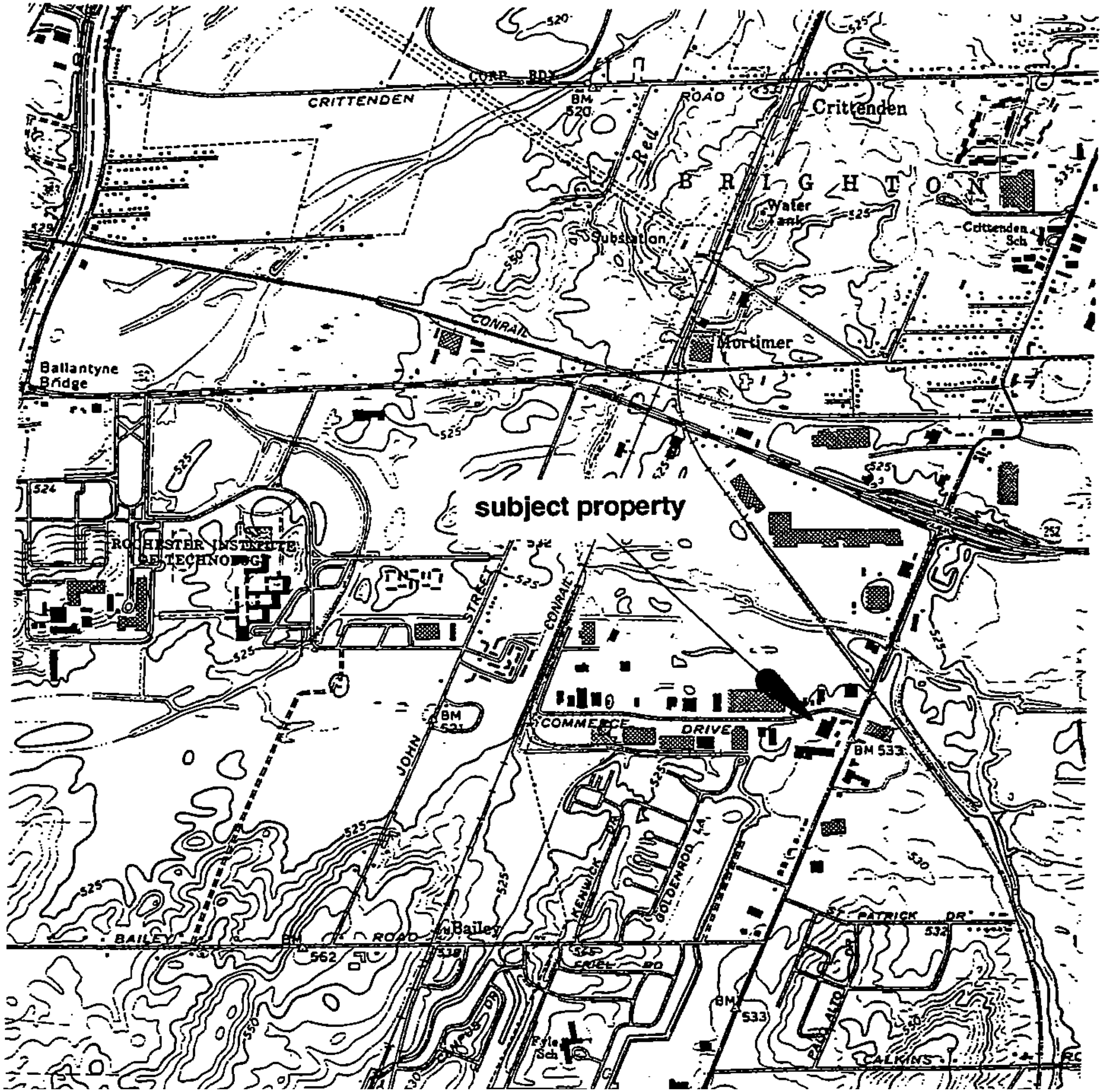
Furthermore, this storm line was video recorded for purposes of determining the internal condition of the pipe. Based on the result of the analysis, the line appears to be blocked with varying amounts of sediment. There was no evidence of serve pipe failure.

7.0 LIMITING CONDITIONS

It is important to comment that the smoke test investigation was limited, in-terms of the number of "smoke" emitting structures within the SOH facility, as many floor drains, vents, and internal catch basins were choked with sediment; therefore, not allowing "smoke" to emit from these locations (Appendix C: Pl-07 and PL-08). Furthermore, restroom facilities (toilets, sinks, showers, and wash stations) were unable to emit the indicator "smoke" as their traps are currently functioning.

Although a portion of this investigation was inconclusive, a significant conclusion can be formed regarding the southern portions of the SOH facility. The smoke test investigation confirmed that sanitary sewers lines, SS-B, SS-C, SS-D, SS-E and SS-F drain the southern portion of the SOH facility and empty into the separator/sump structure located in the shipping and receiving area of the facility. Furthermore, an 8-inch pipe (SS-A) located in the separator/sump structure extends from the SOH facility and empties into a dedicated (public) sanitary sewer line (PSS-1), located in the driveway area of the SOH site.

As stated previously, the serve corrosion and minor cracking observed within this pipe provide evidence to support the conclusion that the potential migration of contaminates used in operational methods of the SOH facility were released into the surrounding environment via this 8-inch sanitary lateral.



CORP BDY
CRITTENDEN
ROAD
BM 520
Crittenden
Reil
B R I G H T O N
Water Tank
Substation
Crittenden Sch
CONRAIL
Mortimer
Ballantyne Bridge
ROCHESTER INSTITUTE OF TECHNOLOGY
subject property
JOHN STREET
CONRAIL
BM 521
COMMERCE DRIVE
BM 533
KENWICK
GOLDENROD LA
ST PATRICK DR
BAILEY ROAD
Bailey
562
BM 533
PALO ALTO
CALKINS

LARSEN ENGINEERS
700 WEST METRO PARK, ROCHESTER, NY 14623-2673
716-272-7310 FAX 716-272-0159

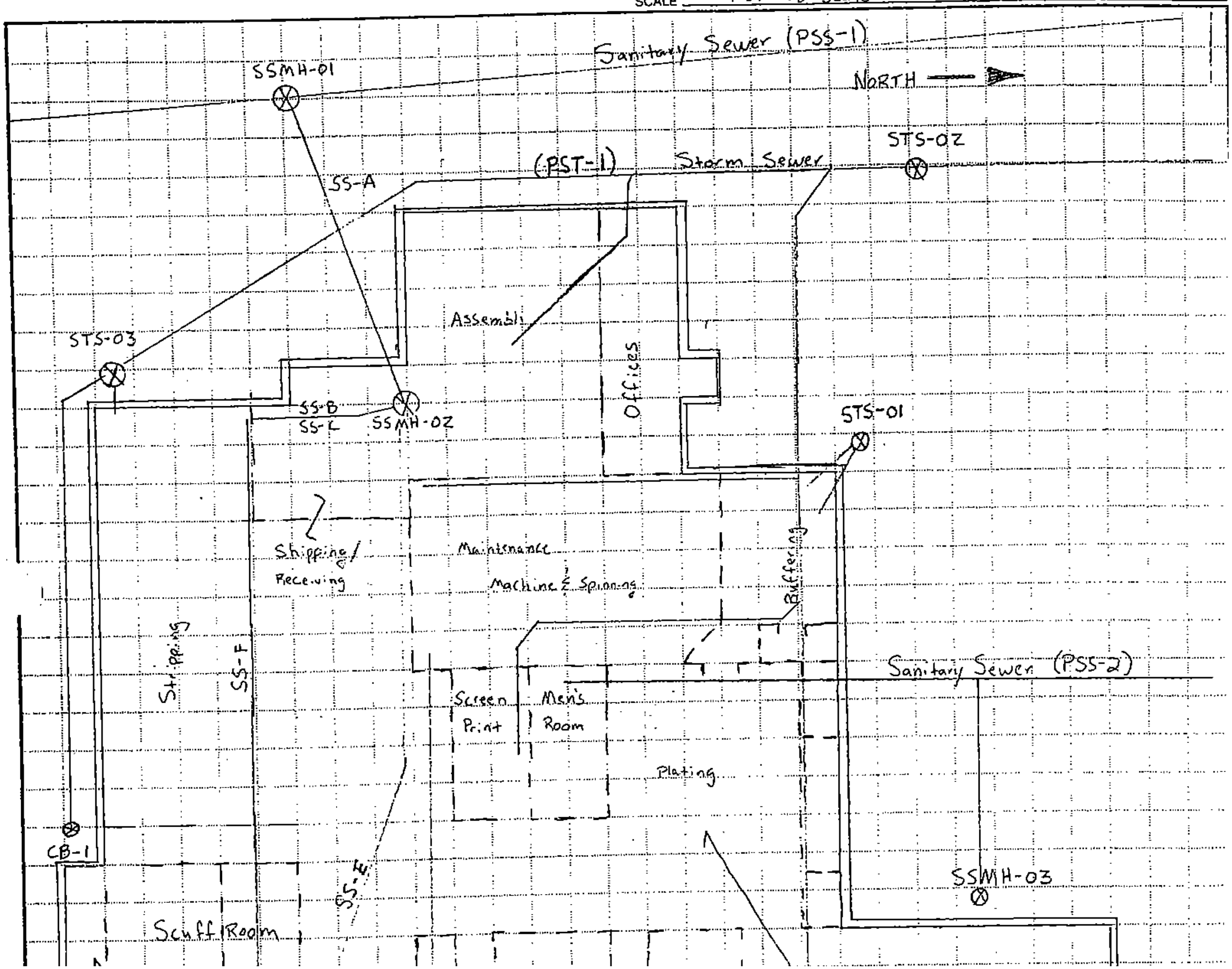
JOB SoH Floor Plan layout

SHEET NO. ________ OF ________

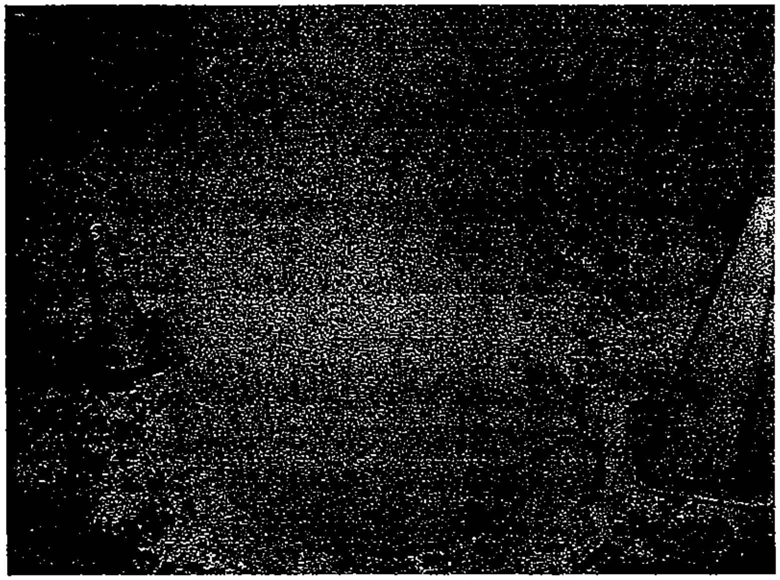
CALCULATED BY ________ DATE ________

CHECKED BY ________ DATE ________

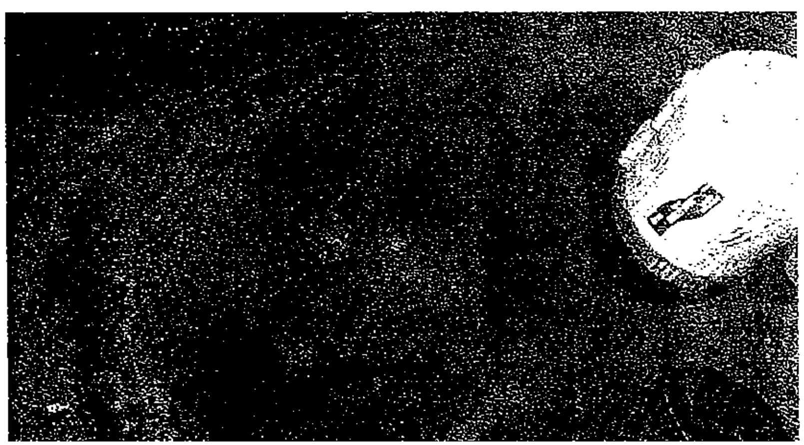
SCALE Not to Scale

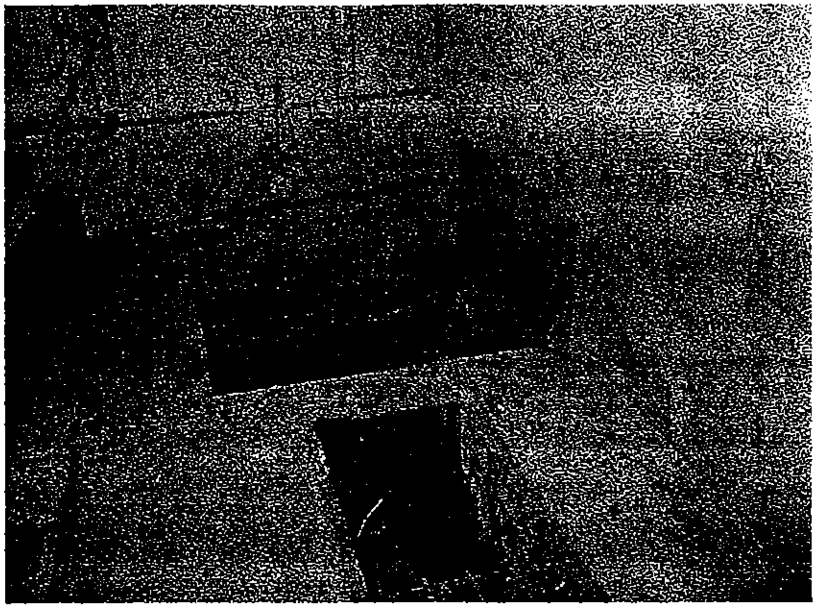


PHOTGRAPHIC DOCUMENTATION
39 COMMERCE DRIVE
Stuart Olver Holtz, Inc.

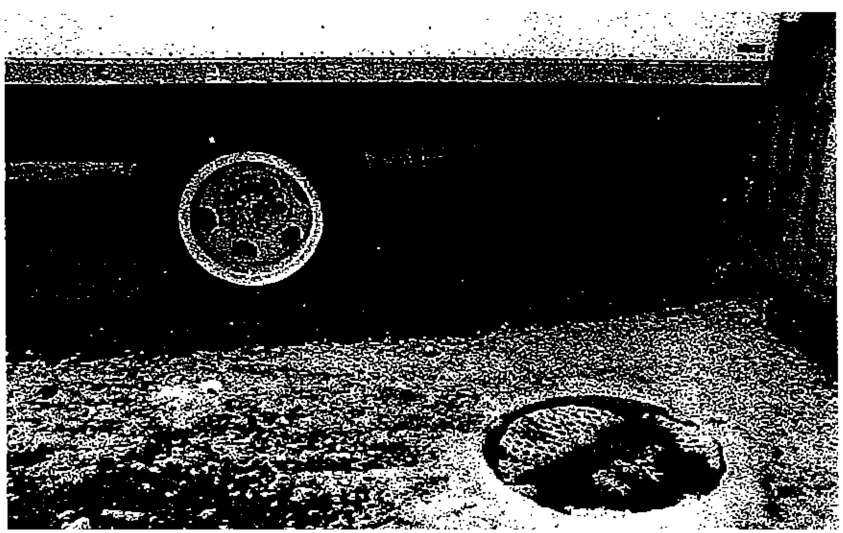


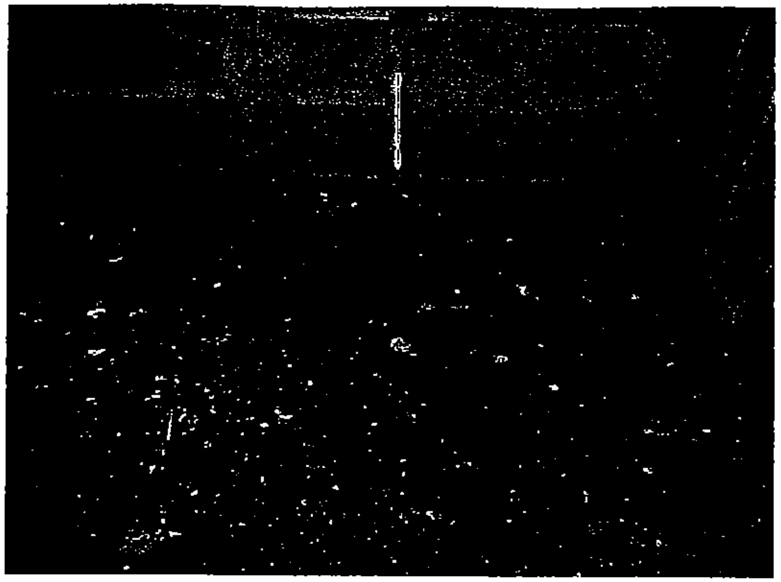
PL-01: "Smoke" emitting from SSMH-02



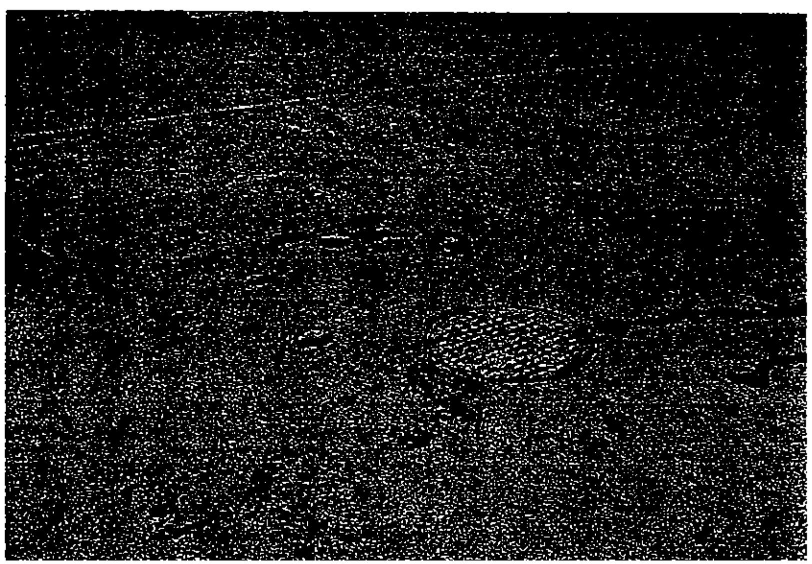


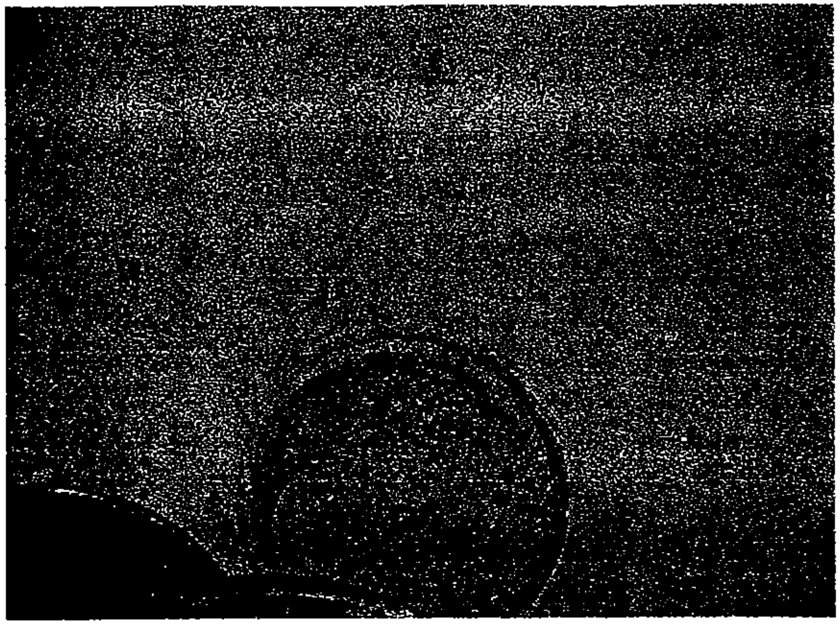
PL-03: Collection basin in the northwest corner of Stripping area emitting "smoke."



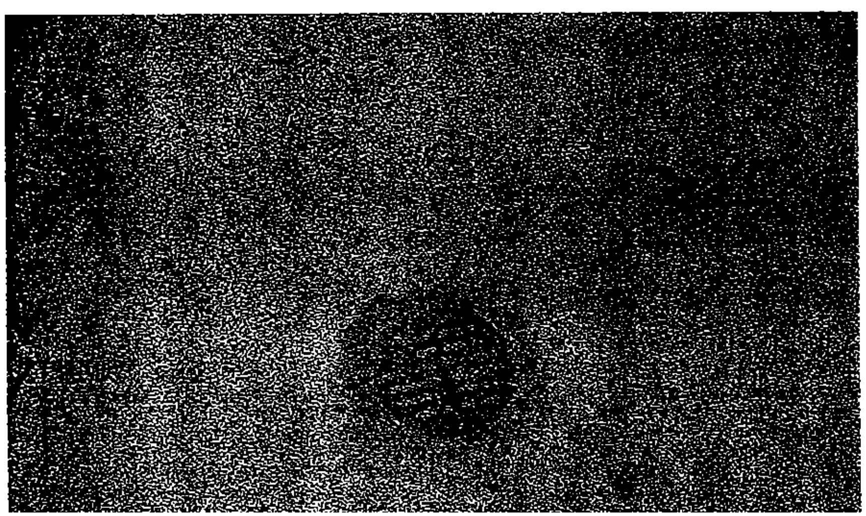


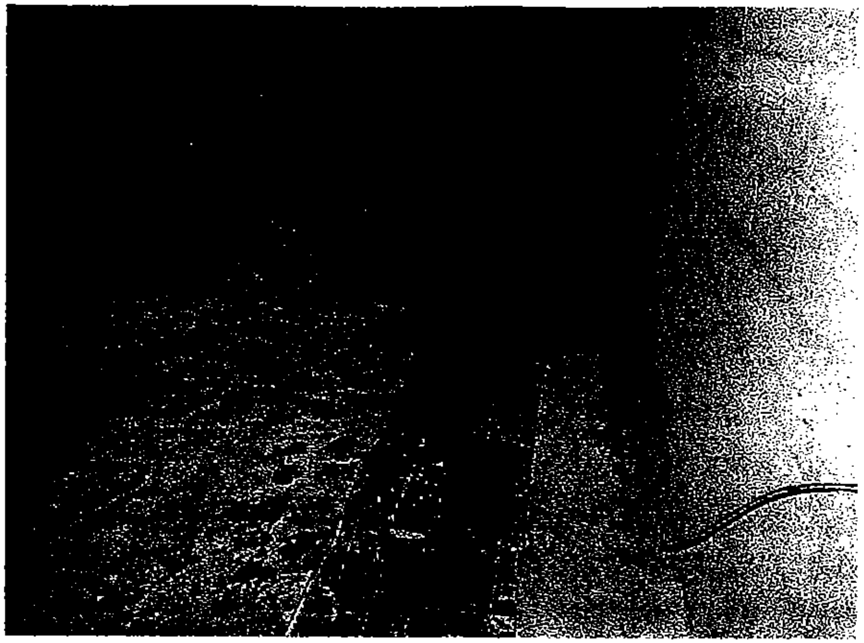
PL-05: Vault area in plating area. Notice: rotten plywood cover.





PL:07: Plugged floor drain in plating area.





PL:9: Typical floor trench system observed throughout the facility.

APPENDIX D

LABORATORY ANALYTICAL DATA

Appendix D
List of Tables

Appendix D
NYSDEC – SOH, Henrietta, NY

Table Notes (General):

---: indicates not analyzed

Unless otherwise specified by the validation, if a sample was analyzed once with acceptable results, the results from the first analysis were reported

J – estimated Value

D – Result from a secondary dilution

DNR – Do not report, duplicate result exist due to dilution or re-analysis, this result should not be reported

U – Not detected above the reported sample quantitation limit

R – Rejected data

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-1 4-6A 70751004 05/17/2000	SB-1 6-8C 70751006 05/18/2000	SB-1 8-10B 70751007 05/18/2000	SB-1 10-12B 70751010 05/18/2000
TOC	---	---	0.7	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	13 UJ	10 UJ	---	310 J
1,1,2,2-Tetrachloroethane	13 UJ	10 UJ	---	27 UJ
1,1,2-Trichloroethane	13 UJ	10 UJ	---	27 UJ
1,1-Dichloroethane	13 UJ	10 UJ	---	92 J
1,1-Dichloroethene	13 UJ	10 UJ	---	33 J
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	13 UJ	10 UJ	---	27 UJ
1,2-Dichloroethene (Total)	13 UJ	10 UJ	---	38 J
1,2-Dichloropropane	13 UJ	10 UJ	---	27 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	13 UJ	10 UJ	---	25 J
2-Hexanone	13 UJ	10 UJ	---	27 UJ
4-Methyl-2-Pentanone	13 UJ	10 UJ	---	27 UJ
Acetone	13 UJ	10 UJ	---	43 UJ
Benzene	13 UJ	10 UJ	---	27 UJ
Bromodichloromethane	13 UJ	10 UJ	---	27 UJ
Bromoform	13 UJ	10 UJ	---	27 UJ
Bromomethane	13 UJ	10 UJ	---	27 UJ
Carbon Disulfide	13 UJ	10 UJ	---	27 UJ
Carbon Tetrachloride	13 UJ	10 UJ	---	27 UJ
Chlorobenzene	13 UJ	10 UJ	---	27 UJ
Chloroethane	13 UJ	10 UJ	---	27 UJ
Chloroform	13 UJ	10 UJ	---	27 UJ
Chloromethane	13 UJ	10 UJ	---	27 UJ
cis-1,3-Dichloropropene	13 UJ	10 UJ	---	27 UJ
Dibromochloromethane	13 UJ	10 UJ	---	27 UJ
Ethylbenzene	13 UJ	10 UJ	---	27 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	13 UJ	10 UJ	---	54 UJ

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-1 10-12C 70751011 05/18/2000	SB-1 12-14A 70751012 05/18/2000	SB-1 16-18D 70751008 05/18/2000	SB-1 CUTTINGS 70751009 05/18/2000
TOC	---	---	0.5	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	320 JD	23 J	---	14 J
1,1,2,2-Tetrachloroethane	11 UJ	11 UJ	---	45 UJ
1,1,2-Trichloroethane	11 UJ	11 UJ	---	45 UJ
1,1-Dichloroethane	130 J	3 J	---	130 J
1,1-Dichloroethene	75 J	11 UJ	---	15 J
1,2,4-Trichlorobenzene	---	---	---	380 UJ
1,2-Dichlorobenzene	---	---	---	380 UJ
1,2-Dichloroethane	11 UJ	11 UJ	---	45 UJ
1,2-Dichloroethene (Total)	95 J	3 J	---	40 J
1,2-Dichloropropane	11 UJ	11 UJ	---	45 UJ
1,3-Dichlorobenzene	---	---	---	380 UJ
1,4-Dichlorobenzene	---	---	---	380 UJ
2-Butanone	41 J	11 UJ	---	45 UJ
2-Hexanone	11 UJ	11 UJ	---	45 UJ
4-Methyl-2-Pentanone	5 J	11 UJ	---	45 UJ
Acetone	57 UJ	19 UJ	---	45 UJ
Benzene	11 UJ	11 UJ	---	45 UJ
Bromodichloromethane	11 UJ	11 UJ	---	45 UJ
Bromoform	11 UJ	11 UJ	---	45 UJ
Bromomethane	11 UJ	11 UJ	---	45 UJ
Carbon Disulfide	11 UJ	11 UJ	---	45 UJ
Carbon Tetrachloride	11 UJ	11 UJ	---	45 UJ
Chlorobenzene	11 UJ	11 UJ	---	45 UJ
Chloroethane	11 UJ	11 UJ	---	45 UJ
Chloroform	11 UJ	11 UJ	---	45 UJ
Chloromethane	11 UJ	11 UJ	---	45 UJ
cis-1,3-Dichloropropene	11 UJ	11 UJ	---	45 UJ
Dibromochloromethane	11 UJ	11 UJ	---	45 UJ
Ethylbenzene	1 J	11 UJ	---	45 UJ
Hexachlorobutadiene	---	---	---	380 UJ
Methylene Chloride	130 J	11 UJ	---	73 UJ
Naphthalene	---	---	---	380 UJ

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-2 18-20D 70751013 05/19/2000	SB-2 20-22B 70751014 05/19/2000	SB-2 20-22C 70751015 05/19/2000	SB-2 40-42A 70751016 05/19/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	30 J	46 UJ	2 J	2 J
1,1,2,2-Tetrachloroethane	9 UJ	46 UJ	11 UJ	12 UJ
1,1,2-Trichloroethane	9 UJ	46 UJ	6 J	6 J
1,1-Dichloroethane	26 J	46 UJ	16 J	15 J
1,1-Dichloroethene	11 J	46 UJ	11 UJ	12 UJ
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	9 UJ	46 UJ	11 UJ	12 UJ
1,2-Dichloroethene (Total)	95 J	46 UJ	79 J	75 J
1,2-Dichloropropane	9 UJ	46 UJ	11 UJ	12 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	25 J	46 UJ	37 J	41 J
2-Hexanone	9 UJ	46 UJ	11 UJ	12 UJ
4-Methyl-2-Pentanone	9 UJ	46 UJ	18 J	22 J
Acetone	140 J	320 J	350 J	410 J
Benzene	9 UJ	46 UJ	11 UJ	12 UJ
Bromodichloromethane	9 UJ	46 UJ	11 UJ	12 UJ
Bromoform	9 UJ	46 UJ	11 UJ	12 UJ
Bromomethane	9 UJ	46 UJ	11 UJ	12 UJ
Carbon Disulfide	9 UJ	46 UJ	11 UJ	5 J
Carbon Tetrachloride	9 UJ	46 UJ	11 UJ	12 UJ
Chlorobenzene	9 UJ	46 UJ	11 UJ	12 UJ
Chloroethane	9 UJ	46 UJ	11 UJ	12 UJ
Chloroform	9 UJ	46 UJ	11 UJ	12 UJ
Chloromethane	9 UJ	46 UJ	11 UJ	12 UJ
cis-1,3-Dichloropropene	9 UJ	46 UJ	11 UJ	12 UJ
Dibromochloromethane	9 UJ	46 UJ	11 UJ	12 UJ
Ethylbenzene	9 UJ	46 UJ	11 UJ	12 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	18 UJ	46 UJ	36 J	32 UJ
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-3 16-18C 70768001 05/22/2000	SB-3 28-30A 70768002 05/22/2000	SB-3 30-32A 70768003 05/22/2000	SB-4 4-6B 70713001 05/11/2000
TOC	---	---	---	0.56 U
Volatiles (ug/kg)				
1,1,1-Trichloroethane	7200 UJ	1400 UJ	11 UJ	---
1,1,2,2-Tetrachloroethane	7200 UJ	1400 UJ	11 UJ	---
1,1,2-Trichloroethane	7200 UJ	1400 UJ	11 UJ	---
1,1-Dichloroethane	7200 UJ	1400 UJ	11 UJ	---
1,1-Dichloroethene	7200 UJ	1400 UJ	11 UJ	---
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	7200 UJ	1400 UJ	11 UJ	---
1,2-Dichloroethene (Total)	1500 J	1400 UJ	13 J	---
1,2-Dichloropropane	7200 UJ	1400 UJ	11 UJ	---
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	7200 UJ	1400 UJ	11 UJ	---
2-Hexanone	7200 UJ	1400 UJ	11 UJ	---
4-Methyl-2-Pentanone	7200 UJ	1400 UJ	11 UJ	---
Acetone	2400 J	1400 UJ	28 UJ	---
Benzene	7200 UJ	1400 UJ	11 UJ	---
Bromodichloromethane	7200 UJ	1400 UJ	11 UJ	---
Bromoform	7200 UJ	1400 UJ	11 UJ	---
Bromomethane	7200 UJ	1400 UJ	11 UJ	---
Carbon Disulfide	7200 UJ	1400 UJ	11 UJ	---
Carbon Tetrachloride	7200 UJ	1400 UJ	11 UJ	---
Chlorobenzene	7200 UJ	1400 UJ	11 UJ	---
Chloroethane	7200 UJ	1400 UJ	11 UJ	---
Chloroform	7200 UJ	1400 UJ	11 UJ	---
Chloromethane	7200 UJ	1400 UJ	11 UJ	---
cis-1,3-Dichloropropene	7200 UJ	1400 UJ	11 UJ	---
Dibromochloromethane	7200 UJ	1400 UJ	11 UJ	---
Ethylbenzene	7200 UJ	1400 UJ	1 J	---
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	7200 UJ	1400 UJ	17 J	---
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-4 14-16B 70713004 05/11/2000	SB-4 16-18A 70713005 05/11/2000	SB-4 16-18B 70713006 05/11/2000	SB-4 26-28A 70713002 05/11/2000
TOC	---	---	---	2.34 U
Volatiles (ug/kg)				
1,1,1-Trichloroethane	19 UJ	27 UJ	100 UJ	---
1,1,2,2-Tetrachloroethane	19 UJ	27 UJ	100 UJ	---
1,1,2-Trichloroethane	19 UJ	4 J	100 UJ	---
1,1-Dichloroethane	7 J	11 J	100 UJ	---
1,1-Dichloroethene	19 UJ	27 UJ	100 UJ	---
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	19 UJ	27 UJ	100 UJ	---
1,2-Dichloroethene (Total)	4 J	10 J	100 UJ	---
1,2-Dichloropropane	19 UJ	27 UJ	100 UJ	---
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	100 J	72 J	100 UJ	---
2-Hexanone	19 UJ	27 UJ	100 UJ	---
4-Methyl-2-Pentanone	23 J	27 UJ	100 UJ	---
Acetone	230 J	210 J	110 UJ	---
Benzene	19 UJ	27 UJ	100 UJ	---
Bromodichloromethane	19 UJ	27 UJ	100 UJ	---
Bromoform	19 UJ	27 UJ	100 UJ	---
Bromomethane	19 UJ	27 UJ	100 UJ	---
Carbon Disulfide	19 UJ	27 UJ	100 UJ	---
Carbon Tetrachloride	19 UJ	27 UJ	100 UJ	---
Chlorobenzene	19 UJ	27 UJ	100 UJ	---
Chloroethane	19 UJ	27 UJ	100 UJ	---
Chloroform	19 UJ	27 UJ	100 UJ	---
Chloromethane	19 UJ	27 UJ	100 UJ	---
cis-1,3-Dichloropropene	19 UJ	27 UJ	100 UJ	---
Dibromochloromethane	19 UJ	27 UJ	100 UJ	---
Ethylbenzene	19 UJ	27 UJ	100 UJ	---
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	62 J	270 J	100 UJ	---
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-5 10-12A '70713007 05/12/2000	SB-5 22-24B 70713009 05/12/2000	SB-5 22-24B 70713009RE 05/12/2000	SB-5 24-26A 70713008 05/12/2000
TOC	1.69 U	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	---	DNR	41 UJ	100 UJ
1,1,2,2-Tetrachloroethane	---	DNR	41 UJ	100 UJ
1,1,2-Trichloroethane	---	DNR	41 UJ	100 UJ
1,1-Dichloroethane	---	DNR	41 UJ	100 UJ
1,1-Dichloroethene	---	DNR	41 UJ	100 UJ
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	---	DNR	41 UJ	100 UJ
1,2-Dichloroethene (Total)	---	DNR	41 UJ	100 UJ
1,2-Dichloropropane	---	DNR	41 UJ	100 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	---	DNR	41 UJ	100 UJ
2-Hexanone	---	DNR	41 UJ	100 UJ
4-Methyl-2-Pentanone	---	DNR	41 UJ	100 UJ
Acetone	---	470	DNR	720 J
Benzene	---	DNR	41 UJ	100 UJ
Bromodichloromethane	---	DNR	41 UJ	100 UJ
Bromoform	---	DNR	41 UJ	100 UJ
Bromomethane	---	DNR	41 UJ	100 UJ
Carbon Disulfide	---	DNR	41 UJ	100 UJ
Carbon Tetrachloride	---	DNR	41 UJ	100 UJ
Chlorobenzene	---	DNR	41 UJ	100 UJ
Chloroethane	---	DNR	41 UJ	100 UJ
Chloroform	---	DNR	41 UJ	100 UJ
Chloromethane	---	DNR	41 UJ	100 UJ
cis-1,3-Dichloropropene	---	DNR	41 UJ	100 UJ
Dibromochloromethane	---	DNR	41 UJ	100 UJ
Ethylbenzene	---	DNR	41 UJ	100 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	---	DNR	41 UJ	100 UJ
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-5 30-32A 70733001 05/15/2000	SB-6 4-6C 70733007 05/15/2000	SB-6 10-12A 70733002 5/15/00	SB-6 10-12C 70733009 05/15/2000
TOC	---	---	30.9	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	37 J	20	---	310 JD
1,1,2,2-Tetrachloroethane	11 U	11 U	---	10 U
1,1,2-Trichloroethane	11 U	11 U	---	10 U
1,1-Dichloroethane	8 J	11 U	---	15
1,1-Dichloroethene	11 U	11 U	---	10 U
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	11 U	11 U	---	10 U
1,2-Dichloroethene (Total)	24 J	11 U	---	11
1,2-Dichloropropane	11 U	11 U	---	10 U
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	11 UJ	11 U	---	10 UJ
2-Hexanone	11 U	11 U	---	10 U
4-Methyl-2-Pentanone	11 U	11 U	---	10 U
Acetone	52 UJ	16 U	---	11 UJ
Benzene	11 U	11 U	---	10 U
Bromodichloromethane	11 U	11 U	---	10 U
Bromoform	11 U	11 U	---	10 U
Bromomethane	11 U	11 U	---	10 U
Carbon Disulfide	11 U	11 U	---	10 U
Carbon Tetrachloride	11 UJ	11 U	---	10 UJ
Chlorobenzene	11 U	11 U	---	10 U
Chloroethane	11 UJ	11 U	---	10 UJ
Chloroform	11 U	11 U	---	10 U
Chloromethane	11 U	11 U	---	10 U
cis-1,3-Dichloropropene	11 U	11 U	---	10 U
Dibromochloromethane	11 U	11 U	---	10 U
Ethylbenzene	11 U	2	---	10 U
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	13 U	11 U	---	10 U
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-6 20-22A 70733008 05/15/2000	SB-6 30-32A 70733003 5/15/00	SB-6 34-36A 70733005 05/16/2000	SBX-6 4-6A 70733010 05/17/2000
TOC	---	1.7	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	210D	---	29 J	8900
1,1,2,2-Tetrachloroethane	10 U	---	10 U	1200 U
1,1,2-Trichloroethane	10 U	---	10 U	1200 U
1,1-Dichloroethane	240D	---	40	1200 U
1,1-Dichloroethene	10 U	---	10 U	1200 U
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	10 U	---	10 U	1200 U
1,2-Dichloroethene (Total)	10 U	---	10 U	1200 U
1,2-Dichloropropane	10 U	---	10 U	1200 U
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	10 UJ	---	10 UJ	1200 UJ
2-Hexanone	10 U	---	10 U	1200 U
4-Methyl-2-Pentanone	10 U	---	10 U	1200 U
Acetone	26 UJ	---	10 U	1200 U
Benzene	10 U	---	10 U	1200 U
Bromodichloromethane	10 U	---	10 U	1200 U
Bromoform	10 U	---	10 U	1200 U
Bromomethane	10 U	---	10 U	1200 U
Carbon Disulfide	10 U	---	10 U	1200 U
Carbon Tetrachloride	10 UJ	---	10 U	1200 U
Chlorobenzene	10 U	---	10 U	1200 U
Chloroethane	10 UJ	---	10 U	1200 U
Chloroform	10 U	---	10 U	1200 U
Chloromethane	10 U	---	10 U	1200 U
cis-1,3-Dichloropropene	10 U	---	10 U	1200 U
Dibromochloromethane	10 U	---	10 U	1200 U
Ethylbenzene	10 U	---	10 U	700
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	140	---	12 U	1200 U
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SBX-6 4-6B 70751001 05/17/2000	SBX-6 40-42C 70751003 05/17/2000	SBX-6 6-8B 70751002 05/17/2000	SB7 (16-18) D 70688009 05/09/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	73 J	51 UJ	350 JD	57 UJ
1,1,2,2-Tetrachloroethane	47 UJ	51 UJ	11 UJ	57 UJ
1,1,2-Trichloroethane	47 UJ	51 UJ	11 UJ	57 UJ
1,1-Dichloroethane	47 UJ	51 UJ	37 J	73 J
1,1-Dichloroethene	47 UJ	51 UJ	34 J	10 J
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	47 UJ	51 UJ	11 UJ	57 UJ
1,2-Dichloroethene (Total)	47 UJ	51 UJ	11 UJ	33 J
1,2-Dichloropropane	47 UJ	51 UJ	11 UJ	57 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	47 UJ	51 UJ	11 UJ	57 UJ
2-Hexanone	47 UJ	51 UJ	11 UJ	57 UJ
4-Methyl-2-Pentanone	47 UJ	51 UJ	11 UJ	57 UJ
Acetone	53 UJ	51 UJ	16 UJ	57 UJ
Benzene	47 UJ	51 UJ	11 UJ	57 UJ
Bromodichloromethane	47 UJ	51 UJ	11 UJ	57 UJ
Bromoform	47 UJ	51 UJ	11 UJ	57 UJ
Bromomethane	47 UJ	51 UJ	11 UJ	57 UJ
Carbon Disulfide	47 UJ	51 UJ	11 UJ	57 UJ
Carbon Tetrachloride	47 UJ	51 UJ	11 UJ	57 UJ
Chlorobenzene	47 UJ	51 UJ	11 UJ	57 UJ
Chloroethane	47 UJ	51 UJ	11 UJ	57 UJ
Chloroform	47 UJ	51 UJ	11 UJ	57 UJ
Chloromethane	47 UJ	51 UJ	11 UJ	57 UJ
cis-1,3-Dichloropropene	47 UJ	51 UJ	11 UJ	57 UJ
Dibromochloromethane	47 UJ	51 UJ	11 UJ	57 UJ
Ethylbenzene	110 J	51 UJ	24 J	57 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	47 UJ	51 UJ	30 UJ	57 UJ
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB7 (18-20) A 70688008 05/09/2000	SB7 (34-36) A 70688010 05/09/2000	SB-8 (26-28) B 70688004 05/08/2000	SB-8 (26-28) C 70688005 05/08/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	7 J	11 UJ	11 UJ	12 UJ
1,1,2,2-Tetrachloroethane	53 UJ	11 UJ	11 UJ	12 UJ
1,1,2-Trichloroethane	53 UJ	11 UJ	11 UJ	12 UJ
1,1-Dichloroethane	300 J	11 UJ	44 J	44 J
1,1-Dichloroethene	10 J	11 UJ	2 J	12 UJ
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	53 UJ	11 UJ	11 UJ	12 UJ
1,2-Dichloroethene (Total)	63 J	11 UJ	22 J	24 J
1,2-Dichloropropane	53 UJ	11 UJ	11 UJ	12 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	53 UJ	11 UJ	11 UJ	17 J
2-Hexanone	53 UJ	11 UJ	11 UJ	12 UJ
4-Methyl-2-Pentanone	53 UJ	11 UJ	3 J	6 J
Acetone	53 UJ	14 UJ	67 UJ	150 UJ
Benzene	53 UJ	11 UJ	11 UJ	12 UJ
Bromodichloromethane	53 UJ	11 UJ	11 UJ	12 UJ
Bromoform	53 UJ	11 UJ	11 UJ	12 UJ
Bromomethane	53 UJ	11 UJ	11 UJ	12 UJ
Carbon Disulfide	53 UJ	11 UJ	11 UJ	12 UJ
Carbon Tetrachloride	53 UJ	11 UJ	11 UJ	12 UJ
Chlorobenzene	53 UJ	11 UJ	11 UJ	12 UJ
Chloroethane	53 UJ	11 UJ	11 UJ	12 UJ
Chloroform	53 UJ	11 UJ	11 UJ	12 UJ
Chloromethane	53 UJ	11 UJ	11 UJ	12 UJ
cis-1,3-Dichloropropene	53 UJ	11 UJ	11 UJ	12 UJ
Dibromochloromethane	53 UJ	11 UJ	11 UJ	12 UJ
Ethylbenzene	53 UJ	11 UJ	11 UJ	1 J
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	78 UJ	11 UJ	250 J	370 J
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-8 (26-28) D 70688006 05/08/2000	SB-9 (18-20) A 70688001 05/05/2000	SB-9 (20-22) A 70688002 05/05/2000	SB-9 (34-36) A 70688003 05/05/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	11 UJ	12 UJ	11 UJ	12 UJ
1,1,2,2-Tetrachloroethane	11 UJ	12 UJ	11 UJ	12 UJ
1,1,2-Trichloroethane	11 UJ	12 UJ	11 UJ	12 UJ
1,1-Dichloroethane	51 J	21 J	66 J	7 J
1,1-Dichloroethene	11 UJ	12 UJ	11 UJ	12 UJ
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	11 UJ	12 UJ	11 UJ	12 UJ
1,2-Dichloroethene (Total)	33 J	12 UJ	11 UJ	12 UJ
1,2-Dichloropropane	11 UJ	12 UJ	11 UJ	12 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	11 UJ	12 UJ	11 UJ	12 UJ
2-Hexanone	11 UJ	12 UJ	11 UJ	12 UJ
4-Methyl-2-Pentanone	4 J	12 UJ	11 UJ	12 UJ
Acetone	110 UJ	12 UJ	11 UJ	28 UJ
Benzene	11 UJ	12 UJ	11 UJ	12 UJ
Bromodichloromethane	11 UJ	12 UJ	11 UJ	12 UJ
Bromoform	11 UJ	12 UJ	11 UJ	12 UJ
Bromomethane	11 UJ	12 UJ	11 UJ	12 UJ
Carbon Disulfide	11 UJ	12 UJ	11 UJ	12 UJ
Carbon Tetrachloride	11 UJ	12 UJ	11 UJ	12 UJ
Chlorobenzene	11 UJ	12 UJ	11 UJ	12 UJ
Chloroethane	11 UJ	12 UJ	11 UJ	12 UJ
Chloroform	11 UJ	12 UJ	11 UJ	12 UJ
Chloromethane	11 UJ	12 UJ	11 UJ	12 UJ
cis-1,3-Dichloropropene	11 UJ	12 UJ	11 UJ	12 UJ
Dibromochloromethane	11 UJ	12 UJ	11 UJ	12 UJ
Ethylbenzene	11 UJ	12 UJ	11 UJ	12 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	1500 JD	15 UJ	21 UJ	12 UJ
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-9 (34-36) A 70688003RE 05/05/2000	SB-10A (30-32) 70674004 05/03/2000	SB-10A (32-34) 70674005 05/03/2000	SB-10A (32-34) 70674006 05/03/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	DNR	19 UJ	89 UJ	42 UJ
1,1,2,2-Tetrachloroethane	DNR	19 UJ	89 UJ	42 UJ
1,1,2-Trichloroethane	DNR	19 UJ	89 UJ	42 UJ
1,1-Dichloroethane	DNR	18 J	94 J	42 UJ
1,1-Dichloroethene	DNR	19 UJ	89 UJ	42 UJ
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	DNR	19 UJ	89 UJ	42 UJ
1,2-Dichloroethene (Total)	DNR	7 J	37 J	42 UJ
1,2-Dichloropropane	DNR	19 UJ	89 UJ	42 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	DNR	19 UJ	89 UJ	42 UJ
2-Hexanone	DNR	19 UJ	89 UJ	42 UJ
4-Methyl-2-Pentanone	DNR	19 UJ	89 UJ	42 UJ
Acetone	DNR	9 J	89 UJ	42 UJ
Benzene	DNR	19 UJ	89 UJ	42 UJ
Bromodichloromethane	DNR	19 UJ	89 UJ	42 UJ
Bromoform	DNR	19 UJ	89 UJ	42 UJ
Bromomethane	DNR	19 UJ	89 UJ	42 UJ
Carbon Disulfide	DNR	19 UJ	89 UJ	42 UJ
Carbon Tetrachloride	DNR	19 UJ	89 UJ	42 UJ
Chlorobenzene	DNR	19 UJ	89 UJ	42 UJ
Chloroethane	DNR	19 UJ	89 UJ	42 UJ
Chloroform	DNR	19 UJ	89 UJ	42 UJ
Chloromethane	DNR	19 UJ	89 UJ	42 UJ
cis-1,3-Dichloropropene	DNR	19 UJ	89 UJ	42 UJ
Dibromochloromethane	DNR	19 UJ	89 UJ	42 UJ
Ethylbenzene	DNR	19 UJ	89 UJ	42 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	DNR	19 UJ	89 UJ	42 UJ
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-11 (38-40) C 70674007 05/02/2000	SB-11 (38-40) D 70674008 05/02/2000	SB-11 (40-42) D 70674009 05/02/2000	SB-12 (24-26) C 70674001 05/04/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	10 UJ	8 UJ	10 UJ	240 J
1,1,2,2-Tetrachloroethane	10 UJ	8 UJ	10 UJ	60 UJ
1,1,2-Trichloroethane	10 UJ	8 UJ	10 UJ	60 UJ
1,1-Dichloroethane	2 J	6 J	58 J	590 J
1,1-Dichloroethene	10 UJ	8 UJ	10 UJ	14 J
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	10 UJ	8 UJ	10 UJ	60 UJ
1,2-Dichloroethene (Total)	2 J	4 J	250 J	14 J
1,2-Dichloropropane	10 UJ	8 UJ	10 UJ	60 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	7 J	8 UJ	8 J	60 UJ
2-Hexanone	10 UJ	8 UJ	10 UJ	60 UJ
4-Methyl-2-Pentanone	10 UJ	8 UJ	10 UJ	60 UJ
Acetone	31 J	30 J	43 J	29 J
Benzene	10 UJ	8 UJ	10 UJ	60 UJ
Bromodichloromethane	10 UJ	8 UJ	10 UJ	60 UJ
Bromoform	10 UJ	8 UJ	10 UJ	60 UJ
Bromomethane	10 UJ	8 UJ	10 UJ	60 UJ
Carbon Disulfide	10 UJ	8 UJ	2 J	60 UJ
Carbon Tetrachloride	10 UJ	8 UJ	10 UJ	60 UJ
Chlorobenzene	10 UJ	8 UJ	10 UJ	60 UJ
Chloroethane	10 UJ	8 UJ	10 UJ	60 UJ
Chloroform	10 UJ	8 UJ	10 UJ	60 UJ
Chloromethane	10 UJ	8 UJ	10 UJ	60 UJ
cis-1,3-Dichloropropene	10 UJ	8 UJ	10 UJ	60 UJ
Dibromochloromethane	10 UJ	8 UJ	10 UJ	60 UJ
Ethylbenzene	10 UJ	8 UJ	10 UJ	60 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	4 J	38 J	370 J	97 J
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-12 (26-28) B 70674002 05/04/2000	SB-12 (26-28) D 70674003 05/04/2000	SB-15 18-20B 70768004 05/23/2000	SB-15 18-20C 70768005 05/23/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	230 J	10 J	1400 UJ	11 U
1,1,2,2-Tetrachloroethane	120 UJ	12 UJ	1400 UJ	11 U
1,1,2-Trichloroethane	120 UJ	12 UJ	1400 UJ	11 U
1,1-Dichloroethane	1200 J	85 J	1400 UJ	7
1,1-Dichloroethene	120 UJ	12 UJ	1400 UJ	11 UJ
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	120 UJ	12 UJ	1400 UJ	11 U
1,2-Dichloroethene (Total)	14 J	12 UJ	430 J	49
1,2-Dichloropropane	120 UJ	12 UJ	1400 UJ	11 U
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	120 UJ	11 J	1400 UJ	11 U
2-Hexanone	120 UJ	12 UJ	1400 UJ	11 U
4-Methyl-2-Pentanone	120 UJ	12 UJ	1400 UJ	11 U
Acetone	56 J	22 J	900 J	580 JD
Benzene	120 UJ	12 UJ	1400 UJ	11 U
Bromodichloromethane	120 UJ	12 UJ	1400 UJ	11 U
Bromoform	120 UJ	12 UJ	1400 UJ	11 U
Bromomethane	120 UJ	12 UJ	1400 UJ	11 U
Carbon Disulfide	120 UJ	12 UJ	1400 UJ	11 U
Carbon Tetrachloride	120 UJ	12 UJ	1400 UJ	11 U
Chlorobenzene	120 UJ	12 UJ	1400 UJ	11 U
Chloroethane	120 UJ	12 UJ	1400 UJ	11 U
Chloroform	120 UJ	12 UJ	1400 UJ	11 U
Chloromethane	120 UJ	12 UJ	1400 UJ	11 U
cis-1,3-Dichloropropene	120 UJ	12 UJ	1400 UJ	11 U
Dibromochloromethane	120 UJ	12 UJ	1400 UJ	11 U
Ethylbenzene	120 UJ	12 UJ	1400 UJ	1
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	280 J	38 J	1400 UJ	82
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-15 20-22A 70768006 05/23/2000	SB-16 26-28A 70866003 06/09/2000	SB-16 36-38A 70866004 06/09/2000	SB-16 44-46A 70866005 06/09/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	10 U	540000 U	1200 U	6 J
1,1,2,2-Tetrachloroethane	10 U	540000 U	1200 U	29 UJ
1,1,2-Trichloroethane	10 U	540000 U	1200 U	29 UJ
1,1-Dichloroethane	10 U	540000 U	1200 U	29 UJ
1,1-Dichloroethene	10 UJ	540000 U	1200 U	29 UJ
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	10 U	540000 U	1200 U	29 UJ
1,2-Dichloroethene (Total)	11	540000 U	1200 U	29 UJ
1,2-Dichloropropane	10 U	540000 U	1200 U	29 UJ
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	10 U	540000 U	1200 U	29 UJ
2-Hexanone	10 U	540000 UJ	1200 UJ	29 UJ
4-Methyl-2-Pentanone	10 U	540000 U	1200 U	29 UJ
Acetone	520 JD	540000 UJ	1200 UJ	29 UJ
Benzene	10 U	540000 U	1200 U	29 UJ
Bromodichloromethane	10 U	540000 U	1200 U	29 UJ
Bromoform	10 U	540000 U	1200 U	29 UJ
Bromomethane	10 U	540000 U	1200 U	29 UJ
Carbon Disulfide	10 U	540000 U	1200 U	29 UJ
Carbon Tetrachloride	10 U	540000 U	1200 U	29 UJ
Chlorobenzene	10 U	540000 U	1200 U	29 UJ
Chloroethane	10 U	540000 U	1200 U	29 UJ
Chloroform	10 U	540000 U	1200 U	29 UJ
Chloromethane	10 U	540000 U	1200 U	29 UJ
cis-1,3-Dichloropropene	10 U	540000 U	1200 U	29 UJ
Dibromochloromethane	10 U	540000 U	1200 U	29 UJ
Ethylbenzene	1	540000 U	1200 U	29 UJ
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	10	540000 U	1200 U	29 UJ
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-17 10-12B 70905004 06/12/2000	SB-17 24-26B 70905003 06/13/2000	SB-17 28-30A 70905002 06/13/2000	SB-18 12-14B 70924001 06/15/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	11 UJ	12 U	11 U	220
1,1,2,2-Tetrachloroethane	11 UJ	12 U	11 U	21 U
1,1,2-Trichloroethane	11 UJ	12 U	11 U	21 U
1,1-Dichloroethane	45 J	5	5	14
1,1-Dichloroethene	2 J	12 U	11 U	21 U
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	11 UJ	12 U	11 U	21 U
1,2-Dichloroethene (Total)	29 J	22	14	370 D
1,2-Dichloropropane	11 UJ	12 U	11 U	21 U
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	11 UJ	12	11 U	21 U
2-Hexanone	11 UJ	12 U	11 U	21 U
4-Methyl-2-Pentanone	11 UJ	12 U	11 U	21 U
Acetone	24 J	60	39	20
Benzene	11 UJ	12 U	11 U	21 U
Bromodichloromethane	11 UJ	12 U	11 U	21 U
Bromoform	11 UJ	12 U	11 U	21 U
Bromomethane	11 UJ	12 U	11 U	21 U
Carbon Disulfide	11 UJ	12 U	11 U	21 U
Carbon Tetrachloride	11 UJ	12 U	11 U	21 U
Chlorobenzene	11 UJ	12 U	11 U	21 U
Chloroethane	11 UJ	12 U	11 U	21 U
Chloroform	11 UJ	12 U	11 U	21 U
Chloromethane	11 UJ	12 U	11 U	21 U
cis-1,3-Dichloropropene	11 UJ	12 U	11 U	21 U
Dibromochloromethane	11 UJ	12 U	11 U	21 U
Ethylbenzene	11 UJ	12 U	11 U	21 U
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	11 UJ	12 U	11 U	21 U
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-18 18-20A 70924002 06/16/2000	SB-18 22-24A 70924003 06/16/2000	SB-19 24-26A 70905007 06/14/2000	SB-19 26-28A 70905006 06/14/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	20000 D	1100000	410 D	91
1,1,2,2-Tetrachloroethane	110 U	110000 U	11 U	11 U
1,1,2-Trichloroethane	91	110000 U	11 U	11 U
1,1-Dichloroethane	220	110000 U	84	91
1,1-Dichloroethene	16	110000 U	11 U	11 U
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	110 U	110000 U	11 U	3
1,2-Dichloroethene (Total)	210	110000 U	1	11 U
1,2-Dichloropropane	110 U	110000 U	11 U	11 U
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	110 U	110000 U	11 U	13
2-Hexanone	110 U	110000 U	11 U	11 U
4-Methyl-2-Pentanone	110 U	110000 U	11 U	11 U
Acetone	74	110000 U	64	58
Benzene	110 U	110000 U	11 U	11 U
Bromodichloromethane	110 U	110000 U	11 U	11 U
Bromoform	110 U	110000 U	11 U	11 U
Bromomethane	110 U	110000 UJ	11 U	11 U
Carbon Disulfide	110 U	110000 U	11 U	3
Carbon Tetrachloride	110 U	110000 U	11 U	11 U
Chlorobenzene	110 U	110000 U	11 U	11 U
Chloroethane	110 U	110000 U	11 U	11 U
Chloroform	110 U	110000 U	11 U	11 U
Chloromethane	110 U	110000 U	11 U	11 U
cis-1,3-Dichloropropene	110 U	110000 U	11 U	11 U
Dibromochloromethane	110 U	110000 U	11 U	11 U
Ethylbenzene	140	110000 U	11 U	11 U
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	120 U	110000 U	14 U	12 U
Naphthalene	---	---	---	---

Appendix D-1
Analytical Results (VOCs, TOC) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-19 4-6A 70905005 06/14/2000	SB-20 16-18A 70941002 06/20/2000	SB-20 20-22B 70941003 06/20/2000	SB-20 4-6A 70941001 06/19/2000
TOC	---	---	---	---
Volatiles (ug/kg)				
1,1,1-Trichloroethane	20	5700 U	110 U	1
1,1,2,2-Tetrachloroethane	11 U	5700 U	110 U	10 U
1,1,2-Trichloroethane	11 U	5700 U	110 U	10 U
1,1-Dichloroethane	3	5700 U	110 U	10 U
1,1-Dichloroethene	1	5700 U	110 U	10 U
1,2,4-Trichlorobenzene	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---
1,2-Dichloroethane	11 U	5700 U	110 U	10 U
1,2-Dichloroethene (Total)	11 U	5700 U	110 U	10 U
1,2-Dichloropropane	11 U	5700 U	110 U	10 U
1,3-Dichlorobenzene	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---
2-Butanone	11 U	5700 U	110 U	10 U
2-Hexanone	11 U	5700 U	110 U	10 U
4-Methyl-2-Pentanone	11 U	5700 U	110 U	10 U
Acetone	15 U	2100	110 U	10 U
Benzene	11 U	5700 U	110 U	10 U
Bromodichloromethane	11 U	5700 U	110 U	10 U
Bromoform	11 U	5700 U	110 U	10 U
Bromomethane	11 U	5700 U	110 U	10 U
Carbon Disulfide	11 U	5700 U	110 U	10 U
Carbon Tetrachloride	11 U	5700 U	110 U	10 U
Chlorobenzene	11 U	5700 U	110 U	10 U
Chloroethane	11 U	5700 U	110 U	10 U
Chloroform	11 U	5700 U	110 U	10 U
Chloromethane	11 U	5700 U	110 U	10 U
cis-1,3-Dichloropropene	11 U	5700 U	110 U	10 U
Dibromochloromethane	11 U	5700 U	110 U	10 U
Ethylbenzene	11 U	5700 U	110 U	10 U
Hexachlorobutadiene	---	---	---	---
Methylene Chloride	11 U	5700 U	110 U	10 U
Naphthalene	---	---	---	---

Appendix D-2
Analytical Results (PCBs) in Subsurface Soil Samples
NYSDEC-SOH, Henrietta, NY

Sample ID **Laboratory ID** **Sample Date**	**SB-1 CUTTINGS** **70751009** **05/18/2000**
Pesticides/PCBs (ug/Kg)	
4,4-DDD	3.8 UJ
4,4-DDE	3.8 UJ
4,4-DDT	3.8 UJ
Aldrin	2.0 UJ
alpha-BHC	2.0 UJ
alpha-Chlordane	2.0 UJ
Aroclor-1016	38 UJ
Aroclor-1221	78 UJ
Aroclor-1232	38 UJ
Aroclor-1242	38 UJ
Aroclor-1248	38 UJ
Aroclor-1254	38 UJ
Aroclor-1260	38 UJ
beta-BHC	2.0 UJ
delta-BHC	2.0 UJ
Dieldrin	3.8 UJ
Endosulfan I	2.0 UJ
Endosulfan II	3.8 UJ
Endosulfan sulfate	3.8 UJ
Endrin	3.8 UJ
Endrin aldehyde	3.8 UJ
Endrin ketone	3.8 UJ
gamma-BHC (Lindane)	2.0 UJ
gamma-Chlordane	2.0 UJ
Heptachlor	2.0 UJ
Heptachlor epoxide	2.0 UJ
Methoxychlor	20 UJ

Appendix D-3
Analytical Results (SVOCs) in Subsurface Soil Samples
NYSDEC-Rochester, Henrietta, NY

Sample ID Laboratory ID Sample Date	SB-1 CUTTINGS 70751009 05/18/2000
Semivolatiles (ug/kg)	
1,2,4-Trichlorobenzene	380 UJ
1,2-Dichlorobenzene	380 UJ
1,3-Dichlorobenzene	380 UJ
1,4-Dichlorobenzene	380 UJ
2,2-oxybis(1-Chloropropane)	380 UJ
2,4,5-Trichlorophenol	960 UJ
2,4,6-Trichlorophenol	380 UJ
2,4-Dichlorophenol	380 UJ
2,4-Dimethyphenol	380 UJ
2,4-Dinitrophenol	960 UJ
2,4-Dinitrotoluene	380 UJ
2,6-Dinitrotoluene	380 UJ
2-Chloronaphthalene	380 UJ
2-Chlorophenol	380 UJ
2-Methylnaphthalene	380 UJ
2-Methylphenol	380 UJ
2-Nitroaniline	960 UJ
2-Nitrophenol	380 UJ
3,3-Dichlorobenzidine	380 UJ
3-Nitroaniline	960 UJ
4,6-Dinitro-2-methylphenol	960 UJ
4-Bromophenyl-phenylether	380 UJ
4-Chloro-3-methylphenol	380 UJ
4-Chloroaniline	380 UJ
4-Chlorophenyl-phenylether	380 UJ
4-Methylphenol	380 UJ
4-Nitroaniline	960 UJ
4-Nitrophenol	960 UJ
Acenaphthene	380 UJ
Acenaphthylene	380 UJ
Anthracene	380 UJ
Benzo(a)anthracene	380 UJ
Benzo(a)pyrene	380 UJ
Benzo(b)fluoranthene	380 UJ
Benzo(g,h,i)perylene	380 UJ
Benzo(k)fluoranthene	380 UJ
bis(2-Chloroethoxy)methane	380 UJ
bis(-2-Chloroethyl)Ether	380 UJ
bis(2-Ethylhexyl)phthalate	380 UJ
Butylbenzylphthalate	380 UJ
Carbazole	380 UJ
Chrysene	380 UJ
Dibenzo(a,h)anthracene	380 UJ
Dibenzofuran	380 UJ
Diethylphthalate	380 UJ
Dimethylphthalate	380 UJ
Di-n-butylphthalate	380 UJ
Di-n-octylphthalate	380 UJ
Fluoranthene	380 UJ
Fluorene	380 UJ
Hexachlorobenzene	380 UJ

Appendix D-4
Analytical Results (Metal) in Surface Soil Samples
NYSDEC - SOH, Henrietta, NY

Sample ID Lab ID Sample Date	DD-1 71970001 11/30/2000	DD-2 71970002 11/30/2000	DD-3 71970003 11/30/2000	DD-4 71970004 11/30/2000	DD-5 71970005 11/30/2000	DD-6 71970006 11/30/2000	DD-7 71970007 11/30/2000	DD-8 71970008 11/30/2000
Metals (mg/kg)								
Aluminum	5660	3070	8980	7310	6580	11400	5650	10900
Antimony	0.74 J	0.52 UJ	0.53 UJ	0.68 J	0.62 UJ	0.53 UJ	0.7 J	0.87 UJ
Arsenic	4.2	3.2	3.7	10.5 J	1.5	3.2	3.8	2.8
Barium	37.3	15.7	66.1	143	46.9	101	42.9	63
Beryllium	0.049 U	0.034 U	0.098	0.34	0.041 U	0.25	0.046 U	0.058 U
Cadmium	0.76	0.41	0.87	2.1	0.74	1.2	0.75	1.1
Calcium	2330 J	668	8040 J	22500 J	45100 J	49600 J	75500 J	28500 J
Chromium	9.7 J	4.2 J	12.9 J	11.6 J	10.3 J	16.3 J	6.8 J	17 J
Cobalt	3.8	2.6	4.9	6.8	5.1	8.3	4.2	7.4
Copper	9.9	4.1	10.9	16.9	12.2	18.5	16	19 J
Iron	12100	6370	15000	26900 J	12400	19900	11100	18300
Lead	13.4 J	7.2 J	11.7 J	40.1 J	9 J	11.6 J	12.7 J	16 J
Magnesium	2090	840	4930	8190	15500	16500	34900	11100
Manganese	289 J	171 J	247 J	1680 J	427	427	603	272
Mercury	0.053 U	0.051 U	0.049 U	0.081	0.074 U	0.059 U	0.057 U	0.081 U
Nickel	8	3.9	13.1 J	10.1 J	11.6 J	21 J	11.4 J	18.2 J
Potassium	377	222	872	522	1250	2260	764	1740
Selenium	0.98 U	0.69 U	0.71 U	0.85 U	0.82 U	0.71 U	0.91 U	1.2 U
Silver	1	0.66	1.3	2.9	1.1	2.1	1.5	1.6
Sodium	321	197	267	485	817	502	539	891
Thallium	0.98 U	0.69 U	0.71 U	0.85 U	0.82 U	0.71 U	0.91 U	2.5 J
Vanadium	13.9	7.1	17.1	27	15	22.2	12.1	22.2
Zinc	117 J	30.9 J	49.9 J	106 J	41.7 J	62.3 J	57.1 J	84.6 J
Cyanide	0.2	0.12 U	0.15	0.11 U	0.14 U	0.19	0.11 U	0.39

Qualifier definition and notes are attached

---: not analyzed

Appendix D-4
Analytical Results (Metal) in Surface Soil Samples
NYSDEC - SOH, Henrietta, NY

Sample ID Lab ID Sample Date	DD-9 71970009 11/30/2000	DD-10 71970010 11/30/2000	DD-11 71970011 11/30/2000	DD-12 71970012 11/30/2000	DD-13 71970013 11/30/2000	DD-14 71970014 11/30/2000	DD-15 71970015 11/30/2000
Metals (mg/kg)							
Aluminum	5620	4190	9860 J	6400	11500 J	7470	8200
Antimony	0.65 UJ	0.57 UJ	1.6 J	0.52 UJ	3.7 J	0.60 UJ	0.58 UJ
Arsenic	5.4	2.7	4.6 J	3.6	6.50 UJ	5	4.5
Barium	43	48.4	67.6 J	48.6	108 J	39.8	59.1
Beryllium	0.043 U	0.038 U	0.092 UJ	0.034 U	0.22 UJ	0.040 U	0.066
Cadmium	0.79	0.66	4 J	0.82	7.5 J	0.91	1
Calcium	20400 J	61400 J	17700 J	26700 J	11900 J	11700 J	34900 J
Chromium	9.6 J	5.3 J	35.8 J	9.4 J	46.6 J	9.8 J	12.7 J
Cobalt	3.4	3.1	5.6 J	4.7	4.8 J	4.4	6.6
Copper	13.8 J	14.5 J	108 J	16.7 J	178 J	12.7 J	16.8 J
Iron	9920	9980	16500 J	13000	19700 J	13400	16400
Lead	22.8 J	6.5 J	322 J	16.1 J	629 J	13.1 J	13.7 J
Magnesium	9580	11400	10900 J	8300	5580 J	4670	11800
Manganese	278	560	145 J	303	171 J	304	416
Mercury	0.053 U	0.045 U	0.55 J	0.054 U	0.38 J	0.056 U	0.053 U
Nickel	9.3 J	8.4 J	25 J	11.3 J	25 J	11 J	17.2 J
Potassium	917	581	1300 J	983	2050 J	1050	1470
Selenium	0.86 U	0.76 U	1.8 UJ	0.69 U	4.3 UJ	0.80 U	0.77 U
Silver	0.92	1.3	2.8 J	1.2	2.8 J	1.2	1.6
Sodium	361	444	5020 J	701	4810 J	208	416
Thallium	0.86 U	0.76 U	2.6 J	0.69 U	4.3 UJ	0.80 U	0.77 U
Vanadium	15	8.7	31.6 J	15.2	37.6 J	15.4	18
Zinc	59.1 J	65.1 J	1370 J	114 J	2150 J	51.9 J	55.3 J
Cyanide	0.12 U	0.10 U	5.3 J	0.14	0.7 J	0.11 U	0.14

Qualifier definition and notes are attached

---: not analyzed

Appendix D-5
Analytical Results (SVOC) in Surface Soil Sample
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	DD-1 71970001 11/30/2000	DD-2 71970002 11/30/2000	DD-3 71970003 11/30/2000	DD-4 71970004 11/30/2000	DD-5 71970005 11/30/2000	DD-6 71970006 11/30/2000	DD-7 71970007 11/30/2000
Semivolatiles ug/kg							
1,2,4-Trichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
1,2-Dichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
1,3-Dichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
1,4-Dichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
Hexachlorobutadiene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
Naphthalene	420 U	420 U	390 U	87	470 U	400 U	370 U
1,2,4-Trichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
1,2-Dichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
1,3-Dichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
1,4-Dichlorobenzene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2,2-oxybis(1-Chloropropane)	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2,4,5-Trichlorophenol	1100 U	1000 U	990 U	2100 U	1200 U	1000 U	940 U
2,4,6-Trichlorophenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2,4-Dichlorophenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2,4-Dimethylphenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2,4-Dinitrophenol	1100 UJ	1000 UJ	990 UJ	2100 U	1200 UJ	1000 UJ	940 UJ
2,4-Dinitrotoluene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2,6-Dinitrotoluene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2-Chloronaphthalene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2-Chlorophenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2-Methylnaphthalene	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2-Methylphenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
2-Nitroaniline	1100 U	1000 U	990 U	2100 U	1200 U	1000 U	940 U
2-Nitrophenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
3,3-Dichlorobenzidine	420 U	420 U	390 U	820 UJ	470 UJ	400 U	370 U
3-Nitroaniline	1100 U	1000 U	990 U	2100 U	1200 U	1000 U	940 U
4,6-Dinitro-2-methylphenol	1100 UJ	1000 UJ	990 UJ	2100 U	1200 UJ	1000 UJ	940 UJ
4-Bromophenyl-phenylether	420 U	420 U	390 U	820 U	470 U	400 U	370 U
4-Chloro-3-methylphenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
4-Chloroaniline	420 U	420 U	390 U	820 U	470 U	400 U	370 U
4-Chlorophenyl-phenylether	420 U	420 U	390 U	820 U	470 U	400 U	370 U
4-Methylphenol	420 U	420 U	390 U	820 U	470 U	400 U	370 U
4-Nitroaniline	1100 U	1000 U	990 U	2100 U	1200 U	1000 U	940 U
4-Nitrophenol	1100 U	1000 U	990 U	2100 U	1200 U	1000 U	940 U
Acenaphthene	420 U	420 U	390 U	160	470 U	400 U	370 U
Acenaphthylene	420 U	420 U	390 U	400	470 U	400 U	370 U
Anthracene	420 U	420 U	390 U	1000	470 U	400 U	370 U
Benzo(a)anthracene	190	420 U	97	5400 J	99 J	130	100
Benzo(a)pyrene	300 J	420 UJ	110 J	4000 J	130 J	180 J	130 J
Benzo(b)fluoranthene	590 J	67 J	200 J	5800 J	290 J	300 J	220 J
Benzo(g,h,i)perylene	230 J	420 UJ	390 UJ	3700 J	96 J	120 J	76 J
Benzo(k)fluoranthene	160 J	420 UJ	66 J	2000 J	69 J	92 J	70 J
bis(2-Chloroethoxy)methane	420 U	420 U	390 U	820 U	470 U	400 U	370 U
bis(-2-Chloroethyl)Ether	420 U	420 U	390 U	820 U	470 U	400 U	370 U
bis(2-Ethylhexyl)phthalate	160 J	88 J	110 J	180 J	130 J	130 J	92 J
Butylbenzylphthalate	420 UJ	420 UJ	390 UJ	86 J	470 UJ	400 UJ	370 UJ
Carbazole	420 U	420 U	390 U	430	470 U	400 U	370 U
Chrysene	310	420 U	130	4700 J	160 J	200	140
Dibenzo(a,h)anthracene	420 UJ	420 UJ	390 UJ	790 J	470 UJ	400 UJ	370 UJ
Dibenzofuran	420 U	420 U	390 U	190	470 U	400 U	370 U
Diethylphthalate	420 U	420 U	390 U	820 U	470 U	400 U	370 U
Dimethylphthalate	420 U	420 U	390 U	820 U	470 U	400 U	370 U
Di-n-butylphthalate	420 U	420 U	390 U	820 U	470 U	400 U	370 U
Di-n-octylphthalate	420 UJ	420 UJ	390 UJ	820 UJ	470 UJ	400 UJ	370 UJ
Fluoranthene	510	63	240	5600	220	350	250
Fluorene	420 U	420 U	390 U	470	470 U	400 U	370 U

Appendix D-5
Analytical Results (SVOC) in Surface Soil Sample
NYSDEC-SOH, Henrietta, NY

Sample ID Lab ID Sample Date	DD-8 71970008 11/30/2000	DD-9 71970009 11/30/2000	DD-10 71970010 11/30/2000	DD-11 71970011 11/30/2000	DD-12 71970012 11/30/2000	DD-13 71970013 11/30/2000	DD-14 71970014 11/30/2000	DD-15 71970015 11/30/2000
Semivolatiles ug/kg								
1,2,4-Trichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
1,2-Dichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
1,3-Dichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
1,4-Dichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
Hexachlorobutadiene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
Naphthalene	310	13000 D	360 U	96 J	410 U	22000 UJD	380 U	380 U
1,2,4-Trichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
1,2-Dichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
1,3-Dichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
1,4-Dichlorobenzene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2,2-oxybis(1-Chloropropane)	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2,4,5-Trichlorophenol	5600 U	1900 U	910 U	2300 UJ	1000 U	54000 UJD	960 U	960 UJ
2,4,6-Trichlorophenol	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2,4-Dichlorophenol	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2,4-Dimethylphenol	2200 U	300	360 U	920 UJ	410 U	22000 UJD	380 U	380 UJ
2,4-Dinitrophenol	5600 U	1900 U	910 UJ	2300 UJ	1000 U	54000 UJD	960 U	960 UJ
2,4-Dinitrotoluene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2,6-Dinitrotoluene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2-Chloronaphthalene	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2-Chlorophenol	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2-Methylnaphthalene	350	14000 D	360 U	100 J	410 U	22000 UJD	380 U	380 U
2-Methylphenol	2200 U	140	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
2-Nitroaniline	5600 U	1900 U	910 U	2300 UJ	1000 U	54000 UJD	960 U	960 U
2-Nitrophenol	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
3,3-Dichlorobenzidine	2200 U	770 UJ	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
3-Nitroaniline	5600 U	1900 U	910 U	2300 UJ	1000 U	54000 UJD	960 U	960 U
4,6-Dinitro-2-methylphenol	5600 U	1900 UJ	910 UJ	2300 UJ	1000 U	54000 UJD	960 U	960 U
4-Bromophenyl-phenylether	2200 U	770 UJ	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
4-Chloro-3-methylphenol	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
4-Chloroaniline	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
4-Chlorophenyl-phenylether	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
4-Methylphenol	2200 U	520	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
4-Nitroaniline	5600 U	1900 U	910 U	2300 UJ	1000 U	54000 UJD	960 U	960 U
4-Nitrophenol	5600 U	1900 U	910 U	2300 UJ	1000 U	54000 UJD	960 U	960 U
Acenaphthene	1500	53000 D	360 U	120 J	76	22000 UJD	380 U	380 U
Acenaphthylene	2200 U	260 J	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
Anthracene	2000	76000 D	360 U	920 UJ	190	4400 JD	380 U	380 U
Benzo(a)anthracene	5200	150000 JD	110	180 J	1200	37000 JD	110	72
Benzo(a)pyrene	4100	110000 JD	120 J	180 J	990	48000 JD	120	84
Benzo(b)fluoranthene	5300	150000 JD	190 J	320 J	1700	77000 JD	240	160
Benzo(g,h,i)perylene	2400	61000 JD	360 UJ	180 J	1100	53000 JD	89	97
Benzo(k)fluoranthene	2200 J	62000 JD	74 J	120 J	590 J	28000 JD	56 J	64 J
bis(2-Chloroethoxy)methane	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
bis(-2-Chloroethyl)Ether	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
bis(2-Ethylhexyl)phthalate	2200 U	330 J	120 J	170 J	150	6500 JD	70	75
Butylbenzylphthalate	2200 UJ	770 UJ	360 UJ	920 UJ	410 UJ	22000 UJD	380 UJ	380 U
Carbazole	1200	44000 D	360 U	920 UJ	180	5400 JD	380 U	380 U
Chrysene	4700	140000 JD	130	240 J	1200	52000 JD	150	120
Dibenzo(a,h)anthracene	790	20000 JD	360 UJ	920 UJ	200	8000 JD	380 U	380 U
Dibenzofuran	530	20000 D	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
Diethylphthalate	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
Dimethylphthalate	2200 U	770 U	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
Di-n-butylphthalate	2200 U	770 UJ	360 U	920 UJ	410 U	22000 UJD	380 U	380 U
Di-n-octylphthalate	2200 UJ	770 UJ	360 UJ	920 UJ	410 UJ	22000 UJD	380 UJ	380 UJ
Fluoranthene	7100	220000 D	230	350 J	2000	69000 JD	240	210
Fluorene	980	35000 D	360 U	920 UJ	73	22000 UJD	380 U	380 U

Appendix D-6
Analytical Results (VOCs) in Sump/Catch Basin Sediment Samples
NYSDEC-SOH, Henrietta, NY

Sample Id Lab Id Sample Date	01 80332001 02/15/2001	02 80332002 02/15/2001	04 80332003 02/15/2001
Volatiles (ug/kg)			
1,1,1-Trichloroethane	31000	6700000	20000
1,1,2,2-Tetrachloroethane	6900 U	540000 U	2900 U
1,1,2-Trichloroethane	6900 U	540000 U	2900 U
1,1-Dichloroethane	6500	160000	41000
1,1-Dichloroethene	6900 U	540000 U	2900 U
1,2-Dichloroethane	6900 U	540000 U	2900 U
1,2-Dichloroethene (Total)	6900 U	540000 U	2900 U
1,2-Dichloropropane	6900 U	540000 U	2900 U
2-Butanone	6900 U	540000 U	890
2-Hexanone	6900 U	540000 U	2900 U
4-Methyl-2-Pentanone	6900 U	540000 U	2900 U
Acetone	3500	540000 U	2900 U
Benzene	6900 U	540000 U	2900 U
Bromodichloromethane	6900 U	540000 U	2900 U
Bromoform	6900 U	540000 U	2900 U
Bromomethane	6900 U	540000 U	330
Carbon Disulfide	6900 U	540000 U	2900 U
Carbon Tetrachloride	6900 U	540000 U	2900 U
Chlorobenzene	6900 U	540000 U	2900 U
Chloroethane	6900 U	540000 U	2900 U
Chloroform	6900 U	540000 U	2900 U
Chloromethane	2300	540000 U	700
cis-1,3-Dichloropropene	6900 U	540000 U	2900 U
Dibromochloromethane	6900 U	540000 U	2900 U
Ethylbenzene	6900 U	540000 U	2900 U
Methylene Chloride	6900 U	540000 U	2900 U
Styrene	6900 U	540000 U	2900 U
Tetrachloroethene	3800	540000 U	2900 U
Toluene	6900 U	540000 U	2900 U

Appendix D-7
Analytical Results (VOCs) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	IP2-1 71459002 09/11/2000	IPZ-1 71101004 07/17/2000	IPZ-1 71707001 10/20/2000	IPZ-1 72073007 12/14/2000	IPZ-2 71101002 07/17/2000	IPZ-2 71707010 10/20/2000	IPZ-2 72073005 12/14/2000
Volatiles (ug/L)							
1,1,1,2-Tetrachloroethane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,1,1-Trichloroethane	10000 U	11000	9100	5900	50000 U	100000	120000
1,1,2,2-Tetrachloroethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
1,1,2-Trichloroethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
1,1-Dichloroethane	13000	35000	34000	14000	50000 U	19000	12000
1,1-Dichloroethene	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	1100
1,1-Dichloropropene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2,3-Trichlorobenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2,3-Trichloropropane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2,4-Trichlorobenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2,4-Trimethylbenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2-Dibromo-3-chloropropane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2-Dibromoethane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2-Dichlorobenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,2-Dichloroethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
1,2-Dichloroethene (Total)	---	---	---	13000	---	---	10000 U
1,2-Dichloropropane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
1,3,5-Trimethylbenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,3-Dichlorobenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,3-Dichloropropane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
1,4-Dichlorobenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
2,2-Dichloropropane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
2-Butanone	10000 U	10000 U	10000 U	50000 UJ	50000 U	5000 U	10000 UJ
2-Chloroethyl vinyl ether	---	10000 U	---	---	50000 U	---	---
2-Chlorotoluene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
2-Hexanone	10000 U	10000 U	10000 U	50000 UJ	50000 U	5000 U	10000 UJ
4-Chlorotoluene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
4-Isopropyltoluene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
4-Methyl-2-Pentanone	10000 U	10000 U	10000 U	50000 UJ	50000 U	5000 U	10000 UJ
Acetone	12000	10000 UJ	8600	50000 U	50000 UJ	5000 U	10000 UJ
Benzene	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Bromobenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Bromochloromethane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Bromodichloromethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Bromoform	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Bromomethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Carbon Disulfide	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Carbon Tetrachloride	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Chlorobenzene	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Chloroethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Chloroform	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Chloromethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
cis-1,2-Dichloroethene	19000	34000	28000	---	50000 U	5000 U	---
cis-1,3-Dichloropropene	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Dibromochloromethane	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Dibromomethane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Dichlorodifluoromethane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Ethylbenzene	10000 U	10000 U	10000 U	50000 U	50000 U	5000 U	10000 U
Hexachlorobutadiene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Iodomethane	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Isopropylbenzene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Methyl tert-butyl ether	10000 U	10000 U	10000 U	---	50000 U	5000 U	---
Methylene Chloride	81000	95000 J	110000	93000	680000 J	60000	33000
Naphthalene	10000 U	10000 U	10000 U	---	50000 U	5000 U	---

Appendix D-7
Analytical Results (VOCs) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	IPZ-3 71101003 07/17/2000	IPZ-3 71707008 10/20/2000	IPZ-3 72073008 12/14/2000	IW-1 71101001 07/17/2000	IW-1 71707009 10/20/2000	IW-1 72073006 12/14/2000	MW-2 72109001 12/18/2000	MW-3 72109006 12/18/2000
Volatiles (ug/L)								
1,1,1,2-Tetrachloroethane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,1,1-Trichloroethane	100000	280000	290000	20000 U	82000	100000	450	22
1,1,2,2-Tetrachloroethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
1,1,2-Trichloroethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
1,1-Dichloroethane	110000	46000	40000	20000 U	18000	15000	2300	160
1,1-Dichloroethene	4000 U	9500	3500	20000 U	2600	10000 U	100	41
1,1-Dichloropropene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2,3-Trichlorobenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2,3-Trichloropropane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2,4-Trichlorobenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2,4-Trimethylbenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2-Dibromo-3-chloropropane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2-Dibromoethane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2-Dichlorobenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,2-Dichloroethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
1,2-Dichloroethene (Total)	---	---	20000 U	---	---	10000 U	150	43
1,2-Dichloropropane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
1,3,5-Trimethylbenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,3-Dichlorobenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,3-Dichloropropane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
1,4-Dichlorobenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
2,2-Dichloropropane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
2-Butanone	4000 U	15000 U	20000 UJ	20000 U	5000 U	10000 UJ	150 UJ	10 U
2-Chloroethyl vinyl ether	4000 U	---	---	---	---	---	---	---
2-Chlorotoluene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
2-Hexanone	4000 U	15000 U	20000 UJ	20000 U	5000 U	10000 UJ	150 U	10 U
4-Chlorotoluene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
4-Isopropyltoluene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
4-Methyl-2-Pentanone	4000 U	15000 U	20000 UJ	20000 U	5000 U	10000 UJ	150 U	10 U
Acetone	4000 UJ	15000 U	20000 UJ	20000 UJ	3700	10000 UJ	150 UJ	10 U
Benzene	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Bromobenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Bromochloromethane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Bromodichloromethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Bromoform	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Bromomethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Carbon Disulfide	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Carbon Tetrachloride	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Chlorobenzene	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Chloroethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Chloroform	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Chloromethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
cis-1,2-Dichloroethene	22000	15000 U	---	6500	5000 U	---	---	---
cis-1,3-Dichloropropene	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Dibromochloromethane	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Dibromomethane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Dichlorodifluoromethane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Ethylbenzene	4000 U	15000 U	20000 U	20000 U	5000 U	10000 U	150 U	10 U
Hexachlorobutadiene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Iodomethane	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Isopropylbenzene	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Methyl tert-butyl ether	4000 U	15000 U	---	20000 U	5000 U	---	---	---
Methylene Chloride	45000 J	59000	53000	220000 J	57000	59000	150 U	10 U
Naphthalene	900 U	15000 U	---	7500 U	5000 U	---	---	---
[illegible]	4000 U	15000 U		20000 U	1200			

Appendix D-7
Analytical Results (VOCs) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	MW-5 72109002 12/18/2000	OW-1S 72131004 12/19/2000	OW-2S 72109015 12/19/2000	OW-3S 72109009 12/19/2000	OW-4S 72109012 12/19/2000	OW-5S 72109008 12/19/2000	OW-6S 72131001 12/18/2000	OW-7S 71101006 07/17/2000
Volatiles (ug/L)								
1,1,1,2-Tetrachloroethane	---	---	---	---	---	---	---	2500 U
1,1,1-Trichloroethane	10 U	2	10 U	150 U	200	4	11000 J	2500 U
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
1,1,2-Trichloroethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
1,1-Dichloroethane	10 U	10 U	60	25	810	56	660 J	2500 U
1,1-Dichloroethene	10 U	10 U	10 U	150 U	76	12	690 J	2500 U
1,1-Dichloropropene	---	---	---	---	---	---	---	2500 U
1,2,3-Trichlorobenzene	---	---	---	---	---	---	---	2500 U
1,2,3-Trichloropropane	---	---	---	---	---	---	---	2500 U
1,2,4-Trichlorobenzene	---	---	---	---	---	---	---	2500 U
1,2,4-Trimethylbenzene	---	---	---	---	---	---	---	2500 U
1,2-Dibromo-3-chloropropane	---	---	---	---	---	---	---	2500 U
1,2-Dibromoethane	---	---	---	---	---	---	---	2500 U
1,2-Dichlorobenzene	---	---	---	---	---	---	---	2500 U
1,2-Dichloroethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
1,2-Dichloroethene (Total)	10 U	10 U	11	2500	50 U	24	1000 UJ	---
1,2-Dichloropropane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
1,3,5-Trimethylbenzene	---	---	---	---	---	---	---	2500 U
1,3-Dichlorobenzene	---	---	---	---	---	---	---	2500 U
1,3-Dichloropropane	---	---	---	---	---	---	---	2500 U
1,4-Dichlorobenzene	---	---	---	---	---	---	---	2500 U
2,2-Dichloropropane	---	---	---	---	---	---	---	2500 U
2-Butanone	10 U	10 U	10 UJ	150 UJ	50 UJ	10 UJ	1000 UJ	2500 U
2-Chloroethyl vinyl ether	---	---	---	---	---	---	---	2500 U
2-Chlorotoluene	---	---	---	---	---	---	---	2500 U
2-Hexanone	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
4-Chlorotoluene	---	---	---	---	---	---	---	2500 U
4-Isopropyltoluene	---	---	---	---	---	---	---	2500 U
4-Methyl-2-Pentanone	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Acetone	10 U	10 U	10 UJ	150 UJ	50 UJ	10 UJ	1000 UJ	2500 UJ
Benzene	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Bromobenzene	---	---	---	---	---	---	---	2500 U
Bromochloromethane	---	---	---	---	---	---	---	2500 U
Bromodichloromethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Bromoform	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Bromomethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Carbon Disulfide	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Carbon Tetrachloride	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Chlorobenzene	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Chloroethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Chloroform	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Chloromethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
cis-1,2-Dichloroethene	---	---	---	---	---	---	---	11000
cis-1,3-Dichloropropene	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Dibromochloromethane	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Dibromomethane	---	---	---	---	---	---	---	2500 U
Dichlorodifluoromethane	---	---	---	---	---	---	---	2500 U
Ethylbenzene	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	2500 U
Hexachlorobutadiene	---	---	---	---	---	---	---	2500 U
Iodomethane	---	---	---	---	---	---	---	2500 U
Isopropylbenzene	---	---	---	---	---	---	---	2500 U
Methyl tert-butyl ether	---	---	---	---	---	---	---	2500 U
Methylene Chloride	10 U	10 U	10 U	150 U	50 U	10 U	1000 UJ	1000 J
Naphthalene	---	---	---	---	---	---	---	2500 U

Appendix D-7
Analytical Results (VOCs) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	OW-7S 71459003 09/11/2000	OW-7S 71707003 10/20/2000	OW-7S 72109007 12/18/2000	OW-8S 72109017 12/19/2000	PZ-1 72073009 12/15/2000	PZ-2 72073010 12/15/2000	PZ-2 72073010DL 12/15/2000	PZ-3 72073014 12/15/2000
Volatiles (ug/L)								
1,1,1,2-Tetrachloroethane	2500 U	1200 U	---	---	---	---	---	---
1,1,1-Trichloroethane	2500 U	1200 U	400 U	300 U	60000	DNR	330	360
1,1,2,2-Tetrachloroethane	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
1,1,2-Trichloroethane	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
1,1-Dichloroethane	2500 U	450	400 U	5000	7000 U	DNR	8200	310
1,1-Dichloroethene	2500 U	1200 U	400 U	130	5200	DNR	730	99
1,1-Dichloropropene	2500 U	1200 U	---	---	---	---	---	---
1,2,3-Trichlorobenzene	2500 U	1200 U	---	---	---	---	---	---
1,2,3-Trichloropropane	2500 U	1200 U	---	---	---	---	---	---
1,2,4-Trichlorobenzene	2500 U	1200 U	---	---	---	---	---	---
1,2,4-Trimethylbenzene	2500 U	1200 U	---	---	---	---	---	---
1,2-Dibromo-3-chloropropane	2500 U	1200 U	---	---	---	---	---	---
1,2-Dibromoethane	2500 U	1200 U	---	---	---	---	---	---
1,2-Dichlorobenzene	2500 U	1200 U	---	---	---	---	---	---
1,2-Dichloroethane	2500 U	1200 U	400 U	300 U	4000 U	39	DNR	50 U
1,2-Dichloroethene (Total)	---	---	610	120	1900	10 U	DNR	120
1,2-Dichloropropane	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
1,3,5-Trimethylbenzene	2500 U	1200 U	---	---	---	---	---	---
1,3-Dichlorobenzene	2500 U	1200 U	---	---	---	---	---	---
1,3-Dichloropropane	2500 U	1200 U	---	---	---	---	---	---
1,4-Dichlorobenzene	2500 U	1200 U	---	---	---	---	---	---
2,2-Dichloropropane	2500 U	1200 U	---	---	---	---	---	---
2-Butanone	2500 U	1200 U	400 UJ	300 UJ	4000 UJ	160	DNR	50 UJ
2-Chloroethyl vinyl ether	---	---	---	---	---	---	---	---
2-Chlorotoluene	2500 U	1200 U	---	---	---	---	---	---
2-Hexanone	2500 U	1200 U	400 U	300 U	4000 UJ	10 U	DNR	50 UJ
4-Chlorotoluene	2500 U	1200 U	---	---	---	---	---	---
4-Isopropyltoluene	2500 U	1200 U	---	---	---	---	---	---
4-Methyl-2-Pentanone	2500 U	1200 U	400 U	300 U	4000 UJ	DNR	110 J	50 UJ
Acetone	2500 U	1200 U	400 UJ	300 UJ	4000 UJ	140 J	DNR	50 U
Benzene	2500 U	1200 U	400 U	300 U	4000 U	13	DNR	50 U
Bromobenzene	2500 U	1200 U	---	---	---	---	---	---
Bromochloromethane	2500 U	1200 U	---	---	---	---	---	---
Bromodichloromethane	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
Bromoform	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
Bromomethane	2500 U	1200 U	400 U	300 U	4000 U	10 UJ	DNR	50 U
Carbon Disulfide	2500 U	1200 U	400 U	300 U	4000 U	2	DNR	50 U
Carbon Tetrachloride	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
Chlorobenzene	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
Chloroethane	2500 U	1200 U	400 U	300 U	4000 U	DNR	1900	50 U
Chloroform	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
Chloromethane	2500 U	1200 U	400 U	300 U	4000 U	3	DNR	50 U
cis-1,2-Dichloroethene	4100	7100	---	---	---	---	---	---
cis-1,3-Dichloropropene	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
Dibromochloromethane	2500 U	1200 U	400 U	300 U	4000 U	10 U	DNR	50 U
Dibromomethane	2500 U	1200 U	---	---	---	---	---	---
Dichlorodifluoromethane	2500 U	1200 U	---	---	---	---	---	---
Ethylbenzene	2500 U	1200 U	400 U	300 U	4000 U	4	DNR	50 U
Hexachlorobutadiene	2500 U	1200 U	---	---	---	---	---	---
Iodomethane	2500 U	1200 U	---	---	---	---	---	---
Isopropylbenzene	2500 U	1200 U	---	---	---	---	---	---
Methyl tert-butyl ether	2500 U	1200 U	---	---	---	---	---	---
Methylene Chloride	3100	1500	400 U	300 U	15000	DNR	1500	50 U
Naphthalene	2500 U	1200 U	---	---	---	---	---	---

Appendix D-7
Analytical Results (VOCs) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	TW-1 71539001 09/22/2000	TW-1 71707002 10/20/2000	TW-1 72073001 12/14/2000	TW-2 71539002 09/22/2000	TW-2 71539002DL 09/22/2000	TW-2 71707005 10/20/2000	TW-2 72073002 12/14/2000	TW-3 71539003 09/22/2000
Volatiles (ug/L)								
1,1,1,2-Tetrachloroethane	25000 U	20000 U		5 U	5000 U	7500 U	---	2500 U
1,1,1-Trichloroethane	25000 U	20000 U	50000 U	7000	68000	160000	160000 D	86000
1,1,2,2-Tetrachloroethane	25000 U	20000 U	50000 U	5 U	5000 U	7500 U	10 U	2500 U
1,1,2-Trichloroethane	25000 U	20000 U	50000 U	49	5000 U	7500 U	110	2500 U
1,1-Dichloroethane	8100	6000	50000 U	6500	77000	100000	61000 D	99000
1,1-Dichloroethene	25000 U	20000 U	50000 U	65	5000 U	6500	3000 D	1800
1,1-Dichloropropene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2,3-Trichlorobenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2,3-Trichloropropane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2,4-Trichlorobenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2,4-Trimethylbenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2-Dibromo-3-chloropropane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2-Dibromoethane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2-Dichlorobenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,2-Dichloroethane	25000 U	20000 U	50000 U	170	5000 U	7500 U	10 U	2500 U
1,2-Dichloroethene (Total)	---	---	9300	---	---	---	3500 D	---
1,2-Dichloropropane	25000 U	20000 U	50000 U	5 U	5000 U	7500 U	10 U	2500 U
1,3,5-Trimethylbenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,3-Dichlorobenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,3-Dichloropropane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
1,4-Dichlorobenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
2,2-Dichloropropane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
2-Butanone	25000 U	20000 U	50000 U	320	5000 U	7500 U	420 J	2500 U
2-Chloroethyl vinyl ether	---	---	---	---	---	---	---	---
2-Chlorotoluene	25000 U	20000 U	---	3	5000 U	7500 U	---	2500 U
2-Hexanone	25000 U	20000 U	50000 U	17	5000 U	7500 U	10 U	2500 U
4-Chlorotoluene	25000 U	20000 U	---	2	5000 U	7500 U	---	2500 U
4-Isopropyltoluene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
4-Methyl-2-Pentanone	25000 U	20000 U	50000 U	180	5000 U	7500 U	340 J	2500 U
Acetone	23000	20000 U	50000 U	1100	4300	7500 U	1000 J	1600
Benzene	25000 U	20000 U	50000 U	5	5000 U	7500 U	6	2500 U
Bromobenzene	25000 U	20000 U	---	3	5000 U	7500 U	---	2500 U
Bromochloromethane	25000 U	20000 U	---	9	5000 U	7500 U	---	2500 U
Bromodichloromethane	25000 U	20000 U	50000 U	5 U	5000 U	7500 U	10 U	2500 U
Bromoform	25000 U	20000 U	50000 U	2	5000 U	7500 U	10 U	2500 U
Bromomethane	6100	20000 U	50000 U	5 U	5000 U	7500 U	10 UJ	2500 U
Carbon Disulfide	25000 U	20000 U	50000 U	3	5000 U	7500 U	6	2500 U
Carbon Tetrachloride	25000 U	20000 U	50000 U	5 U	5000 U	7500 U	5100 J	2500 U
Chlorobenzene	25000 U	20000 U	50000 U	1	5000 U	7500 U	10 U	2500 U
Chloroethane	25000 U	20000 U	50000 U	16	5000 U	7500 U	54	2500 U
Chloroform	25000 U	20000 U	50000 U	11	5000 U	7500 U	30	2500 U
Chloromethane	25000 U	20000 U	50000 UJ	5	5000 U	7500 U	10 U	2500 U
cis-1,2-Dichloroethene	11000	12000	---	5 U	5000 U	9100	---	3900
cis-1,3-Dichloropropene	25000 U	20000 U	50000 U	5 U	5000 U	7500 U	10 U	2500 U
Dibromochloromethane	25000 U	20000 U	50000 U	5 U	5000 U	7500 U	10 U	2500 U
Dibromomethane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
Dichlorodifluoromethane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
Ethylbenzene	25000 U	20000 U	50000 U	1	5000 U	7500 U	2	2500 U
Hexachlorobutadiene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
Iodomethane	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
Isopropylbenzene	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
Methyl tert-butyl ether	25000 U	20000 U	---	5 U	5000 U	7500 U	---	2500 U
Methylene Chloride	100000	96000	88000	8200	32000	45000	44000 D	24000
Naphthalene	12000	20000 U	---	5 U	5000 U	7500 U	---	2500 U

Appendix D-7
Analytical Results (VOCs) In Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	TW-3 71707006 10/20/2000	TW-3 72073004 12/14/2000	TW-4 71539004 09/22/2000	TW-4 71707007 10/20/2000	TW-4 72073012 12/14/2000
Volatiles (ug/L)					
1,1,1,2-Tetrachloroethane	5000 U	---	2500 U	2500 U	---
1,1,1-Trichloroethane	120000	160000 D	26000	30000	60000
1,1,2,2-Tetrachloroethane	5000 U	5000 U	2500 U	2500 U	5000 U
1,1,2-Trichloroethane	5000 U	5000 U	2500 U	2500 U	5000 U
1,1-Dichloroethane	120000	92000 D	56000	56000	74000
1,1-Dichloroethene	5600	4200 J	1000	1500	1900
1,1-Dichloropropene	5000 U	---	2500 U	2500 U	---
1,2,3-Trichlorobenzene	5000 U	---	2500 U	2500 U	---
1,2,3-Trichloropropane	5000 U	---	2500 U	2500 U	---
1,2,4-Trichlorobenzene	5000 U	---	2500 U	2500 U	---
1,2,4-Trimethylbenzene	5000 U	---	2500 U	2500 U	---
1,2-Dibromo-3-chloropropane	5000 U	---	2500 U	2500 U	---
1,2-Dibromoethane	5000 U	---	2500 U	2500 U	---
1,2-Dichlorobenzene	5000 U	---	2500 U	2500 U	---
1,2-Dichloroethane	5000 U	5000 U	2500 U	2500 U	5000 U
1,2-Dichloroethene (Total)	---	6500 J	---	---	2700
1,2-Dichloropropane	5000 U	5000 U	2500 U	2500 U	5000 U
1,3,5-Trimethylbenzene	5000 U	---	2500 U	2500 U	---
1,3-Dichlorobenzene	5000 U	---	2500 U	2500 U	---
1,3-Dichloropropane	5000 U	---	2500 U	2500 U	---
1,4-Dichlorobenzene	5000 U	---	2500 U	2500 U	---
2,2-Dichloropropane	5000 U	---	2500 U	2500 U	---
2-Butanone	5000 U	5000 U	2500 U	2500 U	5000 UJ
2-Chloroethyl vinyl ether	---	---	---	---	---
2-Chlorotoluene	5000 U	---	2500 U	2500 U	---
2-Hexanone	5000 U	5000 U	2500 U	2500 U	5000 UJ
4-Chlorotoluene	5000 U	---	2500 U	2500 U	---
4-Isopropyltoluene	5000 U	---	2500 U	2500 U	---
4-Methyl-2-Pentanone	5000 U	5000 U	2500 U	2500 U	5000 UJ
Acetone	5000 U	5000 U	2500 U	2500 U	5000 U
Benzene	5000 U	5000 U	2500 U	2500 U	5000 U
Bromobenzene	5000 U	---	2500 U	2500 U	---
Bromochloromethane	5000 U	---	2500 U	2500 U	---
Bromodichloromethane	5000 U	5000 U	2500 U	2500 U	5000 U
Bromoform	5000 U	5000 U	2500 U	2500 U	5000 U
Bromomethane	5000 U	5000 U	2500 U	2500 U	5000 U
Carbon Disulfide	5000 U	5000 U	2500 U	2500 U	5000 U
Carbon Tetrachloride	5000 U	5000 U	2500 U	2500 U	5000 U
Chlorobenzene	5000 U	5000 U	2500 U	2500 U	5000 U
Chloroethane	5000 U	5000 U	2500 U	2500 U	5000 U
Chloroform	5000 U	5000 U	2500 U	2500 U	5000 U
Chloromethane	5000 U	5000 UJ	2500 U	2500 U	5000 U
cis-1,2-Dichloroethene	5300	---	920	1300	---
cis-1,3-Dichloropropene	5000 U	5000 U	2500 U	2500 U	5000 U
Dibromochloromethane	5000 U	5000 U	2500 U	2500 U	5000 U
Dibromomethane	5000 U	---	2500 U	2500 U	---
Dichlorodifluoromethane	5000 U	---	2500 U	2500 U	---
Ethylbenzene	5000 U	5000 U	2500 U	2500 U	5000 U
Hexachlorobutadiene	5000 U	---	2500 U	2500 U	---
Iodomethane	5000 U	---	2500 U	2500 U	---
Isopropylbenzene	5000 U	---	2500 U	2500 U	---
Methyl tert-butyl ether	5000 U	---	2500 U	2500 U	---
Methylene Chloride	31000	30000 J	2100	4400	14000
Naphthalene	5000 U	---	2500 U	2500 U	---

Appendix D-8
Analytical Results (Metals) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	IP2-1 71459002 09/11/2000	IPZ-1 71101004 07/17/2000	IPZ1 71707001 10/20/2000	IPZ-1 72073007 12/14/2000	IPZ-2 71101002 07/17/2000	IPZ-2 71707010 10/20/2000	IPZ-2 72073005 12/14/2000
Metals (ug/L)							
Aluminum	---	---	---	25.3 J	---	---	581 J
Antimony	---	---	---	3 U	---	---	3 U
Arsenic	---	---	---	6 U	---	---	6 U
Barium	---	---	---	137	---	---	6.9
Beryllium	---	---	---	0.2 U	---	---	0.2 U
Cadmium	---	---	---	0.6	---	---	0.34
Calcium	---	---	---	183000	---	---	215000
Chromium	---	---	---	0.5 U	---	---	345
Cobalt	---	---	---	3.9	---	---	21.8
Copper	---	---	---	2.3	---	---	1 U
Iron	6340	88400 J	5570	4050	187000 J	247	72.3
Lead	---	---	---	1 U	---	---	48.8
Magnesium	---	---	---	109000	---	---	123000
Manganese	137	2880 J	106	1680 J	7530 J	497000	730000 J
Mercury	---	---	---	0.13 U	---	---	1.1
Nickel	---	---	---	48.9	---	---	16.4
Potassium	---	---	---	6430	---	---	54900
Selenium	---	---	---	4 U	---	---	306
Silver	---	---	---	0.5	---	---	0.4 U
Sodium	---	---	---	92800 J	---	---	1310000 J
Thallium	---	---	---	4 U	---	---	4 U
Vanadium	---	---	---	0.4 U	---	---	0.4 U
Zinc	---	---	---	R	---	---	R
Cyanide	---	---	---	2 U	---	---	2 U

Notes and Qualifier
definition are attached

--- : not analyzed

Appendix D-8
Analytical Results (Metals) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	IPZ-3 71101003 07/17/2000	IPZ-3 71707008 10/20/2000	IPZ-3 72073008 12/14/2000	IW-1 71101001 07/17/2000	IW-1 71707009 10/20/2000	IW-1 72073006 12/14/2000	MW-2 72109001 12/18/2000
Metals (ug/L)							
Aluminum	---	---	672 J	---	---	3040 J	R
Antimony	---	---	3 U	---	---	3 U	3
Arsenic	---	---	6 U	---	---	6 U	6 U
Barium	---	---	0.3 U	---	---	1.3	89
Beryllium	---	---	0.2 U	---	---	0.2 U	0.2 U
Cadmium	---	---	0.1 U	---	---	0.1 U	0.47
Calcium	---	---	17400	---	---	107000	122000
Chromium	---	---	1010	---	---	1450	0.5 U
Cobalt	---	---	23.9	---	---	32.5	0.43
Copper	---	---	1 U	---	---	1 U	1.9
Iron	41900 J	177	100	20100 J	65.5	463	2000
Lead	---	---	73.4	---	---	307	1 U
Magnesium	---	---	35300	---	---	73100	68700
Manganese	1210 J	399000	664000 J	704 J	319000	4090000 J	71.4 J
Mercury	---	---	6.4	---	---	3.2	0.13 U
Nickel	---	---	7	---	---	1 U	2.3
Potassium	---	---	77700	---	---	54200	7690
Selenium	---	---	499	---	---	1950	4 U
Silver	---	---	0.4 U	---	---	0.4 U	2.9 J
Sodium	---	---	3170000 J	---	---	3080000 J	48600
Thallium	---	---	4 U	---	---	4 U	4 U
Vanadium	---	---	0.4 U	---	---	0.4 U	0.4 U
Zinc	---	---	3 U	---	---	R	3 U
Cyanide	---	---	2 U	---	---	3.9	2 U

Notes and Qualifier
definition are attached

--- : not analyzed

Appendix D-8
Analytical Results (Metals) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	MW-3 72109006 12/18/2000	MW-5 72109002 12/18/2000	OW-1S 72131004 12/19/2000	OW-1S 72131004L 12/19/2000	OW-2S 72109015 12/19/2000	OW-3S 72109009 12/19/2000	OW-4S 72109012 12/19/2000
Metals (ug/L)							
Aluminum	R	R	8 U	40	8 UJ	8 UJ	R
Antimony	3 U	3 U	3 U	15	3.4 J	3 U	3 U
Arsenic	6 U	6 U	6 U	30.00	6 U	6 U	6 U
Barium	105	179	88.8	94.85	66.1	23.7	54.4
Beryllium	0.2 U	0.2	0.2 U	1 U	0.21	0.2 U	0.25
Cadmium	0.18	0.4	0.89	0.5	0.57	0.53	1.2
Calcium	119000	110000	123000	125965.13	71500	41700	60900
Chromium	0.5 U	0.5 U	0.5 U	2.5	0.5 U	0.5 U	0.5 U
Cobalt	1.6	1.6	0.9 J	2	0.49	0.5	0.99
Copper	2.9	5	6.6	7.57	1 U	1 U	1 U
Iron	1390	1060	12100	12789.14	10700	10700	22000
Lead	1 U	1.6	1 U	5 U	1 U	1 U	2.6
Magnesium	64200	34700	36100	38677.64	76300	65400	54900
Manganese	210 J	931 J	70.8	75.1	96.6 J	114 J	155 J
Mercury	0.14 U	0.14 U	0.1 U		0.14 U	0.14 U	0.14 U
Nickel	24.2	6.2	7.6	7.66	9.4	19.3	9.4
Potassium	4370	1560	2970	3300.32	4760	2580	3150
Selenium	4 U	4 U	4 U	20 U	4 U	4 U	4 U
Silver	2.1	2.5 J	3.8	3.03	3.3	2.6	4
Sodium	97100	36300	127000	114939.79	204000	54100	53500
Thallium	4 U	4 U	4 U	20	4 U	4 U	4 U
Vanadium	0.4 U	2.5	0.59	2	0.4 U	0.4 U	1.4
Zinc	3 U	3.5	13.1	15	3.3	5.3	4.6
Cyanide	2 U	2 U	8.6	2 U	2 U	2 U	2 U

Notes and Qualifier
definition are attached

--- : not analyzed

Appendix D-8
Analytical Results (Metals) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	OW-5S 72109008 12/19/2000	OW-6S 72131001 12/18/2000	OW-7S 71101006 07/17/2000	OW-7S 71459003 09/11/2000	OW-7S 71707003 10/20/2000	OW-7S 72109007 12/18/2000	OW-8S 72109017 12/19/2000
Metals (ug/L)							
Aluminum	R	158	---	---	---	R	8 UJ
Antimony	3.3	3 U	---	---	---	3 U	3.2 J
Arsenic	6 U	6 U	---	---	---	6 U	6 U
Barium	231 J	166	---	---	---	34.3	50.3
Beryllium	0.23	0.2 U	---	---	---	0.2 U	0.2 U
Cadmium	2.5	3.5	---	---	---	2.1	0.41
Calcium	79800	169000	---	---	---	17100	86100
Chromium	14	13.6	---	---	---	1.4	0.5 U
Cobalt	3.3	17.2 J	---	---	---	0.99	2.3
Copper	10.8	9.6	---	---	---	2.3	1 U
Iron	47500	42300	70800 J	1070	8140	11600	6850
Lead	21.3	11.1 J	---	---	---	1.5	1 U
Magnesium	49800	59500	---	---	---	6770	82000
Manganese	495 J	475	1380 J	50.6	194	207 J	62.6 J
Mercury	0.13 U	0.1 U	---	---	---	0.14 U	0.13 U
Nickel	59	141	---	---	---	6.8	26.2
Potassium	6860	2270	---	---	---	2240	2950
Selenium	4 U	4 U	---	---	---	4 U	4 U
Silver	7.9	8.1	---	---	---	2.9	1.6
Sodium	51700	37700	---	---	---	9120	50600
Thallium	4 U	4 U	---	---	---	4 U	4 U
Vanadium	5.8	2.6	---	---	---	2.1	0.4 U
Zinc	25.2	18.1	---	---	---	9.3	3 U
Cyanide	5.7	---	---	---	2 U	2 U	2 U

Notes and Qualifier
definition are attached

--- : not analyzed

Appendix D-8
Analytical Results (Metals) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	PZ-1 72073009 12/15/2000	PZ-2 72073010 12/15/2000	PZ-2 72073010DL 12/15/2000	PZ-3 72073014 12/15/2000	TW-1 71539001 09/22/2000	TW-1 71707002 10/20/2000	TW-1 72073001 12/14/2000
Metals (ug/L)							
Aluminum	2450 J	107 J	---	1490 J	---	---	27.9 J
Antimony	3 U	3.3 J	---	3 U	---	---	3 U
Arsenic	6 U	8.9	---	6 U	---	---	6 U
Barium	237 J	527 J	---	155	---	---	65
Beryllium	0.28	0.2 U	---	0.2 U	---	---	0.2 U
Cadmium	1.2	0.82	---	0.51	---	---	0.3
Calcium	389000	135000	---	189000	---	---	168000
Chromium	0.5 U	0.5 U	---	19.3	---	---	0.5 U
Cobalt	18	2.1	---	9.7	---	---	1.2
Copper	19	2.8	---	16.1	---	---	2.5
Iron	6270	9170	---	3220	525	561	362
Lead	7.6	1 U	---	1.9	---	---	1 U
Magnesium	140000	127000	---	85000	---	---	96500
Manganese	3260 J	254 J	---	407 J	4870	2050	848 J
Mercury	0.14 U	0.14 U	---	0.14 U	---	---	0.13 U
Nickel	15.6	7.2	---	18.9	---	---	14.9
Potassium	3200	9510	---	6440	---	---	5320
Selenium	4 U	4 U	---	4 U	---	---	4 U
Silver	2.5	1.4	---	0.4 U	---	---	0.9
Sodium	24500 J	33200 J	---	93300 J	---	---	41700 J
Thallium	4 U	4 U	---	4 U	---	---	4 U
Vanadium	3.5	0.4 U	---	2.7	---	---	0.4 U
Zinc	R	R	---	R	---	---	R
Cyanide	4.7	5.6	---		2 U	---	---

Notes and Qualifier
definition are attached

--- : not analyzed

Appendix D-8
Analytical Results (Metals) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID	TW-2	TW-2	TW-2	TW-3	TW3	TW-3	TW-4
Laboratory ID	71539002	71707005	72073002	71539003	71707006	72073004	71539004
Sample Date	09/22/2000	10/20/2000	12/14/2000	09/22/2000	10/20/2000	12/14/2000	09/22/2000
Metals (ug/L)							
Aluminum	---	---	55.2 J	---	---	8 U	---
Antimony	---	---	3 U	---	---	3.5 J	---
Arsenic	---	---	6 U	---	---	6 U	---
Barium	---	---	333 J	---	---	646 J	---
Beryllium	---	---	0.2 U	---	---	0.2 U	---
Cadmium	---	---	0.27	---	---	0.5	---
Calcium	---	---	209000	---	---	217000	---
Chromium	---	---	5	---	---	0.5 U	---
Cobalt	---	---	6.6	---	---	1.4	---
Copper	---	---	13.3	---	---	2	
Iron	29.3	340	741 J	1380	4500	5620	4540
Lead	---	---	1 U	---	---	1 U	---
Magnesium	---	---	128000	---	---	141000	---
Manganese	2660	5140	6680 J	381	382	145 J	277
Mercury	---	---	0.14 U	---	---	0.14 U	---
Nickel	---	---	108	---	---	90.1	---
Potassium	---	---	8600	---	---	9160	---
Selenium	---	---	4 U	---	---	4 U	---
Silver	---	---	1.4	---	---	1.1	---
Sodium	---	---	387000 J	---	---	76900 J	---
Thallium	---	---	4 U	---	---	4 U	---
Vanadium	---	---	0.4 U	---	---	0.4 U	---
Zinc	---	---	R	---	---	R	---
Cyanide	2 U	2U	2UD	---	---	---	---

Notes and Qualifier definition are attached

--- : not analyzed

Appendix D-8
Analytical Results (Metals) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	TW-4 71707007 10/20/2000	TW-4 72073012 12/14/2000
Metals (ug/L)		
Aluminum	---	114 J
Antimony	---	3 U
Arsenic	---	6 U
Barium	---	501 J
Beryllium	---	0.2 U
Cadmium	---	0.51
Calcium	---	164000
Chromium	---	0.5 U
Cobalt	---	1.4
Copper		3.1
Iron	5660	2140
Lead	---	1 U
Magnesium	---	117000
Manganese	583	124 J
Mercury	---	0.14 U
Nickel	---	55
Potassium	---	8790
Selenium	---	4 U
Silver	---	0.42
Sodium	---	40700 J
Thallium	---	4 U
Vanadium	---	0.4 U
Zinc	---	R
Cyanide	---	---

Notes and Qualifier
definition are attached

--- : not analyzed

Appendix D-9
Analytical Results (Wet Chem. and Misc.) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID **Laboratory ID** **Sample Date**	**IPZ-1** **71101004** **07/17/2000**	**IP2-1** **71459002** **09/11/2000**	**IPZ-1** **71707001** **10/20/2000**	**IPZ-1** **72073007** **12/14/2000**	**IPZ-2** **71101002** **07/17/2000**	**IPZ-2** **71707010** **10/20/2000**	**IPZ-2** **72073005** **12/14/2000**
Wet Chemistry							
Specific Conductance (uMHOS)		---	---	2,430	---	---	8,680
Fluoride	---	---	---	0.20 U	---	---	49.8
Nitrate/Nitrite	---	---	---	4 U	---	---	800 U
DOC	---	---	---	230	---	---	200
TOC	---	---	---	210	---	---	150
Specific Conductance	---	---	---	2,430	---	---	8,680
Alkalinity (mgCA)	---	---	---	450	---	---	20,000 U
Total Dissolved Solids	---	---	---	1,400	---	---	5,400
Chloride	700	700	780	510	350	5 U	10,000 U
pH	---	---	---	6.9 J	---	---	6.8 J
Phosphate-total	---	---	---	0.40 U	---	---	0.08 U
Sulfates	---	---	---	120	---	---	35,000 U
Chemical Oxygen Demand	300	240	240	---	2900	10 U	---
Bromide	---	---	---	2.0 U	---	---	800 U
Fluoride	---	---	---	0.20 U	---	---	49.8

Notes: ---: Not Analyzed
U: Not Detected
J: estimated
DNR: Do not Report
D: Result from Dilution

Appendix D-9
Analytical Results (Wet Chem. and Misc.) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	IPZ-3 71101003 07/17/2000	IPZ-3 71707008 10/20/2000	IPZ-3 72073008 12/14/2000	IW-1 71101001 07/17/2000	IW-1 71707009 10/20/2000	IW-1 72073006 12/14/2000	MW-2 72109001 12/18/2000
Wet Chemistry							
Specific Conductance (uMHOS)	---	---	15,900	---	---	19,600	1,290
Fluoride	---	---	18.0 U	---	---	38.7	0.06 U
Nitrate/Nitrite	---	---	800 U	---	---	4,000 U	0.08 U
DOC	---	---	460	---	---	340	17
TOC	---	---	350	---	---	340	15
Specific Conductance	---	---	15,900	---	---	19,600	1,290
Alkalinity (mgCA)	---	---	20,000 U	---	---	20,000 U	290
Total Dissolved Solids	---	---	9,900	---	---	18,000	710
Chloride	900	25000 U	5,000 U	300	25000 U	20,000 U	210
pH	---	---	7.7 J	---	---	6.9 J	7.3 J
Phosphate-total	---	---	0.05 U	---	---	0.05 U	0.70
Sulfates	---	---	350,000 U	---	---	350,000 U	140
Chemical Oxygen Demand	440	10000 U	---	350	10000 U	---	---
Bromide	---	---	200 U	---	---	2,000 U	0.4 U
Fluoride	---	---	18.0 U	---	---	38.7	0.06 U

Notes: ---: Not Analyzed
U: Not Detected
J: estimated
DNR: Do not Report
D: Result from Dilution

Appendix D-9
Analytical Results (Wet Chem. and Misc.) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	MW-3 72109006 12/18/2000	MW-5 72109002 12/18/2000	OW-1S 72131004 12/19/2000	OW-2S 72109015 12/19/2000	OW-3S 72109009 12/19/2000	OW-4S 72109012 12/19/2000	OW-5S 72109008 12/19/2000
Wet Chemistry							
Specific Conductance (uMHOS)	1,500	835	1,840	1,930	915	1,060	793
Fluoride	0.10	0.08 J	0.11	0.10	0.16	0.07	0.29
Nitrate/Nitrite	0.09	4.0 U	5.8	4.0 U	4.0 U	4.0 U	0.08 U
DOC	21	21	17	18	14	21	10
TOC	17	21	20	11	10	5	6
Specific Conductance	1,500	835	1,840	1,930	915	1,060	793
Alkalinity (mgCA)	330	330	470	380	330	140	250
Total Dissolved Solids	820	470	900	910	460	520	410
Chloride	250	34 U	200	350	77 U	210	58 U
pH	7.3 J	7.0 J	7.2 J	7.4 J	7.7 J	7.8 J	7.9 J
Phosphate-total	1.0	0.67	0.57 J	0.33 U	0.29 U	0.23 U	0.38 U
Sulfates	150	26	75	150	7 U	120	72
Chemical Oxygen Demand	---	---	---	---	---	---	---
Bromide	2.01	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10.0 U
Fluoride	0.10	0.08 J	0.11	0.10	0.16	0.07	0.29

Notes: ---: Not Analyzed
U: Not Detected
J: estimated
DNR: Do not Report
D: Result from Dilution

Appendix D-9
Analytical Results (Wet Chem. and Misc.) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	OW-6S 72131001 12/18/2000	OW-7S 71101006 07/17/2000	OW-7S 71459003 09/11/2000	OW-7S 71707003 10/20/2000	OW-7S 72109007 12/18/2000	OW-8S 72109017 12/19/2000	PZ-1 72073009 12/15/2000
Wet Chemistry							
Specific Conductance (uMHOS)	1,300	---	---	---	169	1,310	1,760
Fluoride	0.06 U	---	---	---	0.09	0.33	0.16
Nitrate/Nitrite	4 U	---	---	---	0.08 U	0.08 U	4 U
DOC	24	---	---	---	5 U	52	87
TOC	26	---	---	---	6	11	94
Specific Conductance	1,300	---	---	---	169	1,310	1,760
Alkalinity (mgCA)	460	---	---	---	64	290	720
Total Dissolved Solids	800 J	---	---	---	93	670	1,000
Chloride	95	150	43	50	15 U	110	180
pH	6.8 J	---	---	---	8.7 J	7.7 J	6.9
Phosphate-total	0.80 J	---	---	---	0.16	0.26 U	0.73 U
Sulfates	140	---	---	---	11	130	110
Chemical Oxygen Demand	---	130	31	42	---	---	---
Bromide	2.0 U	---	---	---	10.0 U	2.0 U	20 U
Fluoride	0.06 U	---	---	---	0.09	0.33	0.16

Notes: ---: Not Analyzed
U: Not Detected
J: estimated
DNR: Do not Report
D: Result from Dilution

Appendix D-9
Analytical Results (Wet Chem. and Misc.) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	PZ-2 72073010 12/15/2000	PZ-3 72073014 12/15/2000	TW-1 71539001 09/22/2000	TW-1 71707002 10/20/2000	TW-1 72073001 12/14/2000	TW-2 71539002 09/22/2000	TW-2 71707005 10/20/2000
Wet Chemistry							
Specific Conductance (uMHOS)	1,690	1,550	---	---	2.0 U	---	---
Fluoride	0.24	0.18	---	---	0.06 U	---	---
Nitrate/Nitrite	4 U	0.61	---	---	4 U	---	---
DOC	99	35	---	---	220	---	---
TOC	85	36	---	---	190	---	---
Specific Conductance	1,690	1,550	---	---	2.0 U	---	---
Alkalinity (mgCA)	660	570	---	---	430	---	---
Total Dissolved Solids	1,100	930	---	---	1,200	---	---
Chloride	280	140	560	570	490	900	900
pH	6.8	7.1	---	---	6.9 J	---	---
Phosphate-total	0.30 U	0.47 U	---	---	0.05 U	---	---
Sulfates	7 U	130	---	---	120	---	---
Chemical Oxygen Demand	---	---	210	200	---	230	300
Bromide	4.0 U	4.0 U	---	---	0.4 U	---	---
Fluoride	0.24	0.18	---	---	0.06 U	---	---

Notes: ---: Not Analyzed
U: Not Detected
J: estimated
DNR: Do not Report
D: Result from Dilution

Appendix D-9
Analytical Results (Wet Chem. and Misc.) in Overburden Groundwater
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	TW-2 72073002 12/14/2000	TW-3 71539003 09/22/2000	TW-3 71707006 10/20/2000	TW-3 72073004 12/14/2000	TW-4 71539004 09/22/2000	TW-4 71707007 10/20/2000	TW-4 72073012 12/14/2000
Wet Chemistry							
Specific Conductance (uMHOS)	3,790	---	---	2,840	---	---	2,240
Fluoride	0.25 U	---	---	0.24 U	---	---	0.06 U
Nitrate/Nitrite	4 U	---	---	4 U	---	---	4 U
DOC	180	---	---	140	---	---	79
TOC	140	---	---	140	---	---	73
Specific Conductance	3,790	---	---	2,840	---	---	2,240
Alkalinity (mgCA)	700	---	---	590	---	---	470
Total Dissolved Solids	560	---	---	1,600	---	---	1,300
Chloride	790	700	840	650	350	510	580
pH	6.8 J	---	---	6.9 J	---	---	7.2 J
Phosphate-total	0.62 U	---	---	0.30 U	---	---	0.05 U
Sulfates	320	---	---	110	---	---	21
Chemical Oxygen Demand	---	200	230	---	84	72	---
Bromide	10.0 U	---	---	2.0 U	---	---	2.0 U
Fluoride	0.25 U	---	---	0.24 U	---	---	0.06 U

Notes: ---: Not Analyzed
U: Not Detected
J: estimated
DNR: Do not Report
D: Result from Dilution

Appendix D-10
Analytical Results (VOCs) in Bedrock Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	OW-1R 72131003 12/19/2000	OW-2R 72109014 12/19/2000	OW-3R 72109010 12/19/2000	OW-4R 72109013 12/19/2000	OW-7R 71101005 07/17/2000	OW-7R 71459004 09/11/2000	OW-7R 71459004RE 09/11/2000
Volatiles (ug/L)							
1,1,1,2-Tetrachloroethane	---	---	---	---	500 U	500 U	500 U
1,1,1-Trichloroethane	10 U	10 U	10 U	10 U	1200	590	320
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
1,1,2-Trichloroethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
1,1-Dichloroethane	10 U	10 U	10 U	10 U	2900	3800	2600
1,1-Dichloroethene	10 U	10 U	10 U	10 U	500 U	290	130
1,1-Dichloropropene	---	---	---	---	500 U	500 U	500 U
1,2,3-Trichlorobenzene	---	---	---	---	500 U	500 U	500 U
1,2,3-Trichloropropane	---	---	---	---	500 U	500 U	500 U
1,2,4-Trichlorobenzene	---	---	---	---	500 U	500 U	500 U
1,2,4-Trimethylbenzene	---	---	---	---	500 U	500 U	500 U
1,2-Dibromo-3-chloropropane	---	---	---	---	500 U	500 U	500 U
1,2-Dibromoethane	---	---	---	---	500 U	500 U	500 U
1,2-Dichlorobenzene	---	---	---	---	500 U	500 U	500 U
1,2-Dichloroethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
1,2-Dichloroethene (Total)	10 U	6	10 U	10 U	---	---	---
1,2-Dichloropropane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
1,3,5-Trimethylbenzene	---	---	---	---	500 U	500 U	500 U
1,3-Dichlorobenzene	---	---	---	---	500 U	500 U	500 U
1,3-Dichloropropane	---	---	---	---	500 U	500 U	500 U
1,4-Dichlorobenzene	---	---	---	---	500 U	500 U	500 U
2,2-Dichloropropane	---	---	---	---	500 U	500 U	500 U
2-Butanone	10 U	10 UJ	10 UJ	10 UJ	500 U	500 U	500 U
2-Chloroethyl vinyl ether	---	---	---	---	500 U	---	---
2-Chlorotoluene	---	---	---	---	500 U	500 U	500 U
2-Hexanone	10 U	10 U	10 U	10 U	500 U	500 U	500 U
4-Chlorotoluene	---	---	---	---	500 U	500 U	500 U
4-Isopropyltoluene	---	---	---	---	500 U	500 U	500 U
4-Methyl-2-Pentanone	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Acetone	10 U	10 UJ	10 UJ	10 UJ	500 UJ	500 U	500 U
Benzene	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Bromobenzene	---	---	---	---	500 U	500 U	500 U
Bromochloromethane	---	---	---	---	500 U	500 U	500 U
Bromodichloromethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Bromoform	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Bromomethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Carbon Disulfide	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Carbon Tetrachloride	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Chlorobenzene	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Chloroethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Chloroform	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Chloromethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
cis-1,2-Dichloroethene	---	---	---	---	13000	16000	10000
cis-1,3-Dichloropropene	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Dibromochloromethane	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Dibromomethane	---	---	---	---	500 U	500 U	500 U
Dichlorodifluoromethane	---	---	---	---	500 U	500 U	500 U
Ethylbenzene	10 U	10 U	10 U	10 U	500 U	500 U	500 U
Hexachlorobutadiene	---	---	---	---	500 U	500 U	500 U
Iodomethane	---	---	---	---	500 U	500 U	500 U
Isopropylbenzene	---	---	---	---	500 U	500 U	500 U

Appendix D-10
Analytical Results (VOCs) In Bedrock Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	OW-7R 71707004 10/20/2000	OW-7R 72131002 12/18/2000
Volatiles (ug/L)		
1,1,1,2-Tetrachloroethane	500 U	---
1,1,1-Trichloroethane	200	18 J
1,1,2,2-Tetrachloroethane	500 U	100 UJ
1,1,2-Trichloroethane	500 U	100 UJ
1,1-Dichloroethane	2000	200 J
1,1-Dichloroethene	110	100 UJ
1,1-Dichloropropene	500 U	---
1,2,3-Trichlorobenzene	500 U	---
1,2,3-Trichloropropane	500 U	---
1,2,4-Trichlorobenzene	500 U	---
1,2,4-Trimethylbenzene	500 U	---
1,2-Dibromo-3-chloropropane	500 U	---
1,2-Dibromoethane	500 U	---
1,2-Dichlorobenzene	500 U	---
1,2-Dichloroethane	500 U	100 UJ
1,2-Dichloroethene (Total)	---	610 J
1,2-Dichloropropane	500 U	100 UJ
1,3,5-Trimethylbenzene	500 U	---
1,3-Dichlorobenzene	500 U	----
1,3-Dichloropropane	500 U	----
1,4-Dichlorobenzene	500 U	----
2,2-Dichloropropane	500 U	----
2-Butanone	500 U	100 UJ
2-Chloroethyl vinyl ether	---	---
2-Chlorotoluene	500 U	---
2-Hexanone	500 U	100 UJ
4-Chlorotoluene	500 U	---
4-Isopropyltoluene	500 U	---
4-Methyl-2-Pentanone	500 U	100 UJ
Acetone	500 U	100 UJ
Benzene	500 U	100 UJ
Bromobenzene	500 U	---
Bromochloromethane	500 U	----
Bromodichloromethane	500 U	100 UJ
Bromoform	500 U	100 UJ
Bromomethane	500 U	100 UJ
Carbon Disulfide	500 U	100 UJ
Carbon Tetrachloride	500 U	100 UJ
Chlorobenzene	500 U	100 UJ
Chloroethane	500 U	100 UJ
Chloroform	500 U	100 UJ
Chloromethane	500 U	100 UJ
cis-1,2-Dichloroethene	8200	---
cis-1,3-Dichloropropene	500 U	100 UJ
Dibromochloromethane	500 U	100 UJ
Dibromomethane	500 U	----
Dichlorodifluoromethane	500 U	---
Ethylbenzene	500 U	100 UJ
Hexachlorobutadiene	500 U	---
Iodomethane	500 U	---
Isopropylbenzene	500 U	---

Appendix D-11
Analytical Results (Metals) in Bedrock Groundwater Samples
NYSDEC-SOH, Henrietta, NY

Sample ID Laboratory ID Sample Date	OW-1R 72131003 12/19/2000	OW-2R 72109014 12/19/2000	OW-3R 72109010 12/19/2000	OW-4R 72109013 12/19/2000	OW-7R 71101005 07/17/2000	OW-7R 71459004 09/11/2000	OW-7R 71459004RE 09/11/2000	OW-7R 71707004 10/20/2000	OW-7R 72131002 12/18/2000
Metals (ug/L)									
Aluminum	14.4	8 UJ	26.8 R	8 UJ	---	---	---	---	54.1
Antimony	3 U	3.6 J	3	3 J	---	---	---	---	3 U
Arsenic	6 U	6 U	6 U	6 U	---	---	---	---	6 U
Barium	26.8	11.3	6.9	10.7	---	---	---	---	8.2
Beryllium	0.2 U	0.2 U	0.2 U	0.2 U	---	---	---	---	0.2 U
Cadmium	1.4	0.8	2.6	1.3	---	---	---	---	0.71
Calcium	25000	33000	411000	182000	---	---	---	---	45700
Chromium	0.5 U	0.5 U	0.5 U	0.5 U	---	---	---	---	1.8
Cobalt	0.84 J	0.57	0.83	0.89	---	---	---	---	0.49 J
Copper	1.4	11.9	5.6	9.8	---	---	---	---	4.5
Iron	19600	16000	52800	25100	1340 J	4710	---	7360	3790
Lead	1.4 J	2.6	2.5	1.3	---	---	---	---	1.3 J
Magnesium	24800	29800	35200	50500	---	---	---	---	804
Manganese	278	327 J	2530 J	707 J	20.2 J	66.6	---	290	55.6 J
Mercury	0.1 U	0.14 U	0.13 U	0.13 U	---	---	---	---	0.1 U
Nickel	10.1	5.2	7.8	8.5	---	---	---	---	4.4
Potassium	3150	3920	9840	9240	---	---	---	---	9760 J
Selenium	4 U	4 U	4 U	4 U	---	---	---	---	4 U
Silver	3.3	2.9	13.2	6.4	---	---	---	---	1.8
Sodium	18300	13500	15600	26300	---	---	---	---	14300
Thallium	4 U	4 U	4 U	4 U	---	---	---	---	4 U
Vanadium	0.67	0.8	2.9	1.4	---	---	---	---	0.4 U
Zinc	5.7	4.5	10.3	5	---	---	---	---	5.8

---: Not Analyzed
U: Not Detected
J: Estimated Value
DNR: Do not Report
D: Result from Dilution

Appendix D-12
Analytical Results (Wet Chem. and Misc.) in Bedrock Groundwater
NYSDEC SOH, Henrietta, NY

Sample ID **Laboratory ID** **Sample Date**	**OW-1R** 72131003 12/19/2000	**OW-2R** 72109014 12/19/2000	**OW-3R** 72109010 12/19/2000	**OW-4R** 72109013 12/19/2000	**OW-7R** 71101005 07/17/2000	**OW-7R** 71459004 09/11/2000	**OW-7R** 71707004 10/20/2000	**OW-7R** 72131002 12/18/2000
Analyte								
Wet Chemistry								
Specific Conductance (uMHOS)	572	605	1,920	1,210	---	---	---	572
Fluoride	0.06 U	0.14	0.06 U	0.46	---	---	---	0.06 U
Nitrate/Nitrite	4 U	4.0 U	4.0 U	4.0 U	---	---	---	0.34
DOC	5 U	5	5 U	5 U	---	---	---	5 U
TOC	6	5 U	5 U	5 U	---	---	---	5 U
Specific Conductance	572	605	1,920	1,210	---	---	---	572
Alkalinity (mgCA)	85	29	20 U	20 U	---	---	---	72
Total Dissolved Solids	290	250	1,800	960	---	---	---	210 J
Chloride	46	150	28 U	12 U	140	120	110	15
pH	9.8 J	8.0 J	5.9 J	6.8 J	---	---	---	11.2 J
Phosphate-total	0.22 J	0.05 U	0.07 U	0.05 U	---	---	---	0.12 J
Sulfates	100	28	1,400	830	---	---	---	53
Chemical Oxygen Demand	---	---	---	---	86	33	38	
Bromide	2.0 U	2.0 U	10.0 U	2.0 U	---	---	---	2.0 U
Fluoride	0.06 U	0.14	0.06 U	0.46	---	---	---	0.06 U
Cyanide	2 U	2 U	2 U	2 U	---	---	---	2.1

Notes: ---: Not Analyzed
U: Not Detected
J: estimated
DNR: Do not Report
D: Result from Dilution

Appendix D-13
Analytical Result (VOCs) from Water Sample Collected from Vault

Sample ID **Laboratory ID** **Sample Date**	**Vault** **80333001** **2/15/01**
Volatiles (ug/L)	
1,1,1,2-Tetrachloroethane	250 U
1,1,1-Trichloroethane	9,400
1,1,2,2-Tetrachloroethane	250 U
1,1,2-Trichloroethane	250 U
1,1-Dichloroethane	92
1,1-Dichloroethene	1,800
1,1-Dichloropropene	250 U
1,2,3-Trichlorobenzene	250 U
1,2,3-Trichloropropane	250 U
1,2,4-Trichlorobenzene	250 U
1,2,4-Trimethylbenzene	250 U
1,2-Dibromo-3-chloropropa	250 U
1,2-Dibromoethane	250 U
1,2-Dichlorobenzene	250 U
1,2-Dichloroethane	160
1,2-Dichloroethene (Total)	250 U
1,2-Dichloropropane	250 U
1,3,5-Trimethylbenzene	250 U
1,3-Dichlorobenzene	250 U
1,3-Dichloropropane	250 U
1,4-Dichlorobenzene	250 U
2,2-Dichloropropane	250 U
2-Butanone	250 U
2-Chloroethyl vinyl ether	250 U
2-Chlorotoluene	250 U
2-Hexanone	250 U
4-Chlorotoluene	250 U
4-Isopropyltoluene	250 U
4-Methyl-2-Pentanone	250 U
Acetone	250 U
Benzene	250 U
Bromobenzene	250 U
Bromochloromethane	250 U
Bromodichloromethane	250 U

Appendix D-13

Analytical Result (VOCs) from Water Sample Collected from Vault

Sample ID Laboratory ID Sample Date	**Vault 80333001 2/15/01**
Volatiles (ug/L)	
Dibromomethane	250 U
Dichlorodifluoromethane	250 U
Ethylbenzene	250 U
Hexachlorobutadiene	250 U
Iodomethane	250 U
Isopropylbenzene	250 U
Methyl tert-butyl ether	250 U
Methylene Chloride	250 U
Naphthalene	250 U
n-Butylbenzene	250 U
Nitrate	250 U
n-Propylbenzene	250 U
sec-Butylbenzene	250 U
Styrene	250 U
tert-Butylbenzene	250 U
Tetrachloroethene	250 U
Toluene	66
trans-1,2-Dichloroethene	250 U
trans-1,3-Dichloropropene	250 U
Trichloroethene	250 U
Trichlorofluoromethane	250 U
Vinyl acetate	250 U
Vinyl Chloride	250 U
Xylene (Total)	250 U

Note: Result not validated

Appendix D-14
Analytical Result (Metals) in Water Sample Collected from Vault
NYSDEC-SOH, Henrietta, NY

Sample ID **Laboratory ID** **Sample Date**	**Vault** **803333001** **12/15/01**
Metals (ug/L)	
Aluminum	267
Antimony	132
Arsenic	8.7
Barium	406
Beryllium	2.0 U
Cadmium	31.7
Calcium	90,600
Chromium	188
Cobalt	115
Copper	434
Iron	2,130
Lead	51
Magnesium	20,600
Manganese	198
Mercury	0.14 U
Nickel	224,000
Potassium	145,000
Selenium	86.8
Silver	4
Sodium	2,520,000
Thallium	3.0 U
Vanadium	23.4
Zinc	4,670
Cyanide	75.5

Note: Result not validated

Appendix D-15
Analytical Result (SVOCs) in Water Sample Collected from Vault

Sample ID Lab ID Sample Date	Vault 80333001 2/15/01
Semivolatiles ug/kg	
1,2,4-Trichlorobenzene	10 U
1,2-Dichlorobenzene	10 U
1,3-Dichlorobenzene	10 U
1,4-Dichlorobenzene	10 U
Hexachlorobutadiene	10 U
Naphthalene	10 U
1,2,4-Trichlorobenzene	10 U
1,2-Dichlorobenzene	10 U
1,3-Dichlorobenzene	10 U
1,4-Dichlorobenzene	10 U
2,2-oxybis(1-Chloropropane)	10 U
2,4,5-Trichlorophenol	20 U
2,4,6-Trichlorophenol	10 U
2,4-Dichlorophenol	10 U
2,4-Dimethylphenol	10 U
2,4-Dinitrophenol	20 U
2,4-Dinitrotoluene	10 U
2,6-Dinitrotoluene	10 U
2-Chloronaphthalene	10 U
2-Chlorophenol	10 U
2-Methylnaphthalene	10 U
2-Methylphenol	10 U
2-Nitroaniline	20 U
2-Nitrophenol	10 U
3,3-Dichlorobenzidine	10 U
3-Nitroaniline	20 U
4,6-Dinitro-2-methylphenol	20 U
4-Bromophenyl-phenylether	10 U
4-Chloro-3-methylphenol	10 U
4-Chloroaniline	10 U
4-Chlorophenyl-phenylether	10 U
4-Methylphenol	10 U

Appendix D-15
Analytical Result (SVOCs) in Water Sample Collected from Vault

Sample ID	**Vault**
Lab ID	**80333001**
Sample Date	**2/15/01**
Semivolatiles ug/kg	
bis(2-Chloroethoxy)methane	10 U
bis(-2-Chloroethyl)Ether	10 U
bis(2-Ethylhexyl)phthalate	7
Butylbenzylphthalate	1
Carbazole	10 U
Chrysene	10 U
Dibenzo(a,h)anthracene	10 U
Dibenzofuran	10 U
Diethylphthalate	10 U
Dimethylphthalate	10 U
Di-n-butylphthalate	10 U
Di-n-octylphthalate	10
Fluoranthene	10 U
Fluorene	10 U
Hexachlorobenzene	10 U
Hexachlorobutadiene	10 U
Hexachlorocyclopentadiene	10 U
Hexachloroethane	10 U
Indeno(1,2,3-cd)pyrene	10 U
Isophorone	1
Naphthalene	10 U
Nitrobenzene	10 U
N-Nitroso-di-n-propylamine	10 U
N-Nitrosodiphenylamine (1)	10 U
Pentachlorophenol	20 U
Phenanthrene	10 U
Phenol	9
Pyrene	10 U

Note: Result not validated

APPENDIX E

DUSR REPORT

DATA VALIDATION QUALIFIER CODES

National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70674

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of nine soil samples and one field blank. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-12 24-26C	SB-10A 32-34 C
SB-12 26-28B	SB-11 38-40C
SB-12 26-28D	SB-11 38-40D
SB-10A 30-32D	SB-11 40-42 D
SB-10A 32-34B	Field Blank (SB-10A)

The following two sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, May 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

- Volatile Organics, May 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

The data package as presented is complete according to CLP

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Acetone and tetrachloroethene were present in one method blank associated with the medium level soils. These analytes were not reported from the medium level analyses; therefore, no qualifiers were required.

The field blank (Field Blank (SB-10A)) contained chloroform and tetrachloroethene. There were no positive results for these analytes in the associated samples (the samples collected on the same day as the field blank). No qualifiers were required.

For one initial calibration, the percent relative standard deviation (%RSD) value for acetone (51.9%) was greater than the QC limit. No action was required because acetone was not reported from the associated analyses.

For one continuing calibration standard, the percent difference (%D) values for acetone (35.7%), chloromethane (25.5%), and 2-butanone (38.0%) were outside the QC limit. Results for these analytes in the field blank were qualified as estimated (UJ).

Three samples (SB-11 38-40C, SB-11 38-40D and SB-11 40-42D) had analytes that exceeded the calibration range. The samples were extracted as a medium level and re-analyzed. Results of the re-analysis were acceptable. Results for these samples were reported as a combination of the diluted and original samples. Results that were not used were qualified as do-not-report (DNR). For Sample SB-11 40-42D, the methylene chloride result that exceeded the calibration range from the original analysis was reported and qualified as estimated (J) because methylene chloride would have been qualified as

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, all volatiles results were qualified as estimated due to holding time outliers.

Chloromethane, acetone, and 2-butanone results were qualified as estimated (UJ) in the field blank due to calibration outliers.

Two sets of volatiles results were reported for Samples SB-11 38-40C, SB-11 38-40D and SB-11 40-42D; an original and medium level analysis. One result for each analyte was qualified as do-not-report (DNR).

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the volatiles analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70688

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of nine soil samples and two field blanks. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-9 18-20A	Field Blank (SB-8)
SB-9 20-22A	SB-7 18-20A
SB-9 34-36A	SB-7 16-18D
SB-8 26-28B	SB-7 34-36A
SB-8 26-28C	SB-7 Field Blank
SB-8 26-28D	

The following two sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, May 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

- Volatile Organics, May 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Methylene chloride, acetone, and/or tetrachlorethene were present in three method blanks at a concentration less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times (methylene chloride and acetone) or five times (tetrachloroethane) the concentration found in the blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

The field blanks, Field Blank (SB-8) and SB-7 Field Blank, contained acetone, chloroform, and toluene. All positive results less than the action level of ten times (acetone) and five times (chloroform and toluene) the concentration found in the blanks were qualified as not detected (U) at the reported concentration in the associated samples (samples collected on the same day as the field blank). If the concentration in the sample was greater than the CRQL, the result was qualified as not-detected at the reported concentration. If the concentration was less than the CRQL, the reporting limit was raised to the CRQL.

For one initial calibration, the percent relative standard deviation (%RSD) value for acetone (51.9%) was greater than the QC limit. Positive results for acetone were

For one continuing calibration standard, the %D value for chloroethane (27.5%) was outside the QC limit. The results for this analyte in Samples SB-9 18-20A, SB-9 20-22A, SB-7 18-20A, and SB-7 16-18D were qualified as estimated (J/UJ).

For one continuing calibration standard, the %D values for acetone (28.3%) and 2-hexanone (32.5%) were outside the QC limit. Only QC samples were associated with this standard; therefore, no qualifiers were required.
Three samples (SB-8 26-28B, SB-8 26-28C, and SB-8 26-28D) had analytes that exceeded the calibration range. These samples were extracted as a medium level and re-analyzed. Results of the re-analyses were acceptable. Results for these samples were reported as a combination of the diluted and original samples. Results that were not used were qualified as do-not-report (DNR). For Samples SB-8 26-28B and SB-8 26-28C, the methylene chloride results that exceeded the calibration range from the original analyses were reported and qualified as estimated (J) because methylene chloride would have been qualified as not detected in the re-analyses due to blank contamination.

Sample SB-9 34-36A was re-analyzed to insure that the results were not due to carry-over from another sample. The re-analysis results (SB-9 34-36ARE) confirmed that there was no carry-over. Therefore, the original results should be reported. The re-analysis results were qualified as do-not-report (DNR).

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the CLP protocols: NYSDEC ASP (10/95) for organics.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, all volatiles results except for SB-7 Field Blank were qualified as estimated due to holding time outliers.

Six methylene chloride results, nine acetone results, and three tetrachloroethene results were qualified as not detected (U) due to method blank contamination. The reporting limit was raised to the CRQL when the concentration was less than the CRQL.

Six acetone results and three toluene results were qualified as not detected (U) due to field blank contamination. The reporting limit was raised to the CRQL when the concentration was less than the CRQL.

The results for chloroethane, acetone, 2-butanone, 1,1,1-trichloroethane, and carbon tetrachloride were qualified as estimated (J/UJ) in Samples SB-8 26-28C, SB-9 34-36A, SB-8 26-28B, SB-8 26-28D, and SB-7 34-36A due to calibration outliers.

The results for chloroethane were qualified as estimated (J/UJ) in Samples SB-9 18-20A, SB-9 20-22A, SB-7 18-20A, and SB-7 16-18D due to calibration outliers.

Two sets of volatiles results were reported for Samples SB-8 26-28B, SB-8 26-28C, and SB-8 26-28D; an original and medium level analysis. One result for each analyte was qualified as do-not-report (DNR).

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

6.0 Summary

As a result of the evaluation of this data package, it is determined that volatiles data that

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70713

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of eight soil samples and one field blank. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds and TOC. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-4 4-6B	SB-4 16-18B
SB-4 26-28A	SB-5 10-12A
SB-4 14-16B	SB-5 24-26A
SB-4 16-18A	SB-5 22-24B
SB-4 Field Blank	

The following three sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received August 16, 2000.
- Volatile Organics, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received August 21, 2000.
- Total Organic Compounds, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received August 24, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Methylene chloride and acetone were present in two method blanks at concentrations less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times the concentration found in the method blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

Acetone, chloroform, and tetrachloroethene were present in the field blank, SB-4 Field Blank. All positive results less than the action level of ten times (acetone) and five times (chloroform and tetrachloroethene) the concentration found in the field blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL

For the initial calibration associated with the field blank, the percent relative standard deviation (%RSD) value for acetone (51.9%) was greater than the QC limit. The positive result for acetone in the field blank was qualified as estimated (J).

For one continuing calibration standard, the percent difference (%D) values for 1,1,1-trichloroethane (26%) and carbon tetrachloride (26.1%) were outside the QC limit reported with one exception. The acetone result in the re-analysis was two times higher than the concentration in the original analysis. Therefor, the acetone result from the original analysis should be used. Results that were not used were qualified as do-not-report (DNR).

TOC: All data were within QC limits.

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the CLP protocols: NYSDEC ASP (10/95) for organics and EPA 415.1 for TOC.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRTs) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

TOC: Raw data were present for TOC analyses to determine that the results presented by the laboratory were accurate and met method criteria.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

5.0 Data Qualifiers

The acetone result for Sample SB-4 16-18B was qualified as not detected (U) at the reported concentration due to field blank contamination.

Acetone was qualified as estimated (J) in the field blank due to a calibration outlier.

Carbon tetrachloride and 1,1,1-trichloroethane results were qualified as estimated (UJ) in Samples SB-4 16-18A and SB-4 16-18B due to calibration outliers.

Two sets of volatiles results were reported for Sample SB-5 22-24B; an original and a re-analysis. One result for each analyte was qualified as do-not-report (DNR).

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

6.0 Summary

As a result of the evaluation of this data package, it is determined that results for TOC are acceptable as the laboratory reported. Results for volatiles that were qualified do-not-report (DNR) should not be used. All other volatiles data, as qualified, are acceptable.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature, and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the volatiles analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70733

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of eight soil samples, one field duplicate, and one field blank. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds and TOC. A matrix spike and matrix spike duplicate analysis was performed for volatiles.

SB-5 30-32A	SB-6 4-6C
SB-6 10-12A	SB-6 20-22A
SB-6 30-32A	SB-6 10-12C
SB-6 34-36A	SBX-6 4-6A
Field Dupe #1	Field Blank

The following three sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.
- Volatile Organics, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.
- Total Organic Compounds, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Methylene chloride and acetone were present in two method blanks at concentrations less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times the concentration found in the blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

The field blank contained chloroform. This analyte was not present in the associated samples; therefore, no qualifiers were required.

For one continuing calibration standard, the percent difference (%D) value for 2-butanone (30.4%) was outside the QC limit. The results for this analyte in Sample SBX-6 4-6A and the field blank were qualified as estimated (UJ).

For one continuing calibration standard, the %D value for chloroethane (25.5%), acetone (37.3%), 2-butanone (35.5%), 1,1,1-trichloroethane (27.9%), and carbon tetrachloride (28.6%) were outside the QC limit. The results for these analytes in Samples SB-5 30-32A, Field Dupe #1, SB-6 20-22A, and SB-6 10-12C were qualified as estimated (J/UJ).

The percent recovery (%R) values for 1,2-dichloroethane-d4 were greater than the upper control limit for Samples SB-5 30-32A, Field Dupe #1, and SB-6 10-12CDL. Positive results in these samples were qualified as estimated (J).

Three samples (SB-5 30-32A, SB-6 10-12C, and SB-6 20-22A) had analytes that

2-butanone were qualified as estimated (J/UJ) in the field duplicate samples because of the gross difference in results (greater than 100%).

TOC: All data were within QC limits.

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the CLP protocols: NYSDEC ASP (10/95) for organics and EPA 415.1 for TOC.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRTs) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

TOC: Raw data were present for TOC analyses to determine that the results presented by the laboratory were accurate and met method criteria.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by

Results for 2-butanone and 1,1,1-trichloroethane were qualified as estimated (J/UJ) in Samples SB-6 34-36A and Field Dupe #1 due to precision outliers for the field duplicate samples.

The result for 2-butanone in Sample SBX-6 4-6A was qualified as estimated (UJ) due to a calibration outlier.

The results for chloroethane, acetone, 2-butanone, 1,1,1-trichloroethane, and carbon tetrachloride in Samples SB-5 30-32A, Field Dupe #1, SB-6 20-22A, and SB-6 10-12C were qualified as estimated (J/UJ) due to calibration outliers.

Positive results in Samples SB-5 30-32A, Field Dupe #1, and SB-6 10-12CDL were qualified as estimated (J) because of surrogate outliers.

Two sets of volatiles results were reported for Samples SB-5 30-32A, SB-6 10-12C, and SB-6 20-22A; an original and a diluted analysis. One result for each analyte was qualified as do-not-report (DNR).

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

6.0 Summary

As a result of the evaluation of this data package, it is determined that results for TOC are acceptable as the laboratory reported. Results for volatiles that were qualified do-not-report (DNR) should not be used. All other volatiles data, as qualified, are acceptable.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature, and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the volatiles analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70751

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of 15 soil samples and one field duplicate sample. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds, Semivolatile Organic Compounds, Pesticide/PCB Compounds and TOC. A matrix spike and matrix spike duplicate analysis was performed for Purgeable Organic Compounds.

SBX-6 4-6B	Field Dupe #2
SBX-6 6-8B	SB-1 10-12B
SBX-6 40-42C	SB-1 10-12C
SB-1 4-6A	SB-1 12-14A
SB-1 6-8C	SB-2 18-20D
SB-1 8-10A	SB-2 20-22B
SB-1 16-18D	SB-2 20-22C
SB-1 CUTTINGS	SB-2 40-42A

The following five sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.
- Volatile Organics, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.
- Semivolatile Organics, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

1.0 Completeness and Holding Times

The data package as presented is complete according to CLP requirements. The holding time for TOC was met.

The volatiles analyses of all samples were performed one to three days past the required 10 day holding time. All results for the volatiles samples were qualified as estimated (J/UJ).

The semivolatiles and pesticide/PCBs extractions of Sample SB-1 CUTTINGS were performed one day past the required seven day holding time. All semivolatile and Pesticide/PCB results for this sample were qualified as estimated (UJ).

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Methylene chloride, acetone, and 2-hexanone were present in two method blanks at concentrations less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times (acetone and methylene chloride) and five times (2-hexanone) the concentration found in the blanks were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

The percent recovery (%R) values for bromofluorobenzene and 1,2-dichloroethane-d4 in Sample SBX-6.4-6B and bromofluorobenzene in Sample SBX-6.6-8B were greater than the diluted and original samples. Results that were not used were qualified as do-not-report (DNR). For Samples SB-2 20-22C and SB-2 40-42A, the acetone results that exceeded the calibration range from the original analyses were reported and qualified as estimated (J) because acetone would have been qualified as not detected in the re-analyses due to blank contamination.

Semivolatiles: Several tentatively identified compounds (TIC) were reported in the method blank. Results for these TICs in Sample SB-1 CUTTINGS that were less than five times the concentration in the method blank were rejected (R).

The percent relative standard deviation (%RSD) value for 4-chlorophenylphenylether (31.1%) was greater than the QC limit for the initial calibration. Since this compound was not detected in the associated sample, no qualifiers were assigned.

For one continuing calibration standard, the percent difference (%D) values for 4-chlorophenylphenylether (27.1%) and di-n-octylphthalate (25.4%) were outside the QC limit. Reporting limits for these compounds were qualified as estimated (UJ) in Sample SB-1 CUTTINGS.

The identifications of five semivolatile TICs were changed to the generic identification of "alkane". These TICs were not listed in the laboratory narrative as required by the Region II guidelines. No action was taken.

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the laboratory control sample percent recovery (%R) values were acceptable and there were no positive results in the sample.

Pesticide/PCBs: Endrin breakdown and total breakdown for one performance evaluation mixture were greater than the QC limit. No action was taken since there were no positive results in the associated sample.

Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the laboratory control sample percent recovery (%R) values were acceptable and there were no positive results in the sample.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis, Relative Retention Times (RRTs) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRFs) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Semivolatiles: For SVOA analysis, Relative Retention Times (RRTs) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRFs) were used to quantitate target compounds.

The identifications of five TICs were changed to the generic identification of "alkane". These TICs were not listed in the laboratory narrative as required by the Region II guidelines. No action was taken. All remaining TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Pesticides/PCBs: For Pesticides/PCBs analysis, Retention Times (RT) for target analytes were within the retention time windows established by the initial calibration. Quantitation reports were provided for all identified target compounds. Resolution between analyte peaks was acceptable. There were no false negatives identified.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, all volatiles, semivolatiles and pesticide/PCB results were qualified as estimated due to holding time outliers.

Nine methylene chloride results and ten acetone results were qualified as not detected (U) due to blank contamination. The reporting limit was raised to the CRQL when the concentration of methylene chloride was less than the CRQL.

Ten semivolatile TICs were rejected because of method blank contamination. Other TIC identifications were changed to the more generic identification of "alkane".

Di-n-octylphthalate and 4-chlorophenylphenylether reporting limits were qualified as estimated (UJ) in Sample SB-1 CUTTINGS because of a calibration outlier.

Two sets of volatiles results were reported for Samples SB-1 10-12C, SB-2 18-20D, SB-2 20-22C, SB-2 40-42A, SBX-6 4-6B, and SBX-6 6-8B; an original and a diluted or medium level analysis. One result for each analyte was qualified as do-not-report (DNR).

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

6.0 Summary

As a result of the evaluation of this data package, it is determined that results for TOC are acceptable as the laboratory reported. Results for volatiles and semivolatiles data that were qualified do-not-report (DNR) or rejected (R) should not be used. All other volatiles and semivolatiles data, as qualified, are acceptable. All pesticide/PCB data, as qualified, are acceptable.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70768

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of six soil samples. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-3 16-18C	SB-15 18-20B
SB-3 28-30A	SB-15 18-20C
SB-3 30-32A	SB-15 20-22A

The following two sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

- Volatile Organics, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

The data package as presented is complete according to CLP requirements. Holding times for the undiluted analyses of Samples SB-15 18-20C and SB-15 20-22A were met. All

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Methylene chloride was present in one method blank and acetone was present in another method blank at a concentration less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times the concentration found in the blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

For one continuing calibration standard, the percent difference (%D) value for 1,1-dichloroethene (37.7%) was outside the QC limit. Results for this analyte in Samples SB-3 30-32A, SB-15 18-20C, and SB-15 20-22A were qualified as estimated (UJ).

Three samples (SB-15 18-20C, SB-15 20-22A, and SB-33 30-32A) had analytes that exceeded the calibration range. The samples were extracted as a medium level and re-analyzed. Results of the re-analyses were acceptable. Results for these samples were reported as a combination of the medium level and original samples. Results that were not used were qualified as do-not-report (DNR).

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the CLP protocols: NYSDEC ASP (10/95) for organics.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, all volatiles results for Samples SB-3 16-18C, SB-3 28-30A, SB-3 30-32A, SB-15 18-20B, SB-15 18-20CDL, and SB-15 20-22ADL were qualified as estimated due to holding time outliers.

One methylene chloride result and one acetone result were qualified as not detected (U) due to blank contamination. The reporting limit was raised to the CRQL when the concentration was less than the CRQL.

Results for 1,1-dichloroethene were qualified as estimated (UJ) in Samples SB-3 30-32A, SB-15 18-20C, and SB-15 20-22A due to calibration outliers.

Two sets of volatiles results were reported for Samples SB-15 18-20C, SB-15 20-22A, and SB-33 30-32A; an original and medium level or diluted analysis. One result for each analyte was qualified as do-not-report (DNR).

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

6.0 Summary

As a result of the evaluation of this data package, it is determined that volatiles data that are qualified as do-not-report (DNR) should not be used. All other data, as qualified, are acceptable.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70866

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of four soil samples and one field blank. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds and TOC. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-16 18-20A	SB-16 44-46A
SB-16 26-28A	SB-16 Field Blank
SB-16 36-38A	

The following three sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

- Volatile Organics, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

- Total Organic Compounds, June 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Methylene chloride was present in one method blank at a concentration less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times the concentration found in the blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

The field blank (SB-16 Field Blank) contained methylene chloride, acetone, chloroform, and trichloroethene. All positive results less than the action level of ten times (methylene chloride and acetone) and five times (chloroform and trichloroethene) the concentration found in the blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

For one continuing calibration standard, the percent difference (%D) values for acetone (33.2%) and 2-hexanone (29.2%) were outside the QC limit. Results for these analytes in the associated samples were qualified as estimated (J/UJ).

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

TOC: Raw data were present for TOC analyses to determine that the results presented by the laboratory were accurate and met method criteria.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, all volatiles results for Sample SB-16 44-46A were qualified as estimated due to a holding time outlier.

One methylene chloride result was qualified as not detected (U) due to method blank contamination. The reporting limit was raised to the CRQL.

Three trichloroethene results and one acetone result were qualified as not detected (U) due to field blank contamination. The reporting limit was raised to the CRQL when the

6.0 Summary

As a result of the evaluation of this data package, it is determined that results for TOC, as qualified, are acceptable. All volatiles data, as qualified, are acceptable.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature, and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the volatiles analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70905

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of seven soil samples. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds and TOC. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-17 16-18A	SB-19 4-6A
SB-17 28-30A	SB-19 26-28A
SB-17 24-26B	SB-19 24-26A
SB-17 10-12B	

The following three sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, July 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.
- Volatile Organics, July 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.
- Total Organic Compounds, July 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Methylene chloride and acetone were present in two method blanks at concentrations less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times the concentration found in the blank were qualified as not detected (U). The reporting limit was raised to the CRQL if the concentration in the sample was less than the CRQL. If, however, the concentration was greater than the CRQL, the reporting limit was raised to match the concentration.

For one continuing calibration standard, the percent difference (%D) value for bromomethane (36.8%) was outside the QC limit. Since this standard was associated with only QC samples, no qualifiers were required.

One sample (SB-19 24-26A) had an analyte that exceeded the calibration range. The sample was diluted and re-analyzed. Results of the re-analysis were acceptable. Results for these samples were reported as a combination of the diluted and original samples. Results that were not used were qualified as do-not-report (DNR).

TOC: All data were within QC limits.

provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

TOC: Raw data were present for TOC analyses to determine that the results presented by the laboratory were accurate and met method criteria.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, all volatiles results for Sample SB-17 10-12B were qualified as estimated due to a holding time outlier.

All methylene chloride results and two acetone results were qualified as not detected (U) due to blank contamination. The reporting limit was raised to the CRQL when the concentration of methylene chloride was less than the CRQL.

Two sets of volatiles results were reported for Sample SB-19 24-26A; an original and a diluted analysis. One result for each analyte was qualified as do-not-report (DNR).

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the volatiles analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70924

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of three soil samples. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-18 12-14B	SB-18 22-24A
SB-18 18-20A	

The following two sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, July 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.
- Volatile Organics, July 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 18, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

The data package as presented is complete according to CLP requirements. All holding times were met.

2.0 Quality Control Data

analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) value for the laboratory control sample was acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Methylene chloride was present in two method blanks and acetone was present in one method blank at a concentration less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times the concentration found in the blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

One tentatively identified compound (TIC) was reported in the method blank associated with Samples SB-18 18-20ADL and SB-18 22-24A. Results for this TIC in the samples were less than five times the concentration in the method blank and were rejected (R).

For one continuing calibration standard, the percent difference (%D) value for bromomethane (29.6%) was outside the QC limit. The result for this analyte in Sample SB-18 22-24A was qualified as estimated (UJ).

For one continuing calibration standard, the %D values for acetone (44.8%), 2-butanone (51.5%), 4-methyl-2-pentanone (28.7%), and 2-hexanone (45.5%) were outside the QC limit. Results for these compounds in the associated samples were reported from other analyses; therefore, no qualifiers were required.

Two samples (SB-18 12-14B and SB-18 18-20A) had analytes that exceeded the calibration range. The samples were diluted or extracted as a medium level and re-analyzed. Results of the re-analyses were acceptable. Results for these samples were reported as a combination of the diluted and original samples. Results that were not used were qualified as do-not-report (DNR).

3.0 Analytical Protocol

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, the bromomethane result was qualified as estimated (UJ) in Sample SB-18 22-24A due to calibration outliers.

Two sets of volatiles results were reported for Samples SB-18 12-14B and SB-18 18-20A; an original and medium level or diluted analysis. One result for each analyte was qualified as do-not-report (DNR).

One TIC was rejected (R) in Samples SB-18 18-20ADL and SB-18 22-24A due to method blank contamination.

Two methylene chloride results were qualified as not detected (U) due to blank contamination. The reporting limit was raised to the CRQL when the concentration of methylene chloride was less than the CRQL.

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

encountered with the volatiles analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 70941

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of three soil samples. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

SB-20 4-6A	SB-20 20-22B
SB-20 16-18A	

The following two sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, July 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 20, 2000.

- Volatile Organics, July 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received July 20, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97) and Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96).

1.0 Completeness and Holding Times

The data package as presented is complete according to CLP requirements. All holding times were met.

analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Methylene chloride was present in two method blanks and acetone was present in one method blank at concentrations less than the Contract Required Control Limit (CRQL). All positive results less than the action level of ten times the concentration found in the blank were qualified as not detected (U) at the reported concentration if the concentration was greater than the CRQL or at the CRQL if the concentration was less than the CRQL.

One tentatively identified compound (TIC) was reported in the method blank associated with Sample SB-20 16-18A. Results for this TIC in the sample was less than five times the concentration in the method blank and was rejected (R).

For one continuing calibration standard, the percent difference (%D) value for vinyl chloride (26.1%) was outside the QC limit. The results for this analyte in Samples SB-20 4-6A and SB-20 20-22B were qualified as estimated (UJ).

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the CLP protocols: NYSDEC ASP (10/95) for organics.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for CLP data validation, as discussed earlier.

Specifically, the vinyl chloride results were qualified as estimated (UJ) in Samples SB-20 4-6A and SB-20 20-22B due to calibration outliers.

One TIC was rejected (R) in Sample SB-20 16-18A due to method blank contamination.

Three methylene chloride results and two acetone results were qualified as not detected (U) due to blank contamination. The reporting limit was raised to the CRQL when the concentration of methylene chloride was less than the CRQL.

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

6.0 Summary

As a result of the evaluation of this data package, it is determined that volatiles data that are rejected should not be used. All other data, as qualified, are acceptable.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature, and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the volatiles analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 71101

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. It consists of six water samples. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Purgeable Organic Compounds, metals and wet chemistry. A matrix spike and matrix spike duplicate analysis was not performed for each parameter.

IW-1	IPZ-1
IPZ-2	OW-7R
IPZ-3	OW-7S

The following four sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Sample Data Summary Package, August 2000, Analytical Data Package for Stewart Oliver Holtz, Water samples, Received September 11, 2000.

- Volatile Organics, August 2000, Analytical Data Package for Stewart Oliver Holtz, Water samples, Received September 11, 2000.

- Metals, August 2000, Analytical Data Package for Stewart Oliver Holtz, Water samples, Received September 11, 2000.

- Wet Chemistry, August 2000, Analytical Data Package for Stewart Oliver Holtz, Water samples, Received September 11, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97), Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96), and Region II Standard Operating Procedure HW-2, Rev. #11 (USEPA 1/92)

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in other SDGs were acceptable.

Trichloroethene and naphthalene were present in the method blank. All positive results less than the action level of five times the concentration found in the method blank were qualified as not detected (U) at the CRQL.

For the continuing calibration standard, the percent difference (%D) values for acetone (43.3%), methylene chloride (38.5%), and trichloroethene (37.9%) were outside the QC limit. Results for these analytes in all samples were qualified as estimated (J/UJ).

Metals: Summary forms for the batch matrix spike and laboratory duplicate analyses were submitted. Manganese was not reported. All manganese results were qualified as estimated (J).

A CRDL standard was not analyzed. Results less than 2X the CRDL were qualified as estimated (manganese in Sample OW-7R).

Iron and manganese were present in the method blank. All positive results for these analytes were greater than the action level. No action was required.

(10/95) and the wet chemistry data were generated using Standard Methods for the Evaluation of Water and Wastewater.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

Metals: All metals raw data were presented by the laboratory for ICP analysis except for the raw data for the batch matrix spike and duplicate. All instrument data print out and run logs were evaluated and found to be compliant with CLP method criteria. All raw data were accurately transcribed to summary forms.

Wet Chemistry: Raw data were present for chloride and COD analyses to determine that the results presented by the laboratory were accurate and met method criteria.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

All manganese results were qualified as estimated (J) because no matrix spike or duplicate was analyzed.

The manganese result in Sample OW-7R was qualified as estimated because a CRDL standard was not analyzed and the result was less than 2X the CRDL.

Results for iron were qualified as estimated (J) in all samples because of a serial dilution outlier.

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column.

6.0 Summary

As a result of the evaluation of this data package, it is determined that all volatiles and metals data, as qualified, are acceptable. All chloride and COD data, as reported are acceptable.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the volatiles and metals analyses, most of the data were within acceptable QA/QC limits.

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 71970

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. The package consists of 16 soil samples and one field blank. Sample identifications are listed in the table below. The samples were analyzed for Target Compound List (TCL) Semivolatile Organic Compounds and Metals. A matrix spike and matrix spike duplicate analysis was performed for each parameter.

DD-1	DD-9
DD-2	DD-10
DD-3	DD-11
DD-4	DD-12
DD-5	DD-13
DD-6	DD-14
DD-7	DD-15
DD-8	DD-FD
Field Blank	

The following two sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Semivolatile Organics, December 29, 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received December 2, 2000.
- Metals, December 29, 2000, Analytical Data Package for Stewart Oliver Holtz, Soil samples, Received December 2, 2000.

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97), Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96), and Region II Standard Operating

The laboratory incorrectly identified two samples in the Metals data package as listed on the chain of custody:

- Sample DD-FD (Laboratory ID: 71970016) was incorrectly labeled as DD-16 on all summary forms and raw data. The Sample ID was corrected by the reviewer.
- Sample Field Blank (Laboratory ID: 71910017) was incorrectly labeled as DD-17 on some raw data. The Sample ID was corrected by the reviewer.

All holding times were met.

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Semivolatiles: The percent moisture (%M) values for Samples DD-11 (65%) and DD-13 (85%) were greater than 50%. All results in these samples were estimated (J/UJ).

For the continuing calibration standard analyzed 12/17/00, the percent difference (%D) values for hexachlorocyclopentadiene (-56.8%), 2,4-dinitrophenol (-78.5%), 4,6-dinitro-2-methylphenol (-63.6%), pentachlorophenol (-26.4%), butylbenzylphthalate (29.1%), bis(2-ethylhexyl)phthalate (31.4%), di-n-octylphthalate (73.7%), and benzo(k) fluoranthene (29.0%) were outside the QC limit. Results for these analytes in the associated samples were estimated (J/UJ).

For the continuing calibration standard analyzed 12/22/00, the %D values for hexachlorocyclopentadiene (-38.8%), di-n-octylphthalate (74.2%), benzo(k)fluoranthene

The surrogate percent recovery (%R) values for 2-fluorobiphenyl and terphenyl were greater than the upper control limits for Sample DD-9. Positive results for base neutral compounds were qualified as estimated (J).

The %R value for 4-nitrophenol was greater than the upper control limit in the water laboratory control sample. This compound was not present in the associated sample (the field blank). Reporting limits were judged as not significantly affected; no action was taken.

The internal standard areas were less than the control limit of 50% of the associated continuing calibration standard areas for the samples listed below. The samples were re-analyzed (or diluted and re-analyzed) and confirmed matrix interference.

- Results from the original analyses of Samples DD-1, DD-2, DD-3, DD-5, DD-6, DD-7, and DD-10 that were quantitated using the internal standards with outliers were qualified as estimated (J/UJ). The results for the re-analyses of these samples were qualified as do-not-report (DNR).
- Results from the re-analysis of Sample DD-13 (DD-13DL at a five-fold dilution) that were quantitated using the internal standards with outliers were qualified as estimated (J/UJ). The results for the initial analysis of this sample were qualified as do-not-report (DNR).
- For Samples DD-4 and DD-9, a combination of the initial analysis and diluted analysis results were reported as some compound concentrations exceeded the calibration range of the instrument in the initial analysis. The reported results that were quantitated using the internal standards with outliers were qualified as estimated (J/UJ). The results that should not be used were qualified as do-not-report (DNR).

Sample	Perylene-d12	Chrysene-d12	Phenanthrene-d10
DD-1	X		
DD-2	X		
DD-3	X		
DD-6	X		
DD-7	X		
DD-10	X		

Sample DD-13 was initially analyzed at an 8X dilution. It was re-analyzed at a 5X dilution (DD-13DL). All concentrations were within the instrument calibration range, and reporting limits were lower than in the 8X dilution analysis. Therefore, the results from DD-13DL should be used. All results for DD-13 (8X) were qualified as do-not-report (DNR).

Data for one field duplicate set (DD-4 & DD-FD) were submitted for review. The relative percent difference (RPD) values for phenanthrene, benzo(b)fluoranthene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(a)pyrene, indeno(123-cd)pyrene, and benzo(ghi)perylene were greater than 30%. No qualifiers were assigned as all RPD values were less than 100%.

Metals: The percent moisture (%M) values for Samples DD-11 (65%) and DD-13 (85%) were greater than 50%. All results in these samples were estimated (J/UJ).

The percent recovery (%R) values for lead, zinc, copper, manganese, selenium, and thallium were greater than the upper control limit of 120% for one or more of the ICP CRDL standards. Positive results for these analytes in associated samples that were less than four times the CRDL were qualified as estimated (J). Some zinc results were rejected (R), as the %R value was greater than 150%.

One calibration blank associated with these samples contained zinc at a negative concentration, less than the negative CRDL. As all positive results for zinc were greater than the CRDL in the associated samples, no action was required.

For the matrix spike (DD-15), the %R values for antimony (35.2%) and manganese (33.4%) were less than the lower control limit of 75%. The concentration of manganese in the parent sample was greater than four times the spike concentration; no action was taken. All results for antimony were qualified as estimated (J/UJ).

The percent difference (%D) values for arsenic, beryllium, calcium, chromium, cobalt, lead, nickel, and zinc were greater than the control limit of 10% for the ICP serial dilution. The arsenic and beryllium concentrations in the diluted sample were less than

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the following protocols: NYSDEC ASP (10/95) for organics and inorganics.

4.0 Raw Data Evaluation

Semivolatiles: For SVOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to EPA CLP data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control forms.

Metals: All metals raw data were presented by the laboratory for atomic absorption cold vapor and ICP analysis. Cyanide raw data were presented for spectrophotometric analysis. All instrument data print out and run logs were evaluated and found to be compliant with CLP method criteria. All raw data were accurately transcribed to summary forms.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control verification forms.

All metals results for Samples DD-11 and DD-13 were estimated (J/UJ) because the percent moisture content was greater than 50%.

Results for the following compounds were qualified as estimated (J/UJ) because of continuing calibration outliers:

- Results for hexachlorocyclopentadiene, 2,4-dinitrophenol, 4,6-dinitro-2-methylphenol, pentachlorophenol, butylbenzylphthalate, bis(2-ethylhexyl)phthalate, di-n-octylphthalate, and benzo(k) fluoranthene in Samples DD-1, DD-2, DD-3, DD-5, DD-6, DD-7, and DD-10.

- Results for hexachlorocyclopentadiene, di-n-octylphthalate, benzo(k)fluoranthene, and butylbenzylphthalate in Samples DD-4, DD-8, DD-9, DD-11, DD-12, DD-14, and DD-FD.

- Results for 2,4-dimethylphenol, hexachlorocyclopentadiene, 2,4,5-trichlorophenol, 2,4-dinitrophenol, di-n-octylphthalate, and benzo(k)fluoranthene in Samples DD-4DL, DD-9DL, DD-13DL, and DD-15.

Results for acenaphthylene and bis(2-ethylhexyl)phthalate in Sample DD-9 were estimated (J) because of surrogate outliers.

Results for the following compounds were estimated (J/UJ) (unless qualified DNR) because of internal standard outliers:

- Di-n-octylphthalate, benzo(b) fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(123-cd)pyrene, dibenzo(ah)anthracene, and benzo(ghi)perylene in Samples DD-1, DD-2, DD-3, DD-4, DD-4DL, DD-5, DD-6, DD-7, DD-9, DD-9DL, DD-10, and DD-13DL.

- Pyrene, butylbenzylphthalate, 3,3-dichlorobenzidine, benzo(a)anthracene, bis(2-ethylhexyl)phthalate, and chrysene in Samples DD-4, DD-5, DD-4DL, DD-9DL, and DD-13DL.

because of CRDL standard outliers (no action was taken for results greater than the affected range):

- Lead in Samples DD-1 through DD-12
- Copper in Samples DD-8 through DD-16
- Manganese in all samples
- Thallium in Samples DD-8 through DD-16

The zinc result was rejected (R) in Sample Field Blank because of a CRDL standard outlier.

All soil results for antimony were estimated (J/UJ) because of a matrix spike outlier.

Results for calcium, chromium, lead, nickel, and zinc that were greater than the CRDL were qualified as estimated (J) in all soil samples.

Results for arsenic, manganese, and zinc were qualified as estimated (J) in the field duplicate samples (DD-4 & DD-FD) because of poor precision.

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column (the ***Lab Flag*** column is a combination of the ***DL_Flag and CR_Q*** in the EDD).

6.0 Summary

As a result of the evaluation of this data package, it is determined that semivolatiles data that were qualified as no-not-report (DNR) and metals data that were rejected (R) should not be used. All other data, as qualified, are acceptable.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature and extent

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 72073

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. The package consists of 12 water samples and two field blanks. Sample identifications are listed in the **TABLE A** below. The samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds, Metals and Conventionals (see **TABLE B** below). A matrix spike and matrix spike duplicate analysis was performed for each parameter.

TABLE A		
TW-1	IPZ-2	IW-1
TW-2	IPZ-3	MW-FD02
TW-3	PZ-1	FB-01
TW-4	PZ-2	FB-02
IPZ-1	PZ-3	

TABLE B	
Bromide	SM 4500-BR B
Specific Conductance	EPA 120.1
Fluoride	EPA 340.1
Alkalinity	SM 2320
Chloride	SM 4500-Cl B
Nitrate/Nitrite	EPA 353.2
pH	SM 4500-H+
Phosphate – total	SM 4500-P B3&E
Sulfate	SM 4500 SO4 E
TOC/DOC	EPA 415.1
TDS	SM 2540-C

The following three sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

Note: Bromide, specific conductance and fluoride were subcontracted to R.I Analytical

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97), Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96), Region II Standard Operating Procedure HW-2, Rev. #11 (USEPA 1/92), and the associated conventionals methods (listed in Table B above).

1.0 Completeness and Holding Times

The data package as presented is complete according to NYSDEC requirements with the following exceptions. The initial calibration raw data were not provided for fluoride, phosphate, sulfate, and one of the two bromide runs. No action was taken.

All holding times were met with the following exceptions:

- The pH analyses for all samples collected on 12/14/00 were performed one day past the required 24-hour holding time. The laboratory received the samples after the holding time had expired. All results for pH were qualified as estimated (J).

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Positive results for volatiles compounds were present in one method blank and both field blanks. Action levels of five times the concentration in the blanks (ten times for common laboratory contaminants) were established to evaluate the associated samples. Positive results less than the action levels were qualified as not detected (U).

- Method Blank VBLK5P: 2-butanone (3 µg/L) and trichloroethene (3 µg/L). The

For all continuing calibration standards, the percent difference (%D) values for one or more compounds were outside the QC limit. Positive results and reporting limits were qualified as estimated (J/UJ).

- CCAL (12/22/00 @ 0928): acetone (69.5%), 2-butanone (69.4%), 4-methyl-2-hexanone (42.4%), 2-hexanone (74.7%).
- CCAL (12/26/00 @ 1041): 2-butanone (36.0%), 4-methyl-2-pentanone (42.4%), 2-hexanone (30.9%).
- CCAL (12/21/00 @ 0934): bromomethane (28.8%), acetone (39.4%).
- CCAL (12/22/00 @ 0932): chloromethane (28.3%).

All surrogate percent recovery (%R) values for Samples MW-FD02 and TW-03 were greater than the upper control limit. Both samples were reanalyzed at dilutions. Surrogate %R values for the diluted analyses were acceptable. Positive results reported from the initial analyses were qualified as estimated (J).

The following samples were analyzed at dilutions because of the high concentration of target compounds: IPZ-1 (5000X), IPZ-2 (1000X), IPZ-3 (2000X), IW-1 (1000X), MW-FD02 (500X and 2000X), PZ-1 (400X), PZ-3 (5X), TW-1 (5000X), TW-3 (500X and 2000X), and TW-4 (500X). Reporting limits for compounds that were not detected are elevated.

Two analyses were reported for Samples TW-2, TW-3, PZ-2, and MW-FD02. Results that exceeded the calibration range in the lower diluted analyses were correctly E-flagged by the laboratory. These results were qualified as do-not-report (DNR) and should be reported from the higher diluted analyses. Results for all remaining compounds should be reported from the lower diluted analyses and were qualified as DNR in the higher diluted analyses with the following exception. For Sample TW-2, low level positive results for acetone, 2-butanone, carbon tetrachloride, and 4-methyl-2-pentanone were diluted out of the higher dilution. They should be reported from the initial analysis and qualified as estimated (J) because the concentrations exceed the linear range of the instrument.

Lead (3.6 µg/L) and manganese (25.3 µg/L) were present in field blank FB-01 (12/14). Manganese (21.1 µg/L) was detected in field blank FB-02 (12/15). Both manganese results were rejected because of CRDL standard outliers; therefore, no action was taken for manganese results. An action level of five times the lead concentration in FB-01 was established to evaluate the associated samples. All positive results in the associated samples were greater than the action level; no action was required.

The %R value for aluminum (125.8%) was greater than the upper control limit of 125% in the matrix spike. The positive results for aluminum in the associated samples were qualified as estimated (J).

The RPD values for manganese (30.0%) and sodium (23.3%) were greater than the control limit of 20%. All positive results for these analytes were qualified as estimated (J) unless previously rejected because of CRDL standard outliers.

The %D values for barium, cobalt, and zinc were greater than the control limit of 10% for the ICP serial dilution. Results for barium in the associated samples that were greater than the CRDL were estimated (J). No cobalt results were greater than the CRDL. All zinc results were already rejected because of CRDL standard outliers.

For the field duplicate pair (TW-2 & MW-FD02), the difference value for iron was greater than the CRDL. Results for iron in these two samples were qualified as estimated (J).

Conventionals: There were two transcription errors on the summary forms for alkalinity results. For laboratory duplicate PZ-1Dup, the laboratory reported a result of 7100 mg CaCO3/L. The correct result is 710 mg CaCO3/L. For field duplicate sample MW-FD02, the laboratory reported a result of 410 mg CaCO3/L. The correct result is 710 mg CaCO3/L. The summary forms were corrected by the reviewer

Data for two field blanks, FB01 (12/14) and FB02 (12/15) were submitted for review. Positive results for chloride, total phosphate, specific conductance, and fluoride were reported in FB01 (12/14). Positive results for total phosphate and specific conductance were reported in FB02 (12/15). Action levels of five times the field blank concentrations were established to evaluate the associated samples. Positive results in the associated samples that were less than the action levels were qualified as not detected (U) at the

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the following protocols: NYSDEC ASP (10/95) for organics and inorganics, and the methods listed in **TABLE B** above.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to NYSDEC data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Metals: All metals raw data were presented by the laboratory for atomic absorption cold vapor and ICP analysis. Cyanide raw data were presented for spectrophotometric analysis. All instrument data print out and run logs were evaluated and found to be compliant with method criteria. All raw data were accurately transcribed to summary forms.

Conventionals: The initial calibration raw data were not provided for fluoride, phosphate, sulfate, and one of two bromide runs. All other raw data for conventionals analyses were presented. All raw data were accurately transcribed to summary forms.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control verification forms with two exceptions. As noted above, two alkalinity results were transcribed incorrectly on the summary forms. These results were corrected by the reviewer.

5.0 Data Qualifiers

Results for the following compounds were qualified as estimated (J/UJ) unless already qualified DNR because of continuing calibration outliers:

- Results for acetone, 2-butanone, 4-methyl-2-hexanone, and 2-hexanone in Samples IPZ-2, IPZ-3, IW-1, and PZ-1, .

- Results for 2-butanone, 4-methyl-2-pentanone, and 2-hexanone in Samples FB-01, FB-02, IPZ-1, PZ-2DL, PZ-3, and TW-4.

- Results for bromomethane and acetone in Samples PZ-2 and TW-2.

- Results for chloromethane in Samples MW-FD02, TW-1, and TW-3.

Results for methylene chloride, 1,1-dichloroethene, 1,2-dichloroethene (total), and trichloroethene in Samples MW-FD02 and TW-3 were estimated (J) because of surrogate outliers indicating a potential high bias.

Two sets of volatiles results were reported for TW-2, TW-3, PZ-2, and MW-FD02; an original and a diluted analysis. One result for each analyte was qualified as do-not-report (DNR).

For Sample TW-2, results for acetone, 2-butanone, carbon tetrachloride, and 4-methyl-2-pentanone were qualified as estimated (J) because the concentrations exceeded the calibration range of the instrument.

Positive results that were within the affected range [which is the CRDL Standard true value plus two times the CRDL (True + 2*CRDL)] were estimated (J) or rejected (R) for the following because of CRDL standard outliers (no action was taken for results greater than the affected range):

- Antimony (J) in Samples TW-3, PZ-2

- Manganese (R) in Samples FB-01, FB-02

- Zinc (R) in Samples TW-1, TW-2, TW-3, TW-4, MW-FD02, IPZ-1, IPZ-2, IW-1, PZ-1, PZ-2, PZ-3, FB-01, FB-02

- Sodium: TW-1, TW-2, TW-3, TW-4, MW-FD02, IPZ-1, IPZ-2, IPZ-3, IW-1, PZ-1, PZ-2, PZ-3, FB-01, and FB-02

The results for barium in Samples TW-2, TW-3, TW-4, MW-FD02, PZ-1, and PZ-2 were estimated (J) because of a serial dilution outlier.

Results for iron in Samples TW-2 & MW-FD02 were qualified as estimated (J) because of a field duplicate outlier.

Results for pH were estimated (J) in Samples TW-1, TW-2, TW-3, TW-4, MW-FD02, IPZ-1, IPZ-2, IPZ-3, IW-1, and FB-01 because of holding time outliers.

The following results were qualified as not detected at the reported concentrations because of field blank contamination:

- Total Phosphate in Samples TW-2, MW-FD02, TW-3, IPZ-1, IPZ-2, PZ-1, PZ-2, and PZ-3.

- Specific Conductance in Sample TW-1.

- Fluoride in Samples TW-2, MW-FD02, TW-3, and IPZ-1.

The laboratory correctly analyzed for nitrate/nitrite as required by the chain of custody. However, the Forms I listed only nitrate. The forms were corrected.

The alkalinity result for Sample MW-FD02 was incorrect on the summary form. The result was corrected by the reviewer. The correct result is 710 mg CaCO3/L.

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column (the ***Lab Flag*** column is a combination of the ***DL_Flag and CR_Q*** in the EDD).

6.0 Summary

As a result of the evaluation of this data package, it is determined that some zinc and

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 72109

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. The package consists of 13 water samples, two field blanks, and two trip blanks. Sample identifications are listed in the **TABLE A** below. The samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds, Metals and Conventionals (see **TABLE B** below). A matrix spike and matrix spike duplicate analysis was performed for each parameter.

TABLE A		
MW-2	OW-3S	OW-8S
MW-5	OW-3R	FB 03 (12/18)
MW-FD01	OW-4S	FB 03 (12/19)
MW-3	OW-4R	SOH-TB01
OW-7S	OW-2R	SOH-TB02
OW-5S	OW-2S	

TABLE B	
Bromide	SM 4500-BR B
Specific Conductance	EPA 120.1
Fluoride	EPA 340.1
Alkalinity	SM 2320
Chloride	SM 4500-Cl B
Nitrate/Nitrite	EPA 353.2
pH	SM 4500-H+
Phosphate – total	SM 4500-P B3&E
Sulfate	SM 4500 SO4 E
TOC/DOC	EPA 415.1
TDS	SM 2540-C

The following three sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

- Conventionals, January 22, 2001, Analytical Data Package for Stewart Oliver Holtz, Water Samples, Received December 22, 2000 (Received at subcontracted laboratory on December 27, 2000).

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97), Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96), Region II Standard Operating Procedure HW-2, Rev. #11 (USEPA 1/92), and the associated conventionals methods (listed in Table B above).

1.0 Completeness and Holding Times

The data package as presented is complete according to NYSDEC requirements with the following exceptions. The initial calibration raw data were not provided for bromide, fluoride, phosphate, and sulfate. No action was taken.

All holding times were met with the following exceptions:

- The pH analyses for all samples were performed three to four days past the required 24-hour holding time. The laboratory received the samples after the holding time had expired. All results for pH were qualified as estimated (J).

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control limits, except the following issues:

Volatiles: Methylene chloride was present in FB 03 (12/18) (@ 14 µg/L), FB 03 (12/19) (@ 14 µg/L), SOH-TB01 (@ 2 µg/L), and SOH-TB02 (@ 2 µg/L). Methylene chloride

The following samples were analyzed at dilutions because of the high concentration of target compounds: MW-2 (15X), OW-7S (40X), OW-3S (15X), OW-4S (5X), and OW-8S (30X). Reporting limits for compounds that were not detected are elevated.

Metals: The percent recovery (%R) values for manganese, antimony, and silver were greater than the upper control limit of 120% for one or more of the ICP CRDL standards. Positive results for these analytes in associated samples that were less than four times the CRDL were qualified as estimated (J).

The %R values for aluminum (154.7%), iron (1018.3%), and manganese (129.2%) were greater than the upper control limit of 125% in the matrix spike. No action was taken for iron since the parent sample concentration was greater than four times the spike concentration. The positive results for aluminum in the associated samples were rejected (R) because the %R value was greater than 150%. The positive results for manganese were qualified as estimated (J).

The difference value for aluminum (concentrations were less than five times the CRDL) was greater than the control limit (CRDL). Positive results were already rejected because of spike outliers. The reporting limits were qualified as estimated (UJ).

The %D values for barium and cadmium were greater than the control limit of 10% for the ICP serial dilution. Results for barium in the associated samples that were greater than the CRDL were estimated (J). No cadmium results were greater than the CRDL.

Conventionals: The difference value for fluoride in the field duplicate samples (MW-5 & MW-FD01) was greater than the CRDL. The positive results for fluoride in these two samples were qualified as estimated (J).

Data for two field blanks, FB03 (12/18) and FB03 (12/19) were submitted for review. Positive results for specific conductance and chloride were reported in FB03 (12/18). Positive results for specific conductance, chloride, total phosphate, and TDS were reported in FB03 (12/19). Action levels of five times the field blank concentrations were established to evaluate the associated samples. Positive results in the associated samples that were less than the action levels were qualified as not detected (U) at the reported concentrations.

4.0 Raw Data Evaluation

Volatiles: For VOA analysis Relative Retention Times (RRT) for target analytes were within the allowed 0.06 RRT units of the Standard RRT. Quantitation reports were provided for all identified target compounds. Mass spectra of identified target compounds and mass spectra of the associated calibration standard matched according to NYSDEC data validation criteria. There were no false negatives identified.

The correct internal standards, quantitation ion and Relative Response Factor (RRF) were used to quantitate target compounds.

All TICs were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Metals: All metals raw data were presented by the laboratory for atomic absorption cold vapor and ICP analysis. Cyanide raw data were presented for spectrophotometric analysis. All instrument data print out and run logs were evaluated and found to be compliant with method criteria. All raw data were accurately transcribed to summary forms.

Conventionals: The initial calibration raw data were not provided for bromide, fluoride, phosphate, and sulfate. All other raw data for conventionals analyses were presented. All raw data were accurately transcribed to summary forms.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control verification forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for NYSDEC data validation, as discussed earlier.

Specifically, acetone and 2-butanone reporting limits were estimated (UJ) in the following samples because of calibration outliers: FB 03 (12/19), MW-2, OW-2R, OW-2S, OW-3R, OW-3S, OW-4R, OW-4S, OW-5S, OW-7S, OW-8S, and SOH-TB01

Results for aluminum were rejected (R) in the following samples because of a matrix spike outlier: MW-2, MW-5, MW-FD01, MW-3, OW-7S, OW-5S, OW-3R, FB03 (12/19), and OW-4S.

Results for manganese were estimated (J) in all samples except the field blanks because of a matrix spike outlier.

Reporting limits for aluminum were estimated (UJ) in the following samples because of a laboratory duplicate outlier: FB03 (12/18), OW-3S, OW-4R, OW-2R, OW-2S, and OW-8S.

The results for barium in Samples MW-FD01 and OW-5S were estimated (J) because of a serial dilution outlier.

All results for pH were estimated (J) because of holding time outliers.

Fluoride results in Samples MW-5 and MW-FD01 were qualified as estimated (J) because of a field duplicate outlier.

The following results were qualified as not detected at the reported concentrations because of field blank contamination:

- Chloride in Samples MW-5, MW-FD01, OW-7S, OW-5S, OW-3S, OW-3R, and OW-4R.
- Total Phosphate in Samples OW-5S, OW-3S, OW-3R, OW-4S, OW-2S, and OW-8S.

The laboratory correctly analyzed for nitrate/nitrite as required by the chain of custody. However, the Forms I listed only nitrate. The forms were corrected.

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column (the ***Lab Flag*** column is a combination of the ***DL_Flag and CR_Q*** in the EDD).

6.0 Summary

DATA USABILITY SUMMARY REPORT
For Stewart Oliver Holtz Site
SDG No. 72131

This analytical data package was prepared for IT Corporation in support of the Stewart Oliver Holtz site. The package consists of four water samples. Sample identifications are listed in the **TABLE A** below. The samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds, Metals and Conventionals (see **TABLE B** below). A matrix spike and matrix spike duplicate analysis was not performed for volatiles or metals.

TABLE A	
OW-6S	OW-1R
OW-7R	OW-1S

TABLE B	
Bromide	SM 4500-BR B
Specific Conductance	EPA 120.1
Fluoride	EPA 340.1
Alkalinity	SM 2320
Chloride	SM 4500-Cl B
Nitrate/Nitrite	EPA 353.2
pH	SM 4500-H+
Phosphate – total	SM 4500-P B3&E
Sulfate	SM 4500 SO4 E
TOC/DOC	EPA 415.1
TDS	SM 2540-C

The following three sets of data presented by Mitkem Corporation, 175 Metro Center Boulevard, Warwick, Rhode Island, 02886-1755, were reviewed and were the basis for this Data Usability Summary Report.

Note: Bromide, specific conductance, and fluoride were subcontracted to R.I Analytical Laboratories, Inc., 41 Illinois Avenue, Warwick, Rhode Island, 02888.

- Volatile Organics, January 22, 2001, Analytical Data Package for Stewart Oliver

The data package was evaluated for its usability as defined by the Guidance for the Development of Data Usability Summary Reports (NYSDEC, 9/97), Region II Standard Operating Procedure HW-6, Rev. #11 (USEPA 6/96), Region II Standard Operating Procedure HW-2, Rev. #11 (USEPA 1/92), and the associated conventionals methods (listed in **TABLE B** above).

1.0 Completeness and Holding Times

The data package as presented is complete according to NYSDEC requirements with the following exceptions. The initial calibration raw data were not provided for bromide, fluoride, phosphate, and sulfate. No action was taken.

All holding times were met with the following exceptions:

- The pH analyses for all samples were performed three to four days past the required 24-hour holding time. The laboratory received the samples after the holding time had expired. All results for pH were qualified as estimated (J).
- The TDS analyses for Samples OW-6S and OW-7R were performed one day past the required seven day holding time. The TDS results for these two samples were qualified as estimated (J).
- The volatiles analyses for Samples OW-6S and OW-7R were performed one day past the required 14 day holding time. The volatiles results for these two samples were qualified as estimated (J/UJ).

2.0 Quality Control Data

The QC data are critical to any data package, and are used to determine whether results presented by the laboratory are accepted or rejected. The data package as presented encountered some problems with QC data, and a full validation was performed.

According to the NYSDEC Guidance for the Development of Data Usability Summary Reports, the following QC data were evaluated: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data. All QC data were within quality control

Samples OW-6S and OW-7R were analyzed at dilutions (100X and 10X, respectively) because of the high concentration of target compounds. Reporting limits for compounds that were not detected are elevated.

Metals: Matrix spike/matrix spike duplicate (MS/MSD) analyses were not performed. No action was taken since the percent recovery (%R) values for the laboratory control sample were acceptable, and the MS/MSD %R and relative percent difference (RPD) values for samples from the same site but reported in another SDG were acceptable.

The percent recovery (%R) values for cobalt, lead, manganese, selenium, and thallium were greater than the upper control limit of 120% for one or more of the ICP CRDL standards. Positive results for these analytes in associated samples that were less than four times the CRDL were qualified as estimated (J).

The %D values for several analytes were greater than the control limit of 10% for the ICP serial dilution. All concentrations in the diluted sample except for potassium were less than ten times the IDL; no action was required. Results for potassium in the associated samples that were greater than the CRDL were qualified as estimated (J).

Conventionals: The %R value for total phosphate (61%) was less than the 80% lower control limit in the matrix spike. Results for total phosphate in all samples were qualified as estimated (J/UJ).

The laboratory correctly analyzed for nitrate/nitrite as required by the chain of custody. However, the Forms I listed only nitrate. The forms were corrected.

3.0 Analytical Protocol

Based on the information presented in the data package, it was established that the data were generated using the following protocols: NYSDEC ASP (10/95) for organics and inorganics, and the methods listed in **TABLE B** above.

4.0 Raw Data Evaluation

All TIC were correctly identified and qualified by the laboratory. No transcription errors were observed from raw data to summary forms and data analysis sheets (FORM 1s).

Metals: All metals raw data were presented by the laboratory for atomic absorption cold vapor and ICP analysis. Cyanide raw data were presented for spectrophotometric analysis. All instrument data print out and run logs were evaluated and found to be compliant with CLP method criteria. All raw data were accurately transcribed to summary forms.

Conventionals: The initial calibration raw data were not provided for bromide, fluoride, phosphate, and sulfate. All other raw data for conventionals analyses were presented. All raw data were accurately transcribed to summary forms.

Evaluation of raw data confirmed results presented by the laboratory on the data summary sheets and quality control verification forms.

5.0 Data Qualifiers

The data qualifiers as presented by the laboratory are correct based on the laboratory definitions. However, some qualifiers will change based on data qualifiers established by the USEPA for NYSDEC data validation, as discussed earlier.

Specifically, all volatiles results for Samples OW-6S and OW-7R were qualified as estimated (J/UJ) because of holding time outliers.

For metals, positive results that were within the affected range [which is the CRDL Standard true value plus two times the CRDL (True + 2*CRDL)] were estimated (J) for the following because of CRDL standard outliers (no action was taken for results greater than the affected range):

- Cobalt in all samples
- Lead in Samples OW-6S, OW-7R, and OW-1R
- Manganese in Sample OW-7R

The result for potassium in Sample OW-7R was qualified as estimated (J) because of a

The laboratory correctly analyzed for nitrate/nitrite as required by the chain of custody. However, the Forms I listed only nitrate. The forms were corrected.

Therefore, upon data validation of this package, several laboratory data qualifiers were changed. Referring to the Qualified Data Summary Table (QDST) in **Appendix C**, the qualifier in the ***DV Qualifier*** column supersedes the qualifier in the ***Lab Flag*** column (the ***Lab Flag*** column is a combination of the ***DL_Flag** and **CR_Q*** in the EDD).

6.0 Summary

As a result of the evaluation of this data package, it is determined that volatiles, metals, and conventionals data, as qualified, are acceptable.

7.0 Recommendation

These data are acceptable for use in support of the risk assessment, nature and extent evaluations and feasibility study. Even though minor QA/QC problems were encountered with the semivolatiles and metals analyses, most of the data were within acceptable QA/QC limits.

APPENDIX H

SUB-SLAB INVESTIGATION REPORT
(SOIL GAS SURVEY)

Shaw Environmental & Infrastructure, Inc.

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Latham, NY 12110-1405
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Shaw The Shaw Group Inc.™

August 16, 2002

Mr. Gary Kline, P.E.
New York State Department of Environmental Conservation
Bureau of Western Remedial Action
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7017

Subject: **Sub-Slab Investigation Report**
Stuart-Olver-Holtz
Henrietta, New York

Dear Mr. Kline:

This Sub-Slab Investigation Report is being submitted to you for the geoprobe investigation conducted beneath the slab of the building located at the above-referenced Site. The purpose of the investigation was to identify any potential additional source areas located beneath the Site building. The field portion of the investigation was completed on June 17 and June 18, 2002. The following sections describe the methods utilized to achieve this goal.

Drilling Program

A limited access geoprobe rig was used to advance the borings within the Site building. A total of 28 borings were advanced within the building. Boring locations are illustrated on **Figure 1.** Initially, 21 borings were advanced on a grid pattern as detailed in the Work Plan dated June 13, 2002. Seven additional borings were added based upon field observations in order to further define potential source areas.

adapter and the line purged using the vacuum system provided by the drilling contractor (Aquifer Drilling and Testing, Inc.). Purging continued until readings obtained from a properly calibrated photoionization detector (PID) stabilized or for 15 minutes, whichever occurred first. Following purging the line, the poly-tubing was then attached to a Tedlar Sampling Bag and a sample was collected. Soil gas samples were retained for potential laboratory submittal.

Following the collection of the soil gas samples, soil samples were collected to a depth of eight feet bgs using four foot disposable acetate sleeves. Each soil sample was logged by the onsite geologist for observations including, but not limited to, lithology and evidence of chemical impacts. Drilling logs are included as **Appendix A**. A portion of each soil sample was split for field screening using a properly calibrated PID. The interval exhibiting the highest PID reading was retained in a laboratory supplied glass sample jar for potential laboratory submittal. The borings were then abandoned using bentonite chips. All boring locations were re-surfaced using concrete.

All excess soil and associated sampling waste was contained in a 55-gallon drum which was properly labeled and staged at the Site. All down hole equipment was properly decontaminated using an alconox solution and a potable water rinse between borings.

Analytical Program

The soil gas samples (50%) containing the highest PID readings were submitted for laboratory analysis for volatile organic compounds (VOCs) according to EPA Method TO-14. The soil samples (25%) containing the highest PID readings were also submitted for laboratory analysis according to EPA Method 8260. Spent samples were contained within the 55-gallon drum at the Site for subsequent disposal. The samples were shipped via overnight courier to Mitkem Corporation of Warwick, Rhode Island. Samples were submitted for analysis for VOCs according to EPA Method 8260. A full Category B Analytical Services Protocol laboratory report was provided by Mitkem. The summary package portion of the report is included in **Appendix B**. The full report with all associated backup documentation will be retained on file at the completion of the investigation. Engineering controls including portable lighting and ventilation fans were utilized for the duration of the investigation.

Summary of Findings

Prior to the collection of soil gas samples for potential laboratory submittal, each sampling location was screened with a PID. VOC concentrations, as measured by the PID, ranged from 4.2 parts per million (ppm) to 620 ppm. A total of 13 soil gas samples (approximately 50 percent of the sampling locations) were selected for laboratory submittal. Total VOC concentrations ranged from 24.2 to 2,143.4 milligrams per cubic meter (mg/m^3). The PID readings for soil gas obtained at each sampling location are summarized in the drilling logs included in **Appendix A** and on **Figure 2**. Analytical laboratory reports are included in **Appendix B**. The laboratory data is summarized in **Table 1** and on **Figure 2** and estimated contaminant level contours are summarized on **Figure 4**.

Headspace PID readings were collected from each of the soil sample, intervals at each boring location. Headspace PID readings ranged from below the instruments detection limit to 241 ppm. Seven soil samples were submitted for laboratory analysis for VOCs according to EPA Method 8260. Concentrations of 1,1-dichloroethene, 1,1,1-trichloroethane, and trichloroethene were detected at concentrations exceeding the respective recommended soil cleanup objectives listed in the Technical and Administrative Guidance Memorandum section 4046 (TAGM 4046) in the soil samples submitted from borings GP-24, GP-26, and GP-28. Other VOCs were either detected at concentrations less than those listed in TAGM 4046 or were not detected at or above the method detection limit. Total VOC concentrations ranged from 54 to 47,430 micrograms per kilogram (µg/kg) in the soil samples submitted from borings GP-20 and GP-28, respectively. The PID readings for soil sample intervals obtained at each sampling location are summarized in the drilling logs included in **Appendix A**. The highest headspace PID reading obtained from each boring is summarized on **Figure 3**. Analytical laboratory reports are included in **Appendix B**. The laboratory data is summarized in **Table 2** and on **Figure 3**.

Should you have any questions pertaining to this report or to the Site in general, please contact Kurt Bedore at (518) 783-1996. Shaw Environmental and Infrastructure appreciates the continued opportunity to provide the NYSDEC with quality environmental services.

Sincerely:
Shaw E&I, Inc.

Andrew Graham
Hydrogeologist

Shaw E&I, Inc.

Kurt Bedore, P.E.
Senior Engineer
Project Manager

Cc: P. Farrington, Shaw E&I, Hopkington, Ma

Attachments: Tables
Figures
Appendix A – Drilling Logs
Appendix B – Analytical Laboratory Report

APPENDIX G

REMEDIAL ACTION OBJECTIVES FOR CHEMICALS OF POTENTIAL CONCERN (1996 RI/FS)

Table G-1
Chemical Specific Standards Criteria and Guidelines (SCGs)
Feasibility Study
Stuart-Olver-Holtz
Henrietta, New York

Overburden Groundwater								
	SCG's						Selected SCG Goal	
				USEPA Health Advisories				
Parameter	NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	Child One Day	Child Long Term	Adult Lifetime	SCG Goal	Basis of Selected SCG Goal
Volatile Organics (ug/l)								
Vinyl Chloride	2	2	0	3000	10		2	Class GA
Methylene Chloride	5						5	Class GA
1,1-Dichloroethene	5	7	7	2000	1000	7	5	Class GA
1,1-Dichloroethane	5						5	Class GA
1,2-Dichloroethene (total)	5	70	70	20000	2000	100	5	Class GA
1,1,1-Trichloroethane	5	200	200	100000	40000	200	5	Class GA
Trichloroethene(TCE)	35	5	3	600	400	3	35	Class GA
Tetrachloroethene	5	5	0	2000	1000		5	Class GA
Semi-Volatile Organics (ug/l)								
Phenol	1			6000	6000	4000	1	Class GA
Metals (ug/l)								
Aluminum	100						100	Class GA
Cobalt	5						5	Class GA
Lead	25		0				25	Class GA
Manganese	500		200				500	Class GA
Nickel		100	100	1000	500	100	100	MCS's/MCLG's/USEPA Lifetime
Vanadium				80	30	20	20	USEPA Lifetime

Notes:

1. TAGM 4046 - Technical and Adminstrative Guidance Memorandum Determination of Soil Cleanup Objectives, NYSDEC 1994
2. HEAST - USEPA Health Effects Summary Table
3. USEPA PRGs - Region 9 Preliminary Remediation Goals, April 1993
4. This Table is derived from GZA FS, 1996

Table G-2
Chemical Specific Standards Criteria and Guidelines (SCGs)
Feasibility Study
Stuart-Olver-Holtz
Henrietta, New York

Bedrock Groundwater								
Parameter	SCG's						Selected SCG Goal	
	NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	USEPA Health Advisories			SCG Goal	Basis of Selected SCG Goal
				Child One Day	Child Long Term	Adult Lifetime		
Volatile Organics (ug/l)								
Chloromethane	5			9000	1000	3	5	Class GA
Vinyl Chloride	2	2	0	3000	10		2	Class GA
Chloroethane	5						5	Class GA
Methylene Chloride	5	5	0	10000			5	Class GA
Acetone	50						50	Class GA
1,1-Dichloroethene	5	7	7	2000	1000	7	5	Class GA
1,1-Dichloroethane	5						5	Class GA
1,2-Dichloroethene (total)	5	70	70	20000	2000	100	5	Class GA
1,2-Dichloroethane	5	5	0	700	700		5	Class GA
1,1,1-Trichloroethane	5	200	200	100000	40000	200	5	Class GA
Trichloroethene (TCE)	5	5	0				5	Class GA
Tetrachloroethene	5	5	0	2000	1000		5	Class GA
Toluene	5						5	Class GA
Xylenes (total)	5	10000	10000	40000	40000	10000	5	Class GA
Semi-Volatile Organics (ug/l)								
Phenol	1			6000	6000	4000	1	Class GA
Metals (ug/l)								
Aluminum	100						100	Class GA
Antimony	3	6	6	15	15	3	3	Class GA
Cadmium	10	5	5	40	5	5	10	Class GA
Chromium	50	100	100	1000	200	100	50	Class GA
Cobalt	5						5	Class GA
Copper	200		1300				200	Class GA
Lead	25		0				25	Class GA
Manganese	500		200				500	Class GA
Nickel		100	100	1000	500	100	100	MCL's
Vanadium				80	30	20	20	Adult Lifetime
Zinc	300			6000	3000	2000	300	Class GA

Notes:

1. This table lists those analytical parameters that were detected at a concentration exceeding chemical specific SCGs
2. This table lists selected SCG goals that were derived by comparing chemical specific SCGs
3. USEPA MCLs and MCLGs apply to public water supplies
4. USEPA Health Advisories developed to be protective of adverse non-carcinogenic health effects associated with exposure of child for one day and longer term (approximately 7 years or 10% of lifetime exposure for adults.
5. The Table is derived from GZA FS 1996

Table G-3
Chemical Specific Standards Criteria and Guidelines (SCGs)
Feasibility Study
Stuart-Olver-Holtz
Henrietta, New York

Sump Sediments						
Parameter	SCG's				Selected SCG Goal	
	NYSDEC TAGM 4046	USEPA HEAST	USEPA PRGs	NYS Agencies Total PAH	SCG Goal	Basis of Selected SCG
Volatile Organics (ug/kg)						
1,1-Dichloroethane	200	8000000	400000		200	TAGM 4046
1,2-Dichloroethene (total)	300	800000	1400		300	TAGM 4046
1,1,1-Trichloroethane	800	7000000	49000		800	TAGM 4046
Trichloroethene	700	64000	34000		700	TAGM 4046
Toluene	1500	20000000	280000		1500	TAGM 4046
Chlorobenzene	1700	2000000	300000		1700	TAGM 4046
Ethylbenzene	5500	8000000	68000		5500	TAGM 4046
Xylenes (total)	1200	200000000	99000		1200	TAGM 4046
Semi-Volatile Organics (ug/kg)						
Total PAH				100000	100000	NYS Agencies
Metals (mg/kg)						
Cadmium	1	80	1000		1	TAGM 4046
Chromium	10	80000	100000		10	TAGM 4046
Copper	25		76000		25	TAGM 4046
Nickel	13	2000	41000		13	TAGM 4046
Selenium	2		10000		2	TAGM 4046
Zinc	20	20000	100000		20	TAGM 4046

Notes:

1. TAGM 4046 - Technical and Adminstrative Guidance Memorandum Determination of Soil Cleanup Objectives, NYSDEC 1994
2. HEAST - USEPA Health Effects Summary Table
3. USEPA PRGs - Region 9 Preliminary Remediation Goals, April 1993
4. This Table is derived from GZA FS, 1996

Table G-4
Chemical Specific Standards Criteria and Guidelines (SCGs)
Feasibility Study
Stuart-Olver-Holtz
Henrietta, New York

Subsurface Soils					
Parameter	SCGs				
	NYSDEC TAGM 4046	USEPA HEAST	USEPA PRGs	SCG Goal	Basis of Selected SCG Goal
Metals (mg/kg)					
Arsenic	7.5	80	3.3	7.5	TAGM 4046

Notes:

1. TAGM 4046 - Technical and Adminstrative Guidance Memorandum Determination of Soil Cleanup Objectives, NYSDEC 1994
2. HEAST - USEPA Health Effects Summary Table
3. USEPA PRGs - Region 9 Preliminary Remediation Goals, April 1993
4. This Table is derived from GZA FS, 1996

Table G-5
Chemical Specific Standards Criteria and Guidelines (SCGs)
Feasibility Study
Stuart-Olver-Holtz
Henrietta, New York

Surface Water Sediments									
Parameter	SCG's							Selected SCG Goal	
	NYSDEC TAGM 4046	USEPA HEAST	USEPA PRGs	NYS Agencies Total PAH	NYSDEC Sediment Criteria			SCG Goal	Basis of Selected SCG Goal
					Aquatic Toxicity		Wildlife Bioaccumulation		
					Acute	Chronic			
Semi-Volatile Organics (ug/kg)									
Total PAH				100000				100000	NYS Guidance
Metals (mg/kg)									
Zinc	20	20000	100000		20	120	270	270	NYSDEC Sediment

Notes:

1. This table lists those analytical parameters that were detected at a concentration exceeding chemical specific SCGs
2. This table lists selected SCG goals that were derived by comparing chemical specific SCGs
3. TAGM 4046 = "Technical and Administrative Guidance Memorandum Determination of Soil Cleanup Objectives Levels", prepared by NYSDEC, January 24, 1994
4. HEAST - Values derived from USEPA Health Effects Summary Table
5. NYSDEC Sediment Criteria = "Technical Guidance for screening of Contaminated Sediments", NYSDEC, July 1994
6. USEPA PRGs - Region IX Preliminary Remediation Goals, April 1993
7. Total PAH (polynuclear aromatic hydrocarbons) SCG based on potential exposure scenarios provided by New York State Agencies
8. This Table is derived from GZA FS 1996

Table G-6
Contaminants of Concern and SCG Goals
Feasibility Study
Stuart-Olver-Holtz
Henrietta, New York

Sump Water												
	SCGs											
				USEPA Health Advisories							Selected SCG Goals	
Parameter	NYSDEC Class GA	USEPA MCLs	USEPA MCLGs	Child One Day	Child Long Term	Adult Lifetime	NYSDEC Class C Water	USEPA AWQC Health	AWQC Aquatic Acute	AWQC Aquatic Chronic	SCG Goal	Basis of Selected SCG Goal
Volatile Organics (ug/kg)												
1,1-Dichloroethane	5										5	Class GA
1,1,1-Trichloroethane	5	200	200	100000	40000	200		1.03			5	Class GA
Toluene	5	1000	1000	20000	2000	1000		14300	17500		5	Class GA
Ethylbenzene	5	700	700	30000	1000	700		3000	32000		5	Class GA
Xylene (total)	5	10000	10000	40000	40000	10000					5	Class GA
Semivolatile Organics (ug/Kg)												
Phenol	1			6000	6000	4000		20900	10200	2560	1	Class GA
Metals (mg/kg)												
Aluminum	100						100		750	87	100	Class GA
Cadmium	10	5	5	40	5	5	3.03	10	130	503	10	Class GA
Chromium	50	100	100	1000	200	100	824	170000	1700	210	50	Class GA
Cobalt	5						5				5	Class GA
Copper	200		1300				50	1000	18	12	1300	Class GA
Lead	25						27	50	8.2	3.2	25	Class GA
Manganese	500		200					50			500	Class GA
Mercury	2							0.144	2.4	0.012	2	Class GA
Nickel		100	100	1000	500	100	345	13.4	1400	100	100	USEPA MCL
Silver	50			200	200	100	0.1	50	0.92	0.12	50	Class GA
Thallium		2	0.5	7	7	0.4	8	13	1400	40	13	USEPA AWQC
Vanadium				80	30	20	14				14	Class C
Zinc	300			6000	3000	2000	346	5000	96	86	300	Class GA

Notes:

1. Class C Surface Water Standards as promulgated in 6 NYCRR 703
2. AWQC - Ambient Water Quality Criteria for Human Health, water and fish ingestion
3. Chromium is assumed to be trivalent chromium
4. USEPA Health Advisories developed to be protective of adverse non-carcinogenic health effects associated with exposure of child for one day and longer term (approx. 7 yrs or 10% of lifetime) and lifetime exposure of adults
5. This Table is derived from GZA FS, 1996

Table G-7
Chemical Specific Standards Criteria and Guidelines (SCGs)
Feasibility Study
Stuart-Olver-Holtz
Henrietta, New York

Subsurface Soils						
Parameter	SCGs					
	NYSDEC TAGM 4046	USEPA HEAST	USEPA PRGs	NYS Agencies Total PAH	SCG Goal	Basis of Selected SCG Goal
Semivolatile Organics (ug/kg)						
Total PAH				100000	100000	NYS Agencies Total PAH
Metals (mg/kg)						
Arsenic	7.5	80	3.3		7.5	TAGM 4046
Cobalt	30				30	TAGM 4046
Lead	500	250			500	TAGM 4046

Notes:

1. TAGM 4046 - Technical and Adminstrative Guidance Memorandum Determination of Soil Cleanup Objectives, NYSDEC 1994
2. HEAST - USEPA Health Effects Summary Table
3. USEPA PRGs - Region 9 Preliminary Remediation Goals, April 1993
4. This Table is derived from GZA FS, 1996

APPENDIX F

HISTORICAL ANALYTICAL DATA
(TABULATED)

Table No. 1
Summary of Soil Vapor Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Station Location	Peak Organic Meter Reading (ppm)	Tentative Target Compound Identification and Estimated Concentration (ul/l or ppmv): 1,1 Dichloroethene (1,1 DCE)	d l	1,1-Dichloroethane (1,1 DCA)	d l.	2-Butanone (MEK)	d l.	1,2-Dichloroethane (1,2 DCA)	d l.	1,1,1-Trichloroethane (1,1,1 TCA)	d l.	Trichloroethene (TCE)	d l.	Tetrachloroethene (PCE)	d l.	Total Xylenes	d l.
G4+65	10	0.8		ND	25	ND	5	ND	25	ND	25	8.2		10		ND	5.0
H1+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
H2+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
H2+50	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
H3+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.05		ND	0.05	ND	0.2
H3+50	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.05		ND	0.05	ND	0.2
H4+00	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.05		ND	0.05	ND	0.2
H4+50	8	5		ND	2.5	ND	0.5	ND	2.5	71		8		78		ND	0.5
H4+65	5	3		ND	2.5	ND	0.5	ND	7.5	40		2		20		ND	0.5
I1+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
I2+00	ND	13		ND	1	ND	0.2	ND	1	ND	1	0.05		ND	0.05	ND	0.2
I2+50	4	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.01		1		ND	0.2
I2+50 (DUP)	4	ND	0.25			ND	0.34			0.05		ND	0.10	0.3			
I3+00	Water encountered (no vapor sample collected)																
I3+50	Water encountered (no vapor sample collected)																
I4+00	No vapor draw (no sample collected)																
I4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
I4+65	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
J2+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
J2+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
J3+00	Water encountered (no sample collected)																
J3+50	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.01		ND	0.05	ND	0.2
J4+00	7	ND	2.5	ND	250	ND	50	ND	250	ND	250	73		>500		ND	50.0
J4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	8.2		ND	0.05	ND	0.2
K2+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
K2+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	0.1		0.2	
K3+00	Water encountered (no sample collected)																
K3+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	8		ND	0.01	ND	0.05	ND	0.2
K4+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.03		ND	0.05	ND	0.2
K4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
L2+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.01		ND	0.05	0.3	
L3+00	ND	10		ND	1	ND	0.2	ND	1	ND	1	0.02		ND	0.05	ND	0.2
L3+50	1	3		ND	1	ND	0.2	ND	1	ND	1	0.05		ND	0.05	ND	0.2
L4+00	8	7		ND	25	ND	5	ND	25	270		11		ND	1.2	ND	5.0
L4+00 (DUP)	8	12.6				ND	1.1			150		8.2		ND	0.49		
L4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.06		ND	0.05	ND	0.2

NOTES:

1) ND = Compound not detected above listed detection limit.

2) Soil gas samples collected at approximately 4 feet below the ground surface.

3) d l = Compound detection limit

4) (DUP) = Duplicate soil vapor analysis done by H2M Laboratories Inc for selected parameters.

5) Shaded areas indicate concentrations above listed detection limit

Table No. 1
Summary of Soil Vapor Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Station Location	Peak Organic Meter Reading (ppm)	Tentative Target Compound Identification and Estimated Concentration (ul/l or ppmv)															
		1,1 Dichloroethene (1,1 DCE)	d.l.	1,1-Dichloroethane (1,1 DCA)	d.l.	2-Butanone (MEK)	d.l.	1,2-Dichloroethane (1,2 DCA)	d.l.	1,1,1-Trichloroethane (1,1,1 TCA)	d.l.	Trichloroethene (TCE)	d.l.	Tetrachloroethene (PCE)	d.l.	Total Xylenes	d.l.
B0+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
B0+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
B1+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
B1+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
B2+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
B2+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
B2+50 (DUP)	ND	ND	0.25			ND	0.34			0.05		ND	0.19	ND	0.15		
B3+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
B3+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
C0+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
C0+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
C4+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
C4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
D0+50	ND	0.03		ND	1	ND	0.2	ND	1	ND	1	0.01		ND	0.05	ND	0.2
D1+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
D4+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
D4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
E0+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
E0+50 (DUP)	ND	ND	0.25			ND	0.34			0.07		ND	0.19	ND	0.15		
E1+00	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
E4+00	2	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.02		0.08		ND	0.2
E4+00 (DUP)	2	ND	0.25			ND	0.34			0.51		0.03		0.04			
E4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
F1+00	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
F4+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.2		8		0.2	
F4+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	0.3		ND	0.2
E4+65	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.04		0.8		ND	0.2
G1+00	9	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
G1+50	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
G2+00	ND	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	ND	0.01	ND	0.05	ND	0.2
G3+00	Water encountered (no vapor sample collected)																
G3+50	85	0.2		ND	1	ND	0.2	ND	1	7.4		0.03		1.7		7.3	
G3+50 (DUP)	85	0.28				ND	1.7			8.8		ND	0.93	0.8			
G4+00	1	ND	0.01	ND	1	ND	0.2	ND	1	ND	1	0.02		ND	0.05	ND	0.2
G4+50	16	1.1		ND	25	ND	5	ND	25	ND	25	0.5		87		ND	5.0
G4+50 (DUP)	18	1				ND	2.9			2.8		ND	0.4	21			

NOTES:

1) ND = Compound not detected above listed detection limit.

2) Soil gas samples collected at approximately 4 feet below the ground surface

3) d.l. = Compound detection limit

4) (DUP) = Duplicate soil vapor analysis done by H2M Laboratories Inc. for selected parameters.

[Sha]ded areas indicate concentrations above listed detection limit.

Table No. 2
Summary of Soil Boring Installations

Remedial Investigation Report
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Test Boring	Date Completed	Ground Surface Elevation (ft)	Thickness of Deposits Encountered (ft)				Top of Upper Till Elev. (ft)	Top of Lower Till Elev. (ft)	Top of Weathered Bedrock (ft)	Depth of Boring (ft)
			Fill	Lacustrine	Upper Till	Lower Till				
SB-1	10/18/94	533.7	1.7	2.9	17.4	11.0+	529.1	511.7	–	30.0
SB-2	10/17/94	533.4	6.8	–	15.6	2.8+	526.6	511.0	–	25.2
SB-3	10/5/94	528.5	7.0	7.0	10.0	19.0	514.5	504.5	485.5	50.4
SB-4	10/19/94	531.4	5.7	–	16.1	8.2+	525.7	509.6	–	30.0
SB-5	10/13/94	529.5	4.0	–	14.0	12.0+	525.5	511.5	–	30.0
SB-6	10/11/94	527.9	2.0	4.0	28.0	8.0	521.9	493.9	485.9	42.3
SB-7	10/5/94	527.8	1.5	1.5	22.0	16.0	524.8	502.8	486.8	46.0
SB-8	10/12/94	528.2	5.0	2.0	25.0	9.0	521.2	496.2	487.2	42.8
SB-9	10/7/94	526.0	4.0	5.0	6.0	13.3+	517.0	511.0	–	28.3
SB-10	10/10/94	527.3	6.0	7.7	7.8	8.2+	513.6	505.8	–	29.7
SB-11	10/10/94	527.8	4.0	8.5	19.5	4.0+	515.3	495.8	–	36.0
SB-12	10/4/94	528.7	4.0	9.0	25.0	4.0	515.7	490.7	486.7	45.3
SB-13	10/3/94	529.4	6.0	11.5	4.5	13.7+	511.9	507.4	–	35.7
SB-14	10/11/94	530.4	6.0	2.5	14.0	5.9+	521.9	507.9	–	28.4
SB-15	10/13/94	528.2	12.0	–	16.0	12.5	516.2	500.2	487.7	41.0

Table No. 3
Summary of Overburden Monitoring Well Installation Details

Remedial Investigation Report
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Well Name	Date of Installation	Ground Surface Elevation (ft)	Ref Elev. (ft)	Thickness of Deposits Encountered (ft)				Top of Upper Till Elev. (ft)	Top of Lower Till Elev (ft)	Top of Weathered Bedrock Elev. (ft.)	Depth of Boring (ft)	Diameter Of Well Casing (in)	Length of Well Screen (ft)	Well Intake Depth/Elevations				Hydraulic Conductivity (cm/sec)
				Fill	Lacustrine	Upper Till	Lower Till							Top of Sandpack		Bottom of Sandpack		
														Depth (ft)	Elev. (ft)	Depth (ft)	Elev. (ft)	Rising Head
OW-1S	11/1/94	529.0*	530.8	2.8	3.2	16.8	11.9	523.0	506.2	494.3	35.0	4.0	9.5	12.0	517.0	24.5	504.5	9.2E-04
OW-2S	11/2/94	531.8	533.6	10.0	--	10.0	--	521.8	--	--	21.5	4.0	5.0	14.0	517.8	21.5	510.3	6.1E-04
OW-3S	11/4/94	523.3	527.2	4.7	17.4	1.6+	--	501.2	--	--	23.8	4.0	4.5	16.0	507.3	24.0	499.3	3.5E-03
OW-4S	11/21/94	530.0	531.8	6.0	8.8	7.8	2.9+	515.2	507.4	--	25.5	4.0	10.0	14.0	516.0	25.5	504.5	9.5E-04
OW-5S	11/2/94	526.0	528.7	1.0	9.5	4.1	15.4+	515.5	511.4	--	30.0	4.0	9.5	10.0	516.0	23.0	503.0	2.3E-04
OW-6S	11/3/94	529.0	531.0	2.6	5.8	14.1	10.9+	520.6	506.5	--	33.4	4.0	5.0	7.0	522.0	15.0	514.0	8.8E-05
OW-7S	11/28/94	528.1	527.5	2.4	4.0	24.6	--	521.7	497.1	--	31.0	4.0	5.0	23.5	504.6	31.0	497.1	2.6E-04
OW-8S	6/27/95	525.6	528.0	6.0	--	26.0	1.5+	519.6	496.0	--	33.5	4.0	5.0	25.0	500.6	32.5	493.1	1.5E-04
OW-9S	6/21/95	525.4	524.9	2.0	9.8	12.9	4.2+	513.6	500.7	--	28.9	2.0	5.0	18.0	507.4	25.5	499.9	3.6E-03
OW-10S	6/22/95	531.6	531.0	7.6	--	9.4	7.5+	524.0	514.6	--	24.5	2.0	5.0	10.0	521.6	17.5	514.1	1.0E-03
OW-11S	6/23/95	528.7	530.8	5.6	2.4	4.0	18.0	520.0	516.7	498.7	32.2	2.0	5.0	5.5	523.2	13.0	515.7	3.8E-03
B-101-OW	12/31/91	528.4	527.9	4.0	8.9	2.1+	--	515.5	--	--	15.0	2.0	10.0	3.0	525.4	15.0	513.4	4.5E-03
OW-LS	11/10/92	533.4	533.1	0.3	--	11.7+	--	--	--	--	12.0	2.0	10.0	1.0	532.4	12.0	521.4	8.4E-03
MW-2	1/15/87	529.4	532.3	2.0	14.0	9.0+	--	515.4	--	--	--	2.0	--	--	--	--	--	4.9E-03
MW-3	1/15/87	529.1	529.0	2.0	6.5	5.9	15.6+	520.6	--	--	30.0	2.0	10.0	6.5	522.6	18.5	510.6	8.5E-04
MW-5	1/19/87	527.4	530.3	4.0	12.7	2.3+	--	514.7	--	--	19.0	2.0	--	--	--	--	--	3.2E-04

NOTES.

1) The symbol "+" following a number indicates the thickness encountered, and not the overall thickness of the deposit, since the boring did not penetrate the bottom of the deposit

2) The monitoring well label OW-LS was originally identified as "MW-2" in a Phase II Environmental Assessment Report completed by Erdman, Anthony and Associates dated December 1992 for the property located at 3711 West Henrietta Road, Rochester, NY.

3) The dashed symbol "--" indicates that the unit was not encountered.

4) Hydraulic conductivity data calculated by H. Bouwer 1989 method. See Appendix F for additional data.

Table No. 4
Summary of Top of Bedrock
Monitoring Well Installation Details

Remedial Investigation Report
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Well Name	Date of Installation	Ground Surface Elevation (ft)	Ref Elev. (ft)	Thickness of Deposits Encountered (ft)				Top of Upper Till Elev. (ft)	Top of Lower Till Elev. (ft)	Top of Severely Weathered Bedrock Elev. (ft)	Depth of Boring (ft)	Diameter Of Well Casing (in)	Length of Well Screen (ft)	Well Intake Depth/Elevations				Hydraulic Conductivity (cm/sec)
				Fill	Lacustrine	Upper Till	Lower Till							Top of Sandpack		Bottom of Sandpack		
														Depth (ft)	Elev. (ft)	Depth (ft)	Elev. (ft)	Rising Head
OW-1R	11/8/94	529.2	531.15	2 3	3 7	17.7	13 2	523.2	505.5	492.3	42.0	4.0	5.5	33.5	495.7	42.0	487.2	2.8E-04
OW-2R	11/10/94	532.0	533.89	10.0	--	10 0	14.7	522.0	512.0	497.3	47.5	4.0	5.0	36.5	495.5	44.5	487.5	4.2E-03
OW-3R	11/14/94	525.5	527.04	4.7	12 6	4 7	17.7	508.2	503.5	485.8	48.2	4.0	5.0	37.0	488.5	45.0	480.5	1.2E-03
OW-4R	11/21/94	529 6	531 22	6 0	9 0	8.5	21.2	514.6	506.1	484 9	50.3	4.0	5.0	42.0	487.6	50.3	479.3	1.3E-03
OW-7R	11/23/94	528 2	527 85	2 4	4 0	24 3	11.2	521 8	497.5	486 3	47.0	4.0	5.0	39 0	489.2	47.0	481.2	1.1E-02
IW-1R	UNKNOWN	--	528 39	--	--	--	--	--	--	--	57.3	8.0	--	--	--	--	--	NO TEST
IW-2R	UNKNOWN	--	528 39	--	--	--	--	--	--	--	41.8	6.0	--	--	--	--	--	NO TEST

NOTES

1) Ground Surface Elevations for IW-1R and IW-2R are established as the finished floor elevation of the Metalade building

2) Subsurface boring logs were not available for review for IW-1R and IW-2R

3) Hydraulic Conductivity tests were not completed for IW-1R and IW-2R due to down-hole pump equipment obstruction

4) The location and the length of the well intake for IW-1R and IW-2R is unknown

5) Hydraulic conductivity data calculated by H Bouwer, 1989 method See Appendix F for additional data

Table No. 5
Summary of Groundwater Elevations for Monitoring Wells

Remedial Investigation Report
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Well Name	Reference Elev. (ft.)	November, 18 1994		January 19,1995		February 24, 1995		August 24, 1995		October 23, 1995	
		Depth(ft.)	Elev (ft.)	Depth(ft.)	Elev (ft.)	Depth(ft.)	Elev (ft.)	Depth(ft.)	Elev (ft.)	Depth(ft.)	Elev (ft.)
OW-1S	530.76	9.81	520.95	9.18	521.58	8.88	521.88	10.76	520.00	8.52	522.24
OW-1R	531.15	12.78	518.37	12.08	519.07	11.70	519.45	13.83	517.32	13.54	517.61
OW-2S	533.57	9.58	523.99	6.80	526.77	6.26	527.31	7.98	525.59	5.78	527.79
OW-2R	533.89	16.62	517.27	14.83	519.06	14.40	519.49	16.60	517.29	16.25	517.64
OW-3S	527.19	12.76	514.43	11.26	515.93	10.61	516.58	13.04	514.16	11.91	515.28
OW-3R	527.04	9.46	517.58	8.88	518.16	8.50	518.54	10.48	516.56	10.42	516.62
OW-4S	531.79			9.18	522.61	9.14	522.65	12.20	519.59	9.84	521.95
OW-4R	531.22			12.23	518.99	11.82	519.40	14.00	517.22	13.66	517.56
OW-5S	528.72	15.27	513.45	15.04	513.68	14.89	513.83	15.75	512.97	14.43	514.29
OW-6S	530.97			7.00	523.97	7.90	523.07	10.31	520.66	7.44	523.53
OW-7S	527.48			5.64	521.84	6.22	521.26	7.88	519.60	6.03	521.45
OW-7R	527.85			8.82	519.03	8.42	519.43	10.59	517.26	10.25	517.60
OW-8S	527.97							9.37	518.60	7.34	520.63
OW-9S	524.88							4.44	520.44	2.51	522.37
OW-10S	530.99							9.02	521.97	9.03	521.96
OW-11S	530.76							9.10	521.66	6.82	524.14
OW-B101	527.93							6.38	521.55	3.92	524.01
OW-LS	533.07							7.41	525.66	5.21	527.86
MW-2	532.30							13.58	518.72	11.89	520.81
MW-3	528.97							5.58	523.39	2.46	526.52
MW-5	530.29							14.85	515.44	12.39	517.90
IW-1R	528.39							14.35	514.04	14.23	514.16
IW-2R	528.39							14.15	514.24	13.96	514.43
SUMP 1	521.77								>521.07	1.22	520.55
SUMP 2	521.77								>520	1.00	520.77
SUMP 3	521.77								520.87	1.73	520.04
CREEK	524.85									1.20	523.65

Notes:
1) Creek elevation is measured from the top of the catchbasin.
2) See Figure No. 3 for Well Locations.
3) Survey information provided by OM P. Popli, P.E., L.S., P.C. Consulting Engineers & Surveyors.
4) Elevations based on the 1929 adjustment of the National Geodetic Vertical Datum.

Table No. 6
Summary of Hydraulic Conductivity Results

Remedial Investigation Report
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Monitoring Well	Screened Zone	Rising Head Test Results (ft/min)	Rising Head Test Results (cm/sec)
OW-1S	Upper/Lower Till Interface	1.8E-03	9.2E-04
OW-2S	Upper Till	1.2E-03	6.1E-04
OW-3S	Upper Till	6.9E-03	3.5E-03
OW-4S	Upper/Lower Till Interface	1.9E-03	9.5E-04
OW-5S	Upper/Lower Till Interface	4.5E-04	2.3E-04
OW-6S	Upper Till	1.7E-04	8.8E-05
OW-7S	Upper Till	5.1E-04	2.6E-04
OW-8S	Upper Till	2.9E-04	1.5E-04
OW-9S	Upper/Lower Till Interface	7.1E-03	3.6E-03
OW-10S	Upper Till	2.0E-03	1.0E-03
OW-11S	Lacustrine/Upper/Lower Till Interfaces	7.6E-03	3.8E-03
OW-LS	Upper Till	1.7E-02	8.4E-03
B-101-OW	Upper Till	8.8E-03	4.5E-03
MW-2	Upper Till	4.5E-03	4.9E-03
MW-3	Upper Till	1.7E-03	8.5E-04
MW-5	Upper Till	6.3E-04	3.2E-04
OW-1R	Lower Till/Top of Weathered Rock Interface	5.5E-04	2.8E-04

Table No. 7
Target Compound List for ASP93

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

CAS Number	Parameter	Contract Required Quantitation Limits Water (ug/l)	Low Soil/Sediment (ug/kg)
	Volatile Organic Compounds		
74-87-3	Chloromethane	10	10
74-83-9	Bromomethane	10	10
75-01-4	Vinyl chloride	10	10
75-00-3	Chloroethane	10	10
75-09-2	Methylene chloride	10	10
67-64-1	Acetone	10	10
75-15-0	Carbon Disulfide	10	10
75-35-4	1,1-Dichloroethene	10	10
75-34-3	1,1-Dichloroethane	10	10
540-59-0	1,2-Dichloroethene(Total)	10	10
67-66-3	Chloroform	10	10
107-06-2	1,2-Dichloroethane	10	10
78-93-3	2-Butanone	10	10
71-55-6	1,1,1-Trichloroethane	10	10
56-23-5	Carbon Tetrachloride	10	10
75-27-4	Bromodichloromethane	10	10
78-87-5	1,2-Dichloropropane	10	10
10061-01-5	cis-1,3-Dichloropropene	10	10
79-01-6	Trichloroethene	10	10
124-48-1	Dibromochloromethane	10	10
79-00-5	1,1,2-Trichloroethane	10	10
71-43-2	Benzene	10	10
10061-02-6	trans-1,3-Dichloropropene	10	10
75-25-2	Bromoform	10	10
108-10-1	4-Methyl-2-Pentanone	10	10
591-78-6	2-Hexanone	10	10
127-18-4	Tetrachloroethene	10	10
79-34-5	1,1,2,2-Tetrachloroethane	10	10
108-88-3	Toluene	10	10
108-90-7	Chlorobenzene	10	10
100-41-4	Ethylbenzene	10	10
100-42-5	Styrene	10	10
1330-20-7	Xylene (total)	10	10
	Semi-Volatile Organic Compounds		
108-95-2	Phenol	10	330
111-44-4	bis(2-Chloroethyl) Ether	10	330
95-57-8	2-Chlorophenol	10	330
541-73-1	1,3-Dichlorobenzene	10	330
106-46-7	1,4-Dichlorobenzene	10	330
95-50-1	1,2-Dichlorobenzene	10	330
95-48-1	2-Methylphenol	10	330
108-60-1	2,2'-oxybis (1-Chloropropane)	10	330
106-44-5	4-Methylphenol	10	330
621-64-7	N-Nitroso-Di-n-Propylamine	10	330
67-72-1	Hexachloroethane	10	330
98-95-3	Nitrobenzene	10	330
78-59-1	Isophorone	10	330

Table No. 7
Target Compound List for ASP93

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

CAS Number	Parameter	Contract Required Quantitation Limits	
		Water (ug/l)	Low Soil/Sediment (ug/kg)
	Semi-Volatile Organic Compounds		
59-50-7	4-Chloro-3-Methylphenol	10	330
91-57-6	2-Methylnaphthalene	10	330
77-47-4	Hexachlorocyclopentadiene	10	330
88-06-2	2,4,6-Trichlorophenol	10	330
95-95-4	2,4,5-Trichlorophenol	25	800
91-58-1	2-Chloronaphthalene	10	330
88-74-4	2-Nitroaniline	25	800
131-11-3	Dimethyl Phthalate	10	330
208-66-8	Acenaphthylene	10	330
606-20-2	2,6-Dinitrotoluene	10	330
99-09-2	3-Nitroanilene	25	800
83-32-9	Acenaphthene	10	330
51-28-5	2,4-Dinitrophenol	25	800
100-02-07	4-Nitrophenol	25	800
132-64-9	Dibenzofuran	10	330
121-14-2	2,4-Dinitrotoluene	10	330
84-66-2	Diethylphthalate	10	330
7005-72-3	4-Chlorophenyl-phenyl ether	10	330
86-73-7	Fluorene	10	330
100-01-6	4-Nitroaniline	25	800
534-62-1	4,6-Dinitro-2-Methyphenol	25	800
86-30-6	N-Nitrosodiphenylamine	10	330
101-55-3	4-Bromophenyl-phenylether	10	330
118-74-1	Hexachlorobenzene	10	330
87-86-5	Pentachlorophenol	25	800
85-01-8	Phenanthrene	10	330
120-12-7	Anthracene	10	330
	Carbazole	10	330
84-74-2	Di-n-Butylphthalate	10	330
206-44-0	Fluoranthene	10	330
129-00-0	Pyrene	10	330
85-68-7	Butylbenzylphthalate	10	330
91-94-1	3,3'-Dichlorobenzidine	10	330
56-55-3	Benzo (a) Anthracene	10	330
218-01-9	Chrysene	10	330
117-81-7	Bis (2-Ethylhexyl) Phthalate	10	330
117-84-0	Di-n-Octyl Phthalate	10	330
205-99-2	Benzo (b) Fluoranthene	10	330
207-08-9	Benzo (k) Fluoranthene	10	330
50-32-8	Benzo (a) Pyrene	10	330
193-39-5	Indeno (1,2,3-cd) Pyrene	10	330
53-70-3	Dibenzo (a,h) Anthracene	10	330
191-24-2	Benzo(g,h,i) Perylene	10	330
	Pesticides		
319-84-6	alpha-BHC	0.05	1.7
319-85-7	[illegible]		

Table No. 7
Target Compound List for ASP93

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

CAS Number	Parameter	Contract Required Quantitation Limits Water (ug/l)	Low Soil/Sediment (ug/kg)
	Pesticides		
1031-07-8	Endosulfan Sulfate	0.10	3.3
50-29-3	4,4'-DDT	0.10	3.3
72-43-5	Methoxychlor	0.5	17.0
53594-70-5	Endrin Ketone	0.10	3.3
7421-36-3	Endrin Aldehyde	0.10	3.3
5103-71-9	alpha-Chlordane	0.5	1.7
5103-74-2	gamma-Chlordane	0.5	1.7
8001-35-2	Toxaphene	5.0	170.0
	PCB's		
12674-11-2	Aroclor-1016	1.0	33.0
11104-28-2	Aroclor-1221	2.0	67.0
11141-16-5	Aroclor-1232	1.0	33.0
53469-21-9	Aroclor-1242	1.0	33.0
12672-29-6	Aroclor-1248	1.0	33.0
11097-69-1	Aroclor-1254	1.0	33.0
11096-82-5	Aroclor-1260	1.0	33.0
	Metals		
	Aluminum	200	
	Antimony	60	
	Arsenic	10	
	Barium	200	
	Berylium	5	
	Cadmium	5	
	Calcium	5000	
	Chromium	10	
	Cobalt	50	
	Copper	25	
	Iron	100	
	Lead	5	
	Magnesium	5000	
	Manganese	15	
	Mercury	0.2	
	Nickel	40	
	Potassium	5000	
	Selenium	5	
	Silver	10	
	Sodium	5000	
	Thallium	10	
	Vanadium	50	
	Zinc	20	
	Cyanide	10	

Notes:
1) Contract Required Quantitation Limits (CRQL) obtained from NYSDEC ASP dated 9/93.
2) The values in this table are quantitation limits, not absolute detection limits. The quantitation limits in this table are set at the concentrations in the sample equivalent to the [illegible]

Table No. 8
Summary of Environmental Samples

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Sample Location Identification	Date Sampled	Media Sampled	Volatiles	Semi-Volatiles	PCB/PEST	Metals	Cyanide	TOC	Hardness	Alkalinity	MS/MSD	DUPLICATE
SOH-OW4R-42/44	11/18/94	SOIL	X	X	X	X	X	X				
SOH-OW7R-34/36	11/17/94	SOIL	X	X	X	X	X					
SOH-OW7R-40/42	11/22/94	SOIL	X	X	X	X	X	X				
SOH-TP-1	11/3/94	SOIL	X	X	X	X	X				X	
SOH-TP-2	11/3/94	SOIL	X	X	X	X	X					
SOH-TP-3	11/3/94	SOIL	X	X	X	X	X					
SOH-TP-4	11/3/94	SOIL	X	X	X	X	X					
SOH-TP-5	11/3/94	SOIL	X	X	X	X	X					
SOH-TP-6	11/3/94	SOIL	X	X	X	X	X					
SOH-NSM-1	10/27/94	WATER	X	X	X	X	X		X	X		
SOH-NSM-2	10/27/94	SOIL	X	X	X	X	X					
SOH-NSM-3	10/27/94	SOIL	X	X	X	X	X					
SOH-NSM-4	10/25/94	WATER	X	X	X	X	X		X	X		
SOH-SS1-0	10/25/94	SOIL	X	X	X	X	X					
SOH-SS2-0	10/26/94	SOIL	X	X	X	X	X					
SOH-SS3-0	10/26/94	SOIL	X	X	X	X	X					
SOH-SS4-0	10/26/94	SOIL	X	X	X	X	X					
SOH-SS5-0	10/26/94	SOIL	X	X	X	X	X					
SOH-SS6-0	10/26/94	SOIL	X	X	X	X	X					
SOH-SW-1	10/26/94	WATER	X	X	X	X	X					
SOH-SW-2	10/25/94	WATER	X	X	X	X	X		X	X		
SOH-SW-3	10/26/94	WATER	X	X	X	X	X					
RUBY GORDON-SUMP-1	10/27/94	WATER	X	X	X	X	X		X	X		
RUBY GORDON-SUMP-2	10/27/94	WATER	X	X	X	X	X		X	X		
RUBY GORDON-SUMP-3	10/27/94	WATER	X	X	X	X	X		X	X		

Table No. 8
Summary of Environmental Samples

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Sample Location Identification	Date Sampled	Media Sampled	Volatiles	Semi-Volatiles	PCB/PEST	Metals	Cyanide	TOC	Hardness	Alkalinity	MS/MSD	DUPLICATE
SOH-SB1-2/4	10/18/94	SOIL	X	X	X	X	X	X				
SOH-SB1-22/24	10/18/94	SOIL	X									
SOH-SB1-24/26 *	10/18/94	SOIL		X	X	X	X	X				
SOH-SB4-0/2	10/19/94	SOIL	X	X	X	X	X	X				
SOH-SB4-18/20	10/19/94	SOIL	X	X	X	X	X	X				
SOB-SB4-24/26	10/19/94	SOIL	X	X	X	X	X	X				
SOH-SB7A-0.5/2	10/24/94	SOIL			X							
SOH-SB8A-8/10	10/24/94	SOIL	X									
SOH-SB8A-10/12	10/24/94	SOIL		X	X	X	X					
SOH-SB16-12/14	6/20/95	SOIL	X	X	X	X	X					
SOH-SB16-26/28	6/20/95	SOIL	X	X	X	X	X					
SOH-SB17-16/18	6/19/95	SOIL	X	X	X	X	X					
SOH-OW2S-32/34	11/9/94	SOIL		X	X	X	X					
SOH-OW2S-34/36	11/9/94	SOIL	X									
SOH-OW4S-8/10	11/22/94	SOIL	X	X	X	X	X	X				
SOH OW5S-14/16	11/2/94	SOIL	X	X	X	X	X					
SOH-OW6S-0/2	11/28/94	SOIL		X	X	X	X					
SOH-OW6S-2/4	11/3/94	SOIL		X								
SOH-OW6S-10/12	11/3/94	SOIL	X	X	X	X	X					
SOH-OW6S-20/22	11/4/94	SOIL	X	X	X	X	X					
SOH-OW7S-8/10	11/28/94	SOIL	X	X	X	X	X	X				
SOH-OW7S-28/30	11/28/94	SOIL	X	X	X	X	X	X				
SOH-OW8S-6/12	6/26/95	SOIL	X	X	X	X	X					
SOH-OW8S-32/34	6/26/95	SOIL	X	X	X	X	X					
SOH-OW9S-8/10	6/20/95	SOIL	X	X	X	X	X					
SOH-OW10S-18/21	6/21/95	SOIL	X	X	X	X	X					
SOH-OW11S-26/32	6/22/95	SOIL	X	X	X	X	X					
SOH-OW1R-6/8	10/20/94	SOIL	X	X	X	X	X					
SOH-OW1R-20/22	10/20/94	SOIL	X									
SOH-OW1R-22/23	10/20/94	SOIL		X	X	X	X	X				
SOH-OW4R-32/34	11/15/94	SOIL	X									
SOH-OW4R-34/36	11/15/94	SOIL		X	X	X	X					

Table No. 8
Summary of Environmental Samples

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Sample Location Identification	Date Sampled	Media Sampled	Volatiles	Semi-Volatiles	PCB/PEST	Metals	Cyanide	TOC	Hardness	Alkalinity	MS/MSD	DUPLICATE
SOH-SED1-0/6	10/25/94	SOIL	X	X	X	X	X	X				
SOH-SED2-0/6	10/25/94	SOIL	X	X	X	X	X	X				
SOH-SED3-0/6-MS(D)	10/25/94	SOIL	X	X	X	X	X				X	
SOH-SED4-0/6	10/25/94	SOIL	X	X	X	X	X					
OW-1S	7/6/95	WATER	X	X	X	X	X		X	X		
OW-2S	7/6/95	WATER	X	X	X	X	X		X	X		
OW-3S	7/7/95	WATER	X	X	X	X	X		X	X		
OW-4S	7/7/95	WATER	X	X	X	X	X		X	X	X	
OW-5S	7/6/95	WATER	X	X	X	X	X		X	X		SOH-1-DUP1
OW-6S	7/7/95	WATER	X	X	X	X	X		X	X		
OW-7S	7/10/95	WATER	X	X	X	X	X		X	X		
OW-8S	7/7/95	WATER	X	X	X	X	X		X	X		
OW-9S	7/5/95	WATER	X	X	X	X	X		X	X		
OW-10S	7/5/95	WATER	X	X	X	X	X		X	X		
OW-11S	7/5/95	WATER	X	X	X	X	X		X	X		
MW-2	7/10/95	WATER	X	X	X	X	X		X	X		
MW-3	7/10/95	WATER	X	X	X	X	X		X	X		
MW-5	7/10/95	WATER	X	X	X	X	X		X	X		
B101-OW	7/5/95	WATER	X	X	X	X	X		X	X		
OW-LS (MW-2)	7/13/95	WATER	X	X	X	X	X		X	X		
OW-1R	7/11/95	WATER	X	X	X	X	X		X	X		
OW-2R	7/11/95	WATER	X	X	X	X	X		X	X	X	
OW-3R	7/11/95	WATER	X	X	X	X	X		X	X		
OW-4R	7/13/95	WATER	X	X	X	X	X		X	X		
OW-7R	7/13/95	WATER	X	X	X	X	X		X	X		SOH-1-DUP2
IW-1R	7/12/95	WATER	X	X	X	X	X		X	X		
IW-2R	7/12/95	WATER	X	X	X	X	X		X	X		
OW-1S	10/3/95	WATER	X			X						
OW-2S	10/4/95	WATER	X			X						
OW-3S	10/4/95	WATER	X			X						
OW-4S	10/4/95	WATER	X			X						
OW-5S	10/3/95	WATER	X			X						

Table No. 8
Summary of Environmental Samples

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henriette, New York

Sample Location Identification	Date Sampled	Media Sampled	Volatiles	Semi-Volatiles	PCB/PEST	Metals	Cyanide	TOC	Hardness	Alkalinity	MS/MSD	DUPLICATE
OW-6S	10/3/95	WATER	X			X						
OW-7S	10/4/95	WATER	X	X		X						
OW-8S	10/3/95	WATER	X			X						SOH-2-DUP1
OW-9S	10/2/95	WATER	X			X						
OW-10S	10/2/95	WATER	X			X						
OW-11S	10/2/95	WATER	X			X						
MW-2	10/3/95	WATER	X			X						
MW-3	10/3/95	WATER	X			X						
MW-5	10/3/95	WATER	X			X						
B101-OW	10/2/95	WATER	X			X						
OW-LS (MW-2)	10/2/95	WATER	X			X						
OW-1R	10/4/95	WATER	X			X						
OW-2R	10/4/95	WATER	X			X						
OW-3R	10/5/95	WATER	X			X						
OW-4R	10/5/95	WATER	X			X						
OW-7R	10/5/95	WATER	X	X		X						SOH-2-DUP2
IW-1R	10/6/95	WATER	X			X						
IW-2R	10/6/95	WATER	X			X						
RUBY GORDON-SUMP-1	10/5/95	WATER	X									
RUBY GORDON-SUMP-2	10/5/95	WATER	X									
RUBY GORDON-SUMP-3	10/5/95	WATER	X									

Table No. 9
Summary of Surface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SED-1 0-6" 10/25/94	Q	SED-1 RE 0-6" 10/25/94	Q	SED-4 0-6" 10/25/94	Q	SED-4 RE 0-6" 10/25/94	Q	SS-1 0" 10/25/94	Q	SS-1 RE 0" 10/25/94	Q	SS-1 DL 0" 10/25/94	Q	SS-2 0" 10/26/94	Q	SS-3 0" 10/26/94	Q	SS-3 RE 0" 10/26/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Methylene chloride	7	J	9	J	7	J	NT		9	JN			NT				30			
Toluene							NT		4	J			NT							
Chlorobenzene					1	J	NT		25				NT							
Semi Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Naphthalene									370	J							280	J	NT	
2-Methylnaphthalene																			NT	
Acenaphthylene					49	J	51	J	2500	J	1500	J	3600	JD	80	J	2100	J	NT	
Acenaphthene					22	J	69	J	1700	J	1100	J	2800	JD	53	J	340	J	NT	
Dibenzofuran							53	J	1000	J	680	J	1800	JD	29	J			NT	
Fluorene					30	J	100	J	2800	J	2000	J	5100	JD	84	J	470	J	NT	
Phenanthrene	60	J	83	J	560		920		44000	E	27000		69000	D	1500		11000		NT	
Anthracene					130	J	230	J	8500		5200		12000	JD	270	J	3100	J	NT	
Carbazole					67	J	120	J	6800		4200		10000	JD	190	J	2200	J	NT	
Di-n-Butylphthalate	76	J	75	J	110	J	320	J	990	J	530	J	1500	JD	190	J	4000	J	NT	
Fluoranthene	120	J	180	J	1100		1500		82000	E	47000	E	130000	D	2900		26000		NT	
Pyrene	150	J	200	J	1300	J	1200		73000	EJ	44000	E	120000	D	2700		24000		NT	
Butylbenzylphthalate					83	J	64	J	2700	J	620	J	3900	JD	140	J	5500		NT	
Benzo (a) Anthracene	49	J	70	J	490		560		43000	E	26000		54000	D	1100		13000		NT	
Chrysene	86	J	100	J	840		740		56000	E	31000		79000	D	1600		21000		NT	
Bis (2-Ethylhexyl) Phthalate	85	J	80	J	940		280	J	7300		2300	J	11000	JD	590		27000		NT	
Di-n-Octyl Phthalate							310	J											NT	
Benzo (b) Fluoranthene	100	J	84	J	630		640		85000	E	34000	E	92000	D	1200		31000		NT	
Benzo (k) Fluoranthene	58	J	92	J	700		420		15000		14000		25000	D	1700		10000		NT	
Benzo (a) Pyrene	64	J	110	J	750		500		50000	E	24000		58000	D	1200		15000		NT	
Indeno (1,2,3-cd) Pyrene	96	J	81	J	920		400		48000	E	20000		50000	D	1200		25000		NT	
Dibenz (a,h) Anthracene					330	J	180	J	17000		7800		18000	JD	390		10000		NT	
Benzo(g,h,i) Perylene	32	J	150	J	310	J	150	J	21000		6600		23000	D	1000		3500	J	NT	
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	9710		NT		7400		NT		8750		NT		NT		5960		6980		NT	
Antimony			NT				NT				NT		NT		24.8		23.1		NT	
Arsenic	3	NJ	NT		4	NJ	NT		8.8	NJ	NT		NT		5.1	NJ	8.1	SNJ	NT	
Barium	39.2	B	NT		46.1		NT		136		NT		NT		164		161		NT	
Beryllium	0.29	B	NT		0.33	B	NT		0.42	B	NT		NT		0.22	B	0.27	B	NT	
Cadmium			NT		0.85	B	NT		6.8		NT		NT		5.9		7.6		NT	
Calcium	3570		NT		33200		NT		30200		NT		NT		54600		71200		NT	
Chromium	20.8		NT		14		NT		107		NT		NT		1570		1560		NT	
Cobalt	3.9	B	NT		5.2	B	NT		7.3	B	NT		NT		6.4	B	5.7	B	NT	
Copper	14.2		NT		16.8		NT		56		NT		NT		62.7		66.2		NT	
Iron	11100		NT		12100		NT		19900		NT		NT		21300		19500		NT	
Lead	19.3	J	NT		15.8	S*	NT		171		NT		NT		48.5		36.8		NT	
Magnesium	2660		NT		10300		NT		13900		NT		NT		23500		32900		NT	
Manganese	113		NT		427		NT		470		NT		NT		[illegible]		[illegible]		[illegible]	
Mercury																				

Table No. 9
Summary of Surface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SS-3 DUP-1 10/26/94	Q	SS-3 DUP-1 RE 10/26/94	Q	SS-4 0" 10/26/94	Q	SS-4 RE 0" 10/26/94	Q	SS-5 0" 10/26/94	Q	SS-5 RE 0" 10/26/94	Q	SS-6 0" 10/26/94	Q	SS-6 RE 0" 10/26/94	Q	SS-6 DL 0" 10/26/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Methylene chloride	29																NT	
Toluene																	NT	
Chlorobenzene													4	J			NT	
Semi Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Naphthalene	280	J	NT				NT				NT				NT			
2-Methylnaphthalene			NT				NT				NT		220	J	NT			
Acenaphthylene	1500	J	NT				NT		250	J	NT		580	J	NT			
Acenaphthene	290	J	NT		510	J	NT		210	J	NT		3300	J	NT		4000	JD
Dibenzofuran			NT		230	J	NT		110	J	NT		1400	J	NT		1700	JD
Fluorene	410	J	NT		650	J	NT		250	J	NT		3200	J	NT		4000	JD
Phenanthrene	900		NT		7700		NT		4000		NT		31000	E	NT		52000	D
Anthracene	2600	J	NT		2000	J	NT		940	J	NT		5700		NT		7800	JD
Carbazole	1800	J	NT		720	J	NT		630	J	NT		5100		NT		6500	JD
Di-n-Butylphthalate	3300	J	NT				NT		210	J	NT				NT			
Fluoranthene	22000		NT		13000		NT		10000		NT		47000	E	NT		83000	D
Pyrene	22000		NT		11000		NT		9500		NT		49000	E	NT		76000	D
Butylbenzylphthalate	3800	J	NT				NT		360	J	NT		220	J	NT			
Benzo (a) Anthracene	10000		NT		4700		NT		5100		NT		24000		NT		31000	D
Chrysene	17000		NT		5800		NT		7200		NT		27000		NT		39000	D
Bis (2-Ethylhexyl) Phthalate	27000		NT		920	J	NT		1200	J	NT		370	J	NT			
Di-n-Octyl Phthalate			NT				NT				NT				NT			
Benzo (b) Fluoranthene	24000		NT		4800		NT		11000		NT		30000	E	NT		45000	D
Benzo (k) Fluoranthene	5800		NT		4300		NT				NT		7000		NT		16000	JD
Benzo (a) Pyrene	16000		NT		4500		NT		5200		NT		21000		NT		30000	D
Indeno (1,2,3-cd) Pyrene	22000		NT		3400	J	NT		6000		NT		18000		NT		25000	D
Dibenz (a,h) Anthracene	6900		NT		1300	J	NT		2500		NT		7200		NT		5900	JD
Benzo(g,h,i) Perylene	9600		NT		940	J	NT		1100	J	NT		6000		NT		8500	JD
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	5260		NT		8520		NT		10700		NT		4990		NT		NT	
Antimony	9.2	B	NT				NT				NT				NT		NT	
Arsenic	72.9	SNJ	NT		3	SNJ	NT		4.6	SNJ	NT		3.5	SNJ	NT		NT	
Barium	3350		NT		57.7		NT		90.8		NT		36.5	B	NT		NT	
Beryllium			NT		0.34	B	NT		0.46	B	NT				NT		NT	
Cadmium	84.9		NT		1.2	B	NT				NT		1.5		NT		NT	
Calcium	40000		NT		25000		NT		47700		NT		58100		NT		NT	
Chromium	731		NT		21.1		NT		30.7		NT		13.8		NT		NT	
Cobalt	366		NT		4.1	B	NT		6	B	NT		3.2	B	NT		NT	
Copper	4710		NT		22.9		NT		65.7		NT		24.4		NT		NT	
Iron	54100		NT		12300		NT		16700		NT		11600		NT		NT	
Lead	529		NT		93		NT		111		NT		101		NT		NT	
Magnesium	19200		NT		8110		NT		16300		NT		22100		NT		NT	
Manganese	482		NT		206		NT		420		NT		287		NT		NT	
Mercury	0.33		NT		0.2		NT				NT				NT		NT	
Nickel	5850		NT		12.9		NT		17.8		NT		11.4		NT		NT	
Potassium	1270		NT		1330		NT		1770		NT		1040	B	NT		NT	
Selenium	185	SN	NT				NT				NT		1.1	SN	NT		NT	
Silver	16.3		NT		0.86	B*	NT		0.87	B	NT		0.6	B	NT		NT	
Sodium	289	B	NT		577	B	NT		677	B	NT		254	B	NT		NT	
Vanadium	13.3	*	NT		18.5		NT		26		NT		12.9		NT		NT	
Zinc	2280		NT		90		NT		364		NT		101		NT		NT	
OTHERS	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Cyanide	40.5		NT				NT		1.3		NT				NT		NT	

Notes:
1) Blank indicates parameter not detected at the respective detection limit
2) NT - Not Tested
3) The samples listed were qualified as R (unusable/rejected) or U (not detected) for semi-volatile parameter 2,4 Dinitrophenol
4) See Figure No. 3 for sample locations.
5) Q = Data Qualifier - See Appendix G for qualifier definitions.

Table No. 10
Summary of Subsurface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SB-1 2-4' 10/18/94	Q	SB-1 22-24' 10/18/94	Q	SB-1 24-26' 10/18/94	Q	SB-4 0-2' 10/19/94	Q	SB-4 18-20' 10/19/94	Q	SB-4 24-26' 10/19/94	Q	SB-7 0.5-2' 10/24/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Chloroethane	4	JB			NT						6	J	NT	
Methylene chloride					NT								NT	
Acetone					NT								NT	
1,1-Dichloroethene					NT								NT	
1,1-Dichloroethane					NT								NT	
1,2-Dichloroethene(Total)					NT								NT	
Chloroform					NT								NT	
1,2-Dichloroethane					NT								NT	
1,1,1-Trichloroethane					NT								NT	
cis-1,3-Dichloropropene					NT								NT	
Trichloroethene			15		NT								NT	
1,1,2-Trichloroethane					NT								NT	
Benzene					NT								NT	
Tetrachloroethene					NT								NT	
Toluene					NT								NT	
Chlorobenzene					NT								NT	
Ethylbenzene					NT								NT	
Xylene (total)					NT								NT	
Semi-volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Phenol			NT										NT	
1,4 Dichlorobenzene			NT										NT	
Diethylphthalate			NT										NT	
Phenanthrene			NT				95	J					NT	
Anthracene			NT				25	J					NT	
Carbazole			NT										NT	
Di-n-Butylphthalate			NT										NT	
Fluoranthene	56	J	NT				260	J					NT	
Pyrene	40	J	NT				280	J					NT	
Butylbenzylphthalate			NT				280	J					NT	
Benzo (a) Anthracene			NT				110	J					NT	
Chrysene	28	J	NT				160	J					NT	
Bis (2-Ethylhexyl) Phthalate			NT										NT	
Di-n-Octyl Phthalate	290	J	NT		180	J	270	J	60	J	240	J	NT	
Benzo (b) Fluoranthene			NT				180	J					NT	
Benzo (k) Fluoranthene			NT				79	J					NT	
Benzo (a) Pyrene			NT				360						NT	
Indeno (1,2,3-cd) Pyrene			NT				200	J					NT	
Dibenz (a,h) Anthracene			NT				42	J					NT	
Benzo(g,h,i) Perylene			NT				1400						NT	
PCB/Pesticide	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Aroclor - 1254			NT											
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	20400		NT		3500		5640		2350		2940		NT	
Antimony			NT										NT	
Arsenic	8.8	J	NT		1.2	J	6.7	J	1.4	B	1.5	J	NT	
Barium	153		NT		25.6	B	111		17.5	B	39.6	B	NT	
Beryllium	1	B	NT				0.25	B					NT	
Cadmium	0.8	B	NT				0.8	B					NT	
Calcium	4930		NT		51200		64100		52300		53300		NT	
Chromium	26.8		NT		6		16.5		3.9		4.7		NT	
Cobalt	13.9		NT		3.3	B	5	B	2.5	B	2.7	B	NT	
Copper	22.1		NT		8.9		30.8		6.7		7.7		NT	
Iron	30700		NT		7360		[illegible]		[illegible]					

Table No. 10
Summary of Subsurface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SB-8 10-12' 10/24/94	Q	SB-8 8-10' 10/24/94	Q	SB-16 12-14' 6/20/95	Q	SB-16 26-28' 6/20/95	Q	SB-17 16-18' 6/19/95	Q	OW-2S 34-36' 11/9/94	Q	OW-2S 32-34' 11/9/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Chloroethane	NT												NT	
Methylene chloride	NT										270	J	NT	
Acetone	NT												NT	
1,1-Dichloroethene	NT												NT	
1,1-Dichloroethane	NT												NT	
1,2-Dichloroethene(Total)	NT		5	J									NT	
Chloroform	NT												NT	
1,2-Dichloroethane	NT												NT	
1,1,1-Trichloroethane	NT		2	J									NT	
cis-1,3-Dichloropropene	NT												NT	
Trichloroethene	NT		3	J									NT	
1,1,2-Trichloroethane	NT												NT	
Benzene	NT												NT	
Tetrachloroethene	NT		12										NT	
Toluene	NT										600	J	NT	
Chlorobenzene	NT												NT	
Ethylbenzene	NT												NT	
Xylene (total)	NT										360	J	NT	
Semi-volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Phenol			NT		410				230	J	NT			
1,4 Dichlorobenzene			NT								NT			
Diethylphthalate			NT		90	J			85	J	NT			
Phenanthrene			NT								NT		23	J
Anthracene			NT								NT			
Carbazole			NT								NT			
Di-n-Butylphthalate			NT		540		61	J	510		NT		81	J
Fluoranthene			NT								NT			
Pyrene			NT								NT			
Butylbenzylphthalate			NT								NT			
Benzo (a) Anthracene			NT								NT			
Chrysene			NT								NT		20	J
Bis (2-Ethylhexyl) Phthalate			NT						31	J	NT		1500	
Di-n-Octyl Phthalate	28	J	NT								NT		49	J
Benzo (b) Fluoranthene			NT								NT			
Benzo (k) Fluoranthene			NT								NT			
Benzo (a) Pyrene			NT								NT			
Indeno (1,2,3-cd) Pyrene			NT								NT			
Dibenz (a,h) Anthracene			NT								NT			
Benzo(g,h,i) Perylene			NT								NT			
PCB/Pesticide	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Aroclor - 1254			NT								NT			
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	2710		NT		2810	*	3520	*	1610	*	NT		7650	
Antimony			NT								NT			
Arsenic	2.3	J	NT		1.1	BJ	1.1	BJ			NT		8	SNJ
Barium	27.8	B	NT		31.3	B	27.5	B	20.6	B	NT		55.5	
Beryllium			NT								NT		0.38	B
Cadmium			NT								NT			
Calcium	47900		NT		62900		48500		39400		NT		57400	
Chromium	4.2		NT		6.6		7.9		3.6		NT		9.5	
Cobalt	2.6	B	NT		3.4	B	3.7	B	2	B	NT		14.3	
Copper	11.7		NT		8.2	J	8.1	J	6.3	J	NT		26.6	
Iron	6980		NT		8490	*	9090	*	5070	*	NT		15100	
Lead	3.9		NT		3.3	S	4.1	S	2		NT		21.5	
Magnesium	21500		NT		28200		19500		16500		NT		27100	
Manganese	264		NT		318		266		198		NT		336	NJ
Mercury			NT								NT			
Nickel	5.7	B	NT		5	B	7.9	B	3.1	B	NT		26	
Potassium	893	B	NT		782	B	1120	B	419	B	NT		3000	
Selenium	*		NT								NT			
Silver			NT								NT			
Sodium	165	B	NT		163	B	157	B	122	B	NT		159	B
Thallium			NT								NT		0.38	B
Vanadium	7.8	B	NT		9.9	B	11.4	B	6.3	B	NT		12	
Zinc	36.5		NT			R		R		R	NT		40.7	EJ
Others	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Cyanide	NT		NT								NT			

Notes:
1) Blank indicates parameter not detected at the respective detection limit
2) NT - Not Tested
3) See Figure No. 3 for sample locations.
4) Q = Data Qualifier - see Appendix G for qualifier definitions

Table No. 10
Summary of Subsurface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	OW-4S 8-10' 11/22/94	Q	OW-4S RE 8-10' 11/22/94	Q	OW-5S 14-16' 11/2/94	Q	OW-6S 0-2' 11/28/94	Q	OW-6S 2-4' 11/3/94	Q	OW-6S 10-12' 11/3/94	Q	OW-6S 20-22' 11/4/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Chloroethane							NT		NT					
Methylene chloride	7	J	6	J	7	J	NT		NT		5	J		
Acetone							NT		NT					
1,1-Dichloroethene							NT		NT					
1,1-Dichloroethane	12						NT		NT					
1,2-Dichloroethene(Total)	14						NT		NT				910	J
Chloroform							NT		NT					
1,2-Dichloroethane							NT		NT					
1,1,1-Trichloroethane	130		24	J			NT		NT		67			
cis-1,3-Dichloropropene							NT		NT					
Trichloroethene	200		38	J			NT		NT				160	J
1,1,2-Trichloroethane							NT		NT					
Benzene							NT		NT					
Tetrachloroethene							NT		NT		37		280	J
Toluene							NT		NT					
Chlorobenzene							NT		NT					
Ethylbenzene							NT		NT					
Xylene (total)							NT		NT					
Semi-volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Phenol			NT											
1,4 Dichlorobenzene			NT											
Diethylphthalate			NT											
Phenanthrene			NT				100	J	160	J	130	J		
Anthracene			NT						36	J	21	J		
Carbazole			NT						25	J			95	J
Di-n-Butylphthalate			NT		86	J	200	J	160	J	240	J		
Fluoranthene			NT				260	J	570		210	J		
Pyrene			NT		24	JB	200	J	480		170	J		
Butylbenzylphthalate			NT				140	J	71	J	41	J		
Benzo (a) Anthracene			NT				100	J	280	J	85	J		
Chrysene			NT				190	J	440		130	J		
Bis (2-Ethylhexyl) Phthalate			NT		580		120	J	1900		2200		260	J
Di-n-Octyl Phthalate			NT		350	J								
Benzo (b) Fluoranthene			NT				160	J	550		150	J		
Benzo (k) Fluoranthene			NT						160	J	52	J		
Benzo (a) Pyrene			NT				110	J	310	J	62	J		
Indeno (1,2,3-cd) Pyrene			NT				120	J	340	J	68	J		
Dibenz (a,h) Anthracene			NT				38	J	72	J	23	J		
Benzo(g,h,i) Perylene			NT				29	J	140	J				
PCB/Pesticide	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Aroclor - 1254			NT						NT					
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	22800		NT		6520		10300		NT		4100		4430	
Antimony			NT				3.2	B	NT					
Arsenic	7.2	SNJ	NT		1.4	WBJ	5.3	S	NT		5.8	SNJ	3	SNJ
Barium	150		NT		49.9		64	EJ	NT		32.5	B	55.5	
Beryllium	1.1		NT		0.28	B	0.41	B	NT					
Cadmium			NT						NT		1.1	B		
Calcium	43000		NT		53700	*	24800		NT		107000		63400	
Chromium	30.3		NT		8.9	*	17.3		NT		5.5		6.2	
Cobalt	11.5		NT		4.3	B	7.4	B	NT		4.3	B	5.4	B
Copper	22.2		NT		9.7		17.6		NT		11.1		18.4	
Iron	32400		NT		11200	*	16400		NT		9430		9450	
Lead	[illegible]	[illegible]	[illegible]											

Table No. 10
Summary of Subsurface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Oliver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	OW-7S 28-30' 11/28/94	Q	OW-7S 8-10' 11/28/94	Q	OW-8S 32-34' 6/26/95	Q	OW-8S 6-12' 6/26/95	Q	OW-9S 8-10' 6/20/95	Q	OW-10S 18-21' 6/21/95	Q	OW-11S 26-32' 6/22/95	Q	OW-1R 6-8' 10/20/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Chloroethane																
Methylene chloride																
Acetone					18											
1,1-Dichloroethene			2	J												
1,1-Dichloroethane			22				2	J								
1,2-Dichloroethene(Total)			55													
Chloroform																
1,2-Dichloroethane			8	J												
1,1,1-Trichloroethane			210				7	J								
cis-1,3-Dichloropropene																
Trichloroethene	1500		21				8	J								
1,1,2-Trichloroethane			4	J												
Benzene																
Tetrachloroethene			4	J			43									
Toluene			4	J												
Chlorobenzene																
Ethylbenzene																
Xylene (total)																
Semi-volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Phenol					390		340	J								
1,4 Dichlorobenzene																
Diethylphthalate											46	JB				
Phenanthrene																
Anthracene																
Carbazole																
Di-n-Butylphthalate			70	J							300	JB				
Fluoranthene																
Pyrene	36	J														
Butylbenzylphthalate																
Benzo (a) Anthracene																
Chrysene																
Bis (2-Ethylhexyl) Phthalate			66	J												
Di-n-Octyl Phthalate															380	J
Benzo (b) Fluoranthene																
Benzo (k) Fluoranthene																
Benzo (a) Pyrene																
Indeno (1,2,3-cd) Pyrene																
Dibenz (a,h) Anthracene																
Benzo(g,h,i) Perylene																
PCB/Pesticide	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Aroclor - 1254																
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	2080		3070		4660	*	3060	*	3430	*	3060	*	5540	*	2790	
Antimony			3.5	B												
Arsenic	0.48	B	2.4	S	1.4	BJ	1	BJ	1.2	BJ	1.7	BS	0.86	BJ	1.1	J
Barium	18.5	BE	36.5	BE	38.2	B	25.1	B	40.2	B	158		60.8		19.6	B
Beryllium					0.25	B							0.28	B		
Cadmium																
Calcium	41700		59300		59100		53100		50100		62500		80100		46600	
Chromium	3.8	J	5.2	J	8.1		7		7.4		6.2		9.5		4	
Cobalt	2.1	B	4.3	B	4.2	B	3.4	B	3.7	B	[illegible]		[illegible]			
Copper	[illegible]															

Table No. 10
Summary of Subsurface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Oliver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	OW-1R 20-22' 10/20/94	Q	OW-1R 22-23' 10/20/94	Q	OW-4R 32-34' 11/15/94	Q	OW-4R 34-36' 11/15/94	Q	OW-4R 42-44' 11/18/94	Q	OW-7R 34-36' 11/19/94	Q	OW-7R 40-42' 11/22/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Chloroethane			NT				NT							
Methylene chloride			NT				NT		6	J			5	J
Acetone			NT				NT							
1,1-Dichloroethene			NT				NT							
1,1-Dichloroethane			NT				NT				5	J		
1,2-Dichloroethene(Total)			NT				NT							
Chloroform			NT				NT							
1,2-Dichloroethane			NT				NT							
1,1,1-Trichloroethane			NT				NT				6	J		
cis-1,3-Dichloropropene			NT				NT							
Trichloroethene	65		NT				NT				32		110	
1,1,2-Trichloroethane			NT				NT							
Benzene			NT				NT		110	J				
Tetrachloroethene			NT				NT							
Toluene			NT				NT		21					
Chlorobenzene			NT				NT							
Ethylbenzene			NT				NT		7	J				
Xylene (total)			NT				NT		11					
Semi-volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Phenol	NT				NT									
1,4 Dichlorobenzene	NT				NT									
Diethylphthalate	NT				NT									
Phenanthrene	NT				NT									
Anthracene	NT				NT									
Carbazole	NT				NT									
Di-n-Butylphthalate	NT				NT		67	J	110	J	79	J		
Fluoranthene	NT		26	J	NT									
Pyrene	NT				NT						25	J		
Butylbenzylphthalate	NT				NT									
Benzo (a) Anthracene	NT				NT									
Chrysene	NT				NT									
Bis (2-Ethylhexyl) Phthalate	NT				NT		52	J	85	J	28	J	40	J
Di-n-Octyl Phthalate	NT		63	J	NT									
Benzo (b) Fluoranthene	NT				NT									
Benzo (k) Fluoranthene	NT				NT									
Benzo (a) Pyrene	NT				NT									
Indeno (1,2,3-cd) Pyrene	NT				NT									
Dibenz (a,h) Anthracene	NT				NT									
Benzo(g,h,i) Perylene	NT				NT									
PCB/Pesticide	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Aroclor - 1254	NT				NT									
Metals	(mg/kg)				(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	NT		1820		NT		5050		11100		4840		4180	
Antimony	NT				NT									
Arsenic	NT		1.3	J	NT		2.4	SNJ	0.95	WBNJ	1.2	WBJ	1.8	SBNJ
Barium	NT		16.6	B	NT		39.5	B	122		33.3	B	41.1	B
Beryllium	NT				NT		0.24	B	0.5	B	0.24	B	0.21	B
Cadmium	NT				NT								1.1	
Calcium	NT		38800		NT		58800		83100		54200		59900	
Chromium	NT		2.8		NT		8.2		13.6		7.7		6.9	
Cobalt	NT		1.5	B	NT		4.2	B	3.6	B	3.9	B	4.2	B
Copper	NT		4.3	B	NT		8.6		3.3	B	8.9		9.7	
Iron	NT		4310		NT		10400		20100		9320		[illegible]	
Lead	[illegible]													

Table No 10
Summary of Subsurface Soil Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No 8-28-079
Henrietta, New York

Parameter	TP-1 composite 11/3/94	Q	TP-2 composite 11/3/94	Q	TP-3 composite 11/3/94	Q	TP-4 composite 11/3/94	Q	TP-5 composite 11/3/94	Q	TP-6 composite 11/3/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Chloroethane												
Methylene chloride	19	J							20	J	6	J
Acetone												
1,1-Dichloroethene												
1,1-Dichloroethane												
1,2-Dichloroethene(Total)												
Chloroform	5	J			6	J						
1,2-Dichloroethane												
1,1,1-Trichloroethane									200			
cis-1,3-Dichloropropene												
Trichloroethene												
1,1,2-Trichloroethane									26	J		
Benzene												
Tetrachloroethene											6	J
Toluene												
Chlorobenzene	4	J	3	J								
Ethylbenzene												
Xylene (total)			2	J								
Semi-volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Phenol												
1,4 Dichlorobenzene	47	J			57	J						
Diethylphthalate												
Phenanthrene	160	J	69	J	130	J	120	J			41	J
Anthracene	21	J			23	J	27	J				
Carbazole												
Di-n-Butylphthalate					22	J	34	J	42	J	24	J
Fluoranthene	340	J	140	J	210	J	180	J			82	J
Pyrene	300	J	130	J	210	J	170	J			66	J
Butylbenzylphthalate					33	J						
Benzo (a) Anthracene												
Chrysene	120	J	57	J	77	J	74	J			43	J
Bis (2-Ethylhexyl) Phthalate	210	J	74	J	120	J	97	J			53	J
Di-n-Octyl Phthalate	360	J	53	J	130	J	35	J	25	J	34	J
Benzo (b) Fluoranthene	190	J	70	J	92	J	82	J			51	J
Benzo (k) Fluoranthene	130	J	41	J	70	J	64	J			36	J
Benzo (a) Pyrene	120	J	50	J	71	J	68	J			29	J
Indeno (1,2,3-cd) Pyrene	110	J	39	J	43	J	52	J			30	J
Dibenz (a,h) Anthracene												
Benzo(g,h,i) Perylene	53	J			28	J	28	J				
PCB/Pesticide	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Aroclor - 1254											41	
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	7070		8020		8390		8560		7430		8320	
Antimony												
Arsenic	2.8	SN	3.4	SNJ	2.9	SNJ	3.5	SNJ	2.8	SNJ	3.4	SNJ
Barium	44.9	B	93.7		73.6		144		47.1		46.7	
Beryllium	0.3	B	0.35	B	0.43	B	0.45	B	0.33	B	0.35	B
Cadmium			0.77	B	1.7		0.85	B			0.7	B
Calcium	2820		26700		6740		12100		23300		12900	
Chromium	7.3		10		12.7		11.3		11.8		13.4	
Cobalt	3.9	B	5.5	B	[illegible]	[illegible]						

Table No. 11
Summary of Surface Water Sediment Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SED-2 0-6" 10/25/94	Q	SED-2 RE 0-6" 10/25/94	Q	SED-3 0-6" 10/25/94	Q	SED-3 DL 0-6" 10/25/94	Q	SED-3 RE 0-6" 10/25/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Methylene chloride	7	J	NT		3	J	NT		NT	
1,1-Dichloroethane			NT		6	J	NT		NT	
1,1,1-Trichloroethane			NT		7	J	NT		NT	
Tetrachloroethene			NT		3	J	NT		NT	
Semi-Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	
Naphthalene					420	J	610	J		
2-Methylnaphthalene					360	J	490	JD	250	J
Acenaphthylene	55	J	36	J	440	J	630	JD	230	J
Acenaphthene					1800	J	2700	JD	1400	J
Dibenzofuran					800	J	1100	JD	600	J
Fluorene					1600	J	2400	JD	1200	J
Phenanthrene	550	J	340	J	19000		21000	D	11000	
Anthracene	72	J	62	J	3000		3400	JD	2400	J
Carbazole			65	J	2200	J	2900	JD	1600	J
Di-n-Butylphthalate	85	J	180	J						
Fluoranthene	1200		810		30000	E	34000	D	17000	
Pyrene	810	J	820		29000	EJ	31000	D	15000	
Benzo (a) Anthracene	330	J	260	J	11000		15000	D	7100	
Chrysene	690		450	J	18000		18000	D	8600	
Bis (2-Ethylhexyl) Phthalate	280	J	210	J	3800		4700	JD	2400	J
Di-n-Octyl Phthalate			350	J						
Benzo (b) Fluoranthene		R	530	J	27000		27000	D	9300	
Benzo (k) Fluoranthene		R	390	J	11000		11000	D	3300	
Benzo (a) Pyrene		R	750		2100	J	17000	D	6800	
Indeno (1,2,3-cd) Pyrene		R	91	J	20000	E	22000	D	5800	
Dibenz (a,h) Anthracene		R	140	J	6900		6700	D	2600	
Benzo(g,h,i) Perylene		R	1200		7500		7900	D	1800	J
Metals	(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	10600		NT		4540		NT		NT	
Antimony	5.1	B	NT				NT		NT	
Arsenic	6.2	SNJ	NT		1.4	NBJ	NT		NT	
Barium	63.2	B	NT		22.1	B	NT		NT	
Beryllium	0.59	B	NT				NT		NT	
Cadmium			NT		1.6		NT		NT	
Calcium	7020		NT		7590		NT		NT	
Chromium	35.5		NT		14.1		NT		NT	
Cobalt	10.1	B	NT		3.7	B	NT		NT	
Copper	17.1		NT		68.9		NT		NT	
Iron	51000		NT		8970		NT		NT	
Lead	41.2		NT		61.5	*	NT		NT	
Magnesium	4090		NT							

Table No. 12
Summary of Surface Water Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SW-1 10/26/94	Q	SW-2 10/25/94	Q	SW-3 10/26/94	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)	
Acetone					25	
Semi Volatile Organics	(ug/l)		(ug/l)		(ug/l)	
Pentachlorophenol			4	J		
Fluoranthene	1	J				
Pyrene	1	J				
Metals	(ug/l)		(ug/l)		(ug/l)	
Aluminum	317	JE	997	EJ	158	BEJ
Barium	80.8	B	183	B	48.8	B
Calcium	101000		70400		63900	
Chromium					2.2	B
Cobalt					2.4	B
Copper			2.8	B	4.1	B
Iron	744	EJ	4850	EJ	2200	EJ
Lead	7.4	*	7.8	*	8.2	*
Magnesium	38500		22800		17400	
Manganese	185		909		444	
Potassium	10400		12400		12800	
Silver					2.4	B*
Sodium	96900		69600		38700	
Vanadium			3.7	B		
Zinc	30.6	EJ	80.1	EJ	63.1	EJ
OTHERS	(mg/l)		(mg/l)		(mg/l)	
Alkalinity	NT		360		NT	
Hardness	NT		5300		NT	

Notes:

Table No. 13a
Summary of On-Site Sump and Catch Basin Water Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	NSM-1 10/27/94	Q	NSM-1 RE 10/27/94	Q	NSM-4 10/25/94	Q	NSM-4 DL 10/25/94	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)	
1,1-Dichloroethane			NT		72000	E	61000	D
1,1,1-Trichloroethane			NT		7900		6500	JD
Toluene			NT				5800	JN
Ethylbenzene			NT				2700	JN
Xylene (total)			NT				15000	N
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Phenol					360		NT	
4-Methylphenol					24	J	NT	
Phenanthrene	2	J	2	J			NT	
Anthracene	1	J	1	J			NT	
Fluoranthene	5	J	5	J			NT	
Pyrene	5	J	4	J			NT	
Butylbenzylphthalate	14		13				NT	
Benzo (a) Anthracene	2	J	1	J			NT	
Chrysene	3	J	3	J			NT	
Bis (2-Ethylhexyl) Phthalate	10		10				NT	
Benzo (b) Fluoranthene	5	J	4	J			NT	
Benzo (k) Fluoranthene	2	J	3	J			NT	
Benzo (a) Pyrene	3	J	3	J			NT	
Indeno (1,2,3-cd) Pyrene	3	J	2	J			NT	
Benzo(g,h,i) Perylene	3	J	3	J			NT	
Metals	(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Aluminum	2940		NT		15700	EJ	NT	
Antimony	13.2	B	NT		111	B	NT	
Arsenic	4.1	B	NT			RSN	NT	
Barium	198	B	NT		918	B	NT	
Cadmium	34.7		NT		4430		NT	
Calcium	36800		NT		191000		NT	
Chromium	454		NT		4940		NT	
Cobalt	11.6	B	NT		266		NT	
Copper	261		NT		3580		NT	
Iron	5630		NT		1700000	EJ	NT	
Lead	457		NT		696	*	NT	
Magnesium	4870	B	NT		17300	B	NT	
Manganese	288		NT		7980		NT	
Mercury	2.4		NT				NT	
Nickel	840		NT		56700	EJ	NT	
Potassium	2140	B	NT		68800		NT	
Selenium	3.6	BJ	NT			[illegible]		

Table No. 13b
Summary of On-Site Sump and Catch Basin Soil Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	NSM-2 10/27/94	Q	NSM-2 DL 10/27/94	Q	NSM-3 10/27/94	Q
Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)	
1,1-Dichloroethane	32000	J	25000	JD		
1,2-Dichloroethene(Total)	17000	J				
1,1,1-Trichloroethane	1000000	E	2000000	D	8300	
Trichloroethene	8900	J				
Tetrachloroethene	88000	J	91000	JD	350	J
Toluene	110000	J	110000	JD	580	J
Chlorobenzene	8600	J				
Ethylbenzene	9200	J				
Xylene (total)	44000	J	46000	JD	490	J
Semi-Volatile Organics	(ug/kg)		(ug/kg)		(ug/kg)	
1,4-Dichlorobenzene	1000	J				
1,2 Dichlorobenzene	3900		5500	JD		
Naphthalene	1400	J	1800	JD	1100	J
2-Methylnaphthalene	420	J			240	J
Dimethyl Phthalate	440	J			220	J
Acenaphthylene	600	J				
Acenaphthene	490	J				
Dibenzofuran	440	J				
Fluorene	770	J	990	JD		
Phenanthrene	12000		16000	JD	3400	J
Anthracene	1200	J	1500	JD	590	J
Carbazole	1800	J	2500	JD	680	J
Di-n-Butylphthalate	2500	J	3200	JD	8000	J
Fluoranthene	14000		19000	D	7200	J
Pyrene	13000		18000	JD	7200	J
Butylbenzylphthalate	65000	E	110000	D	28000	J
Benzo (a) Anthracene	4400		5100	JD	3100	J
Chrysene	17000		21000	D	5200	J
Bis (2-Ethylhexyl) Phthalate	44000	E	67000	D	8200	J
Di-n-Octyl Phthalate	1300	J	1700	JD		
Benzo (b) Fluoranthene	14000		17000	JD	5400	J
Benzo (k) Fluoranthene	4400		9000	JD	2000	J
Benzo (a) Pyrene	2800	J	4200	JD	3200	J
Indeno (1,2,3-cd) Pyrene	7400	J	9600	JD	3100	J
Dibenz (a,h) Anthracene	3100	J	2800	JD	750	J
Benzo(g,h,i) Perylene	3600	J	5700	JD	1200	J
Metals	(mg/kg)		(mg/kg)		(mg/kg)	
Aluminum	4460		NT		3250	
Antimony	13.6		NT		5.3	B
Arsenic	46.2	S	NT		6.6	
Barium	384		NT		148	
Cadmium	63.3	*	NT		4.2	*
Calcium	60900	*	NT		162000	*
Chromium	714	*	NT		165	*
Cobalt	6.1	B	NT		[illegible]	

Table 14a
Summary of Round 1 Overburden Groundwater Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SOH-OW-1S 7/6/95	Q	SOH-OW-2S 7/6/95	Q	SOH-OW-3S 7/7/95	Q	SOH-OW-4S 7/7/95	Q	SOH-OW-5S 7/6/95	Q	SOH-OW-5S (DUP1) 7/6/95	Q	SOH-OW-6S 7/7/95	Q	SOH-OW-7S 7/10/95	Q	SOH-OW-8S 7/7/95	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Vinyl chloride					6200	D	7.4	J									5	J
Chloroethane													21					
Acetone																	9.8	J
1,1-Dichloroethene					9.2	J	17	J					900	DJ			4.7	J
1,1-Dichloroethane					60		800	D	58		66		3700	D	1500	JD	180	
1,2-Dichloroethene (total)					4800	D	14								10000	JD	2.9	J
Chloroform																		
1,1,1-Trichloroethane							170						24000	D			3.1	J
Trichloroethene (TCE)	34				800	D	2.4	J					88		140000	D	1.4	J
1,1,2-Trichloroethane													12					
Tetrachloroethene					1500	D	4.7	J					2400	D			3.3	J
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Phenol															9	J		
2-Methylphenol															9	J		
Isophorone															23			
Di-n-butyl phthalate																		
Bis(2-ethylhexyl)phthalate	1	J	1	J	2	J	1	J	2	J	2	J	2	J				
Metals	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Aluminum	152	BE*J	478	E*J	200	E*J	1030	E*J	6360	E*J	3430	E*J	728	E*J	321		28.9	BE*J
Arsenic							6.1	B	5.4	BJ					4.6	BNJ		
Barium	114	B	76.6	B	71.5	B	98.8	B	178	B	150	B	86.6	B	81.8	B	31.5	B
Cadmium															5.5			
Calcium	173000		102000		126000		107000		126000		103000		140000		61000		86100	
Chromium	15				3.4	B	3.7	B	39.1		24.4		6.7	B	8.2	B		
Cobalt	4.5	B			5	B	3.8	B	8.4	B	5.9	B	4.4	B			3.9	B
Copper	55.9		4.1	B	7.9	B	12.5	B	38		31.7		6.9	B	38.6			
Iron	96700	*J	14200	*J	65800	*J	34500	*J	20700	*J	10600	*J	8560	*J	40300		320	*J
Lead	2.5	B	1.4	BJ			2.0	B	20		16.2		8.4		2.7	BNJ		
Magnesium	52100		83800		62300		54400		68200		59500		56400		43400		59700	
Manganese	450	*	218	*	707	*	374	*	553	*	363	*	350	*	884		85.4	*
Nickel	41.6		17.7	B	43.5		114		169		136		55.3		32.8	B	46.6	
Potassium	2900	B	8680		2860	B	3470	B	16900		15700		4250	B	9880		4030	B
Silver															1.4	B		
Sodium	124000		153000		32300		27100		49500		48100		34700		21200		42100	
Vanadium									11.8	B	7.5	B			2.6	B		
Zinc	45	J	24.3	J	30.7		25.9	J	68.7	J	62.5	J	21.2	J	38.2		15.3	B
Others																		
Cyanide (ug/l)	11.5	NJ	11.3	NJ														
Alkalinity, as CaCO3 (mg/l)	380		340		380		180		210		220		410		200		260	
Hardness, as CaCO3 (mg/l)	580		580		520		500		470		700		570		350		460	

Notes:

1) Blank indicated parameter not detected at the respective detection limit
2) NT - Not Tested
3) See Figure No. 3 for sample locations.
4) Q = Data Qualifier - See Appendix G for qualifier definitions.

Table 14a
Summary of Round 1 Overburden Groundwater Sample Analytical Test Results

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SOH-OW-9S 7/5/95	Q	SOH-0W-10S 7/5/95	Q	SOH-0W-11S 7/5/95	Q	SOH-B-101-0W 7/5/95	Q	SOH-MW-2 7/10/95	Q	SOH-MW-3 7/10/95	Q	SOH-MW-5 7/10/95	Q	SOH-OW-LS 7/13/95	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Vinyl chloride					2.7	JJ					27	D	11000	D		
Chloroethane																
Acetone																
1,1-Dichloroethane					19		96	JD	580	JD	42	D				
1,1-Dichloroethene					8.6	J			10000	D	250	D				
1,2-Dichloroethene (total)							63	J	590	JD	49	D	7200	D		
Chloroform			7.2	J												
1,1,1-Trichloroethane					520	D	1400	D	2600	D	11	JD				
Trichloroethene (TCE)									1800	D			2600	D	4.3	J
1,1,2-Trichloroethane																
Tetrachloroethene													8800	D		
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Phenol													8	J		
2-Methylphenol																
Isophorone																
Di-n-butyl phthalate	2	J													1	J
Bis(2-ethylhexyl)phthalate	3	J	2	J												
Metals	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Aluminum	1110	E*J	14900	E*J	6170	E*J	896	E*J	994		1230		3150		2250	
Arsenic			6.6	BJ	3.1	B			4.5	BNJ	4.6	BNJ	3.3	BNJ		
Barium	124	B	305		200		157	B	78.5	B	122	B	191	B	106	B
Cadmium									2.4	B	3.9	B	2.8	B		
Calcium	91700		301000		237000		199000		136000		144000		162000		219000	
Chromium	3.6	B	31.6		14				2.3	B	21		6.4	B	4	B
Cobalt	3.8	B	19.1	B	12.8	B	2.8	B					3.8	B	10.1	B
Copper	2.9	B	56.9		36.9		2.6	B	3.8	B	14.5	B	24.5	B	9.3	B
Iron	5670	*J	31600	*	14200	*J	1810	*J	3960		3860		5770		6080	
Lead	1.6	B	25.1	*J	14.6	S	19		1.6	BNJ	10	NJ	7.6	NJ	20.1	NJ
Magnesium	50000		132000		97200		68600		82500		825000		66800		75800	
Manganese	105	*	1420	*	930	*	120		154		276		695		808	
Nickel	23.2	B	89.1		83.4						32	B	15.6	B		
Potassium	6680		27500		6200		3240	B	4030	B	5330		2760	B	2940	B
Silver									1.5	B	1.5	B			1.9	B
Sodium	103000		168000		35900		50600		42800		63000		40300		73900	
Vanadium	3	B	28.2	B	12.7	B					3.4	B	8.6	B	8.2	B
Zinc	31	J	169	J	114	J	33.5	J	23.6		66		46.2		79.7	
Others																
Cyanide (ug/l)																
Alkalinity, as $CaCO_3$ (mg/l)	240		200		430		460		310		230		400		490	
Hardness, as $CaCO_3$ (mg/l)	420		850		970		780		680		690		780		960	

Notes:

1) Blank indicated parameter not detected at the respective detection limit
2) NT - Not Tested
3) See Figure No. 3 for sample locations.
4) Q = Data Qualifier - See Appendix G for qualifier definitions.

Table 14b
Summary of Round 1 Top of Bedrock Groundwater
Sample Analytical Test Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SOH-OW-1R 7/11/95	Q	SOH-OW-2R 7/11/95	Q	SOH-OW-3R 7/11/95	Q	SOH-OW-4R 7/13/95	Q	SOH-OW-7R 7/13/95	Q	SOH-IW-1R 7/12/95	Q	SOH-IW-2R 7/12/95	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Chloromethane					8.1	J								
Vinyl chloride											110	D		
Methylene chloride									5500	BD				
Acetone			6.5	J	12									
1,1-Dichloroethene									250	JD				
1,1-Dichloroethane							12		5900	D	21	JD		
1,2-Dichloroethene (total)			3.8	J			14		9000	D	580	D	6700	D
1,1,1-Trichloroethane									170	JD				
Trichloroethene (TCE)							15		10000	D	64	D		
2-Hexanone					5.4	J								
Tetrachloroethene									66	JD				
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Phenol									10					
4-Methylphenol									2	J				
Isophorone									3	J				
Di-n-butyl phthalate			1	J	1	J			1	J				
Metals	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Aluminum	559		290		248		1400		247		753		522	
Antimony											47.8	B		
Arsenic	8.3	BNJ			4.8	BNJ			3	BNJ	18.6	SNJ	11	SNJ
Barium	61	B	35.4	B	10.4	B	23.5	B	41.4	B	62.8	B	44.5	
Cadmium	2.7	BJ	3.3	BJ			3	BJ			190		51.4	
Calcium	83900		73000		388000		458000		208000		224000		202000	
Chromium	13.3		8	B	7.8	B	4.8	B	4	B	3700		110	
Cobalt	4.1	B	4.6	B	3.5	B	2.1	B	2.4	B	19.4	B	18.8	B
Copper	52.8		45		65.9		29.6		36.1		678		280	
Iron	89800		64800		60200		39300		42300		265000		49800	
Lead	3.5	NJ	2.2	BNJ			2.8	BSNJ	2.4	BNJ	78.1	NJ	35.4	SNJ
Magnesium	51700		33600		44000		59700		23400		28400		55100	
Manganese	874		836		1670		606		518		559		428	
Mercury	0.39						0.24				0.2	B		
Nickel	54.3		39.3	B	38.3	B	25.5	B	66.3		1270		7770	
Potassium	8420		9970		13300		19100		75600		6570		10200	
Silver	3	B	1.4	B	2.1	B	2.2	B	2.2	B	15.8		2.6	B
Sodium	18100		18100		16200		22200		81600		18700		87600	
Vanadium	5.2	B	3.8	B	3	B	3.5	B	3.4	B	22.7	B	3.9	B
Zinc	45.5		36.4		34.6		25.4		34		2790		961	
Others														
Alkalinity, as CaCO3	230		61		34		150		57		120		280	
Cyanide (ug/l)											16.6			
Hardness, as CaCO3	460		[illegible]											

Table No. 14c
Summary of Round 2 Overburden Groundwater Sample Analytical Test Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SOH-OW-1S 10/3/95	Q	SOH-OW-2S 10/4/95	Q	SOH-OW-3S 10/4/95	Q	SOH-OW-4S 10/4/95	Q	SOH-OW-5S 10/3/95	Q	SOH-OW-6S 10/3/95	Q	SOH-OW-7S 10/4/95	Q	SOH-OW-8S 10/3/95	Q	SOH-OW-9S 10/2/95	Q
Volatile Organics (ug/l)	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Vinyl chloride					1400													
Chloroethane																		
Methylene chloride									4	J	300	J			5.9	J		
1,1-Dichloroethene							8	J	9.4	J	450	J			3.6	J		
1,1-Dichloroethane					64	J	170		97		1500		1000	J	130			
1,2-Dichloroethene (total)	36	J			2900				39				9300		3.3	J		
1,2-Dichloroethane																		
1,1,1-Trichloroethane							50		3.2	J	14000	DJ						
Trichloroethene (TCE)	26				350				26		62	J	140000	D				
1,1,2-Trichloroethane																		
Tetrachloroethene	6.9	J			640						1600							
Xylenes (total)																		
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
2-Methylphenol	NT		NT		NT		NT		NT		NT		7.9	J	NT		NT	
4-Methylphenol	NT		NT		NT		NT		NT		NT		1.4	JN	NT		NT	
Isophorone	NT		NT		NT		NT		NT		NT		19		NT		NT	
Dimethyl phthalate	NT		NT		NT		NT		NT		NT		0.74	J	NT		NT	
Diethyl phthalate	NT		NT		NT		NT		NT		NT		1.6	J	NT		NT	
Bis(2-ethylhexyl)phthalate	NT		NT		NT		NT		NT		NT		2.4	J	NT		NT	
Metals	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Arsenic							10.8	J					4.6	BJ			3.7	BJ
Barium	68.7	BE	78.8	B	38.7	B	78.6	B	130	BE	78.2	BE	78.9	B	35.6	BE	88.9	BE
Cadmium	2	B					2.4	B										
Chromium	10.3												2	B				
Copper	39.7								3	B			3.7	B				
Lead	1.9	B	2.7	B	1.2	B			2.4	B	4							
Mercury																		
Nickel	17.1	B					86.6		43.8		32.7	B			91.7			
Silver													1.6	B				
Zinc	18.6	B	13.6	B	10.5	B	10.3	B	16.4	B	9.6	B	48.3		21.8		30.8	

Notes:

1) Blank indicated parameter not detected at the respective detection limit
2) NT - Not Tested
3) See Figure No. 3 for sample locations.
4) Q = Data Qualifier - See Appendix G for qualifier definitions.

Table 14c
Summary of Round 2 Overburden Groundwater Sample Analytical Test Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SOH-OW-10S 10/2/95	Q	SOH-OW-11S 10/2/95	Q	SOH-B-101-OW 10/2/95	Q	SOH-MW-2 10/3/95	Q	SOH-MW-3 10/3/95	Q	SOH-MW-5 10/3/95	Q	SOH-OW-LS 10/2/95	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Vinyl chloride									3.4	J	980			
Chloroethane														
Methylene chloride							350	J	3.9	J	100	J		
1,1-Dichloroethene			43	J	380	J	260	J	19					
1,1-Dichloroethane			21	J			7800		110					
1,2-Dichloroethene (total)							620	J	43		4700	D		
1,2-Dichloroethane														
1,1,1-Trichloroethane			870		2800		3200		34					
Trichloroethene (TCE)									2.4	J	1200			
1,1,2-Trichloroethane											53	JN		
Tetrachloroethene									15		4300			
Xylenes (total)														
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
2-Methylphenol	NT		NT		NT		NT		NT		NT		NT	
4-Methylphenol	NT		NT		NT		NT		NT		NT		NT	
Isophorone	NT		NT		NT		NT		NT		NT		NT	
Dimethyl phthalate	NT		NT		NT		NT		NT		NT		NT	
Diethyl phthalate	NT		NT		NT		NT		NT		NT		NT	
Bis(2-ethylhexyl)phthalate	NT		NT		NT		NT		NT		NT		NT	
Metals	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Arsenic			4.6	BJ					3.6	B				
Barium	146	BE	147	BE	164	BE	69	BE	104	BE	166	BE	168	BE
Cadmium					2.1	B								
Chromium	10		6.4	B					2.8	B			9.5	B
Copper	6.3	B	10.2	B	3	B			3.7	B	8.8	B	60.6	
Lead			3.2		16.9								61.8	S
Mercury			0.23											
Nickel	144		48.6						18.8	B	17	B	17.4	B
Silver														
Zinc	26.6		38.2		23.2		17	B	33.6		67.9		168	

Notes:

1) Blank indicated parameter not detected at the respective detection limit
2) NT - Not Tested
3) See Figure No. 3 for sample locations.
4) Q = Data Qualifier - See Appendix G for qualifier definitions.

Table 14d
Summary of Round 2 Top of Bedrock Groundwater
Sample Analytical Test Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	SOH-OW-1R 10/4/95	Q	SOH-OW-2R 10/4/95	Q	SOH-OW-3R 10/5/95	Q	SOH-OW-4R 10/5/95	Q	SOH-OW-7R 10/5/95	Q	SOH-IW-1R 10/6/95	Q	SOH-IW-2R 10/6/95	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Vinyl chloride									24		69	J	8.8	J
Chloroethane									21					
Methylene chloride					7	J			3400	D				
Acetone									100					
Carbon disulfide					8	J								
1,1-Dichloroethene									130				5	J
1,1-Dichloroethane			1.5	J					3100	D	96	J	28	
1,2-Dichloroethene (total)			5.5	J					6900	D	670		280	D
1,2-Dichloroethane									12					
1,1,1-Trichloroethane									110				110	
Trichloroethene (TCE)	1.8	J	1.5	J					7100	D	150		19	
Benzene									3	J				
Tetrachloroethene									4	J				
Toluene									8	J				
Ethylbenzene									2	J			1.5	J
Xylenes (total)									9	J				
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
2-Methylphenol	NT		NT		NT		NT		1.4	J	NT		NT	
4-Methylphenol	NT		NT		NT		NT		0.83	J	NT		NT	
Isophorone	NT		NT		NT		NT		2.7	J	NT		NT	
Di-n-butyl phthalate	NT		NT		NT		NT		0.96	J	NT		NT	
Bis(2-ethylhexyl)phthalate	NT		NT		NT		NT		2.7	J	NT		NT	
Metals	(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)		(ug/l)	
Arsenic	11.6	J							3.8	BWJ	23.3	S	8.2	BJ
Barium	72.4	B	47.8	B	4.8	B	11.1	B	33.4	B	109	B	60.9	B
Cadmium			3.2	B							797		288	
Chromium	8.3	B	44.7		3.5	B	2.5	B			4380		207	
Copper	7	B	10.3	B	8.7	B	4.5	B	10.3	B	708		378	
Lead	9.3		3.6								72.7		75.8	
Mercury					0.41				0.22				0.34	
Nickel	19.5	B	23.7	B					40.1		2410		4660	
Silver					1.3	B					18.3		4.7	B
Zinc	29.5		38.8		22.2		20.7		46.3		4280		955	

Notes:
1) Blank indicates that the parameter was not detected at the respective detection limit
2) [illegible]

Table No. 14e
Summary of October 1994 Ruby Gordon Sump Sample Analytical Test Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	RG-SUMP-1 10/27/94	Q	RG-SUMP-2 10/27/94	Q	RG-SUMP-3 10/27/94	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)	
Vinyl chloride			17			
Methylene chloride			84	B	76	B
1,1-Dichloroethene	6	J				
1,1-Dichloroethane	39		630	D	450	D
1,2-Dichloroethene (total)	9	J	590	D	540	D
1,2-Dichloroethane			3	J	3	J
1,1,1-Trichloroethane	16		2000	D	1600	D
Trichloroethene (TCE)	5	J	550	D	530	D
1,1,2-Trichloroethane			8	J	8	J
Bromoform					1	J
4-Methyl 2-Pentanone					2	J
Tetrachloroethene	3	J	150		95	
1,1,2,2-Tetrachloroethane					2	J
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)	
Phenanthrene			5	J		
Anthracene			1	J		
Carbazole			1	J		
Fluoranthene			11			
Pyrene			8	J		
Benzo (a) anthracene			3	J		
Chrysene			4	J		
Bis(2-ethylhexyl)phthalate	2	J	1	J	2	J
Benzo (b) fluoranthene			4	J		
Benzo (k) fluoranthene			3	J		
Benzo (a) pyrene			4	J		
Indeno (1,2,3-cd) pyrene			4	J		
Dibenz (a,h) anthracene			1	J		
Benzo (g,h,i) perylene			4	J		
Metals	(ug/l)		(ug/l)		(ug/l)	
Aluminum	106	B	951		36.5	B
Antimony	12.1	B				
Barium	94.7	B	270		163	B
Calcium	118000		218000		157000	
Chromium			4.4	B	2.6	B
Cobalt			3.8	B	2.1	B
Copper	5.1	B	53.8		59.4	
Iron	63.0	B	3650		181	
Lead	1.5	BN	19.6	SN	1.5	BN
Magnesium	52800		94100		74000	

Table 14f
Summary of October 1995 Ruby Gordon Sump Sample Analytical Test Results

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	RG-SUMP-1 10/5/95	Q	RG-SUMP-2 10/5/95	Q	RG-SUMP-3 10/5/95	Q
Volatile Organics	(ug/l)		(ug/l)		(ug/l)	
Vinyl chloride			30		15	J
Chloroethane			8.8	J		
Methylene chloride	4	J	120	J	59	J
1,1-Dichloroethene	3.6	J	120		60	J
1,1-Dichloroethane	26		750	D	310	
1,2-Dichloroethene (total)	5.2	J	760	D	290	
1,2-Dichloroethane			4.1	J		
1,1,1-Trichloroethane	15		3200	D	1200	
Trichloroethene (TCE)	4.4	J	460	D	210	
Tetrachloroethene	4.6	J	180		78	J
Xylenes (total)	1.6	J				
Semi-Volatile Organics	(ug/l)		(ug/l)		(ug/l)	
2-Methylphenol	NT		NT		NT	
4-Methylphenol	NT		NT		NT	
Isophorone	NT		NT		NT	
Dimethyl phthalate	NT		NT		NT	
Diethyl phthalate	NT		NT		NT	
Bis(2-ethylhexyl)phthalate	NT		NT		NT	
Metals	(ug/l)		(ug/l)		(ug/l)	
Arsenic	NT		NT		NT	
Barium	NT		NT		NT	
Cadmium	NT		NT		NT	
Chromium	NT		NT		NT	
Copper	NT		NT		NT	
Lead	NT		NT		NT	
Mercury	NT		NT		NT	
Nickel	NT		NT		NT	
Silver	NT					

Table No. 15
Average Temperature and Precipitation

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Month	Temperature (°F)			Precipitation (in)	
	Average Daily Minimum	Average Daily Maximum	Average	Average	Average Snowfall
January	17.6	31.5	24.6	2.4	23.0
February	17.1	32.0	24.6	2.4	22.6
March	25.2	40.6	32.9	2.6	14.3
April	36.2	54.2	45.2	2.6	3.7
May	46.8	66.8	56.8	2.9	0.3
June	56.2	76.6	66.4	3.0	0.0
July	61.3	81.3	71.3	3.1	0.0
August	59.7	78.9	69.3	2.9	0.0
September	52.9	72.1	62.5	2.8	0.0
October	42.4	60.1	51.3	2.7	0.2
November	33.0	46.6	39.8	2.7	6.6
December	22.7	35.3	29.0	2.6	19.4
Yearly Average	39.3	56.3	47.8	32.7	90.1

Notes:
1) Data obtained from the Northeast Regional Climate Center (NRCC) at Cornell University.
2) Recording period is from 1965 through 1995 in Rochester, New York.

Table No. 16
Summary of Exposure Pathways Considered

Remedial Investigation
Stuart - Olver - Holtz
Site No. 8-28-079
Henrietta, New York

Media	Exposure	Likelihood of Exposure	Data Set	Standards
Surface Soils	Ingestion, Inhalation and Dermal Contact by local residents and migration to surface water through erosion	Moderate	All Surface Soil Test Results and Samples SED-1 and SED-4	TAGM 4046 Soil Cleanup Objectives Health Effects Summary Table Derived Values USEPA Draft Generic Residential Screening Levels
Subsurface Soils	Ingestion, Inhalation and Dermal Contact by maintenance workers or local residents.	Low	All Subsurface Soil Test Results excluding samples from OW-11S and OW-9S which are used to establish background.	TAGM 4046 Soil Cleanup Objectives Health Effects Summary Table Derived Values USEPA Draft Generic Residential Screening Levels
	Leaching to groundwater.	Moderate	All Subsurface Soil Test Results excluding samples from OW-11S and OW-9S which are used to establish background.	TAGM 4046 Soil Cleanup Objectives Health Effects Summary Table Derived Values USEPA Draft Generic Residential Screening Levels
Surface Water	Ingestion, Inhalation and Dermal Contact by local residents	Moderate	SW-1, SW-2 and SW-3	NYSDEC Class C Water Standards USEPA Ambient Water Quality Criteria
Surface Water Sediments	Ingestion, Inhalation and Dermal Contact by local residents	Moderate	SED-2 and SED-3	USEPA Sediment Quality Criteria TAGM 4046 Soil Cleanup Objectives Health Effects Summary Table Derived Values USEPA Draft Generic Residential Screening Levels NYSDEC Sediment Criteria - Human Health Bioaccumulation
Overburden Groundwater	Ingestion, Inhalation and Dermal Contact from use as a drinking water source	Low	All Overburden Groundwater Test Results (Round 1 and 2 combined).	NYSDEC Class GA Groundwater Quality Criteria USEPA MCL's and MCLG's USEPA Health Advisories
	Ingestion, Inhalation and Dermal Contact at points of groundwater discharge	Moderate	All Overburden Groundwater Test Results (Round 1 and 2 combined).	NYSDEC Class C Water Standards USEPA Ambient Water Quality Criteria
Bedrock Groundwater	Ingestion, Inhalation and Dermal Contact from use as a drinking water source	Low	All Bedrock Groundwater Test Results (Round 1 and 2 combined)	NYSDEC Class GA Groundwater Quality Criteria USEPA MCL's and MCLG's USEPA Health Advisories
On-site Sump Sediment	Ingestion, Inhalation and Dermal Contact by maintenance workers or local residents and leaching to groundwater.	Low	NSM-2 and NSM-3	TAGM 4046 Soil Cleanup Objectives Health Effects Summary Table Derived Values USEPA Draft Generic Residential Screening Levels
On-site Sump Water	Ingestion, Inhalation and Dermal Contact by maintenance workers or local residents	Moderate	NSM-1 and NSM-4	NYSDEC Class C Water Standards USEPA Ambient Water Quality Criteria NYSDEC Class GA Groundwater Quality Criteria USEPA MCL's and MCLG's USEPA Health Advisories
Soil Vapor	Inhalation within the basement of Ruby Gordon Building	Low to Moderate	SUMP-1, SUMP-2 and SUMP-3 results (Round 1 and 2 combined) used to calculate maximum possible vapor concentrations by applying Henry's Law	NYSDEC Air Guide I
	Inhalation within an excavation or basement downgradient of the site.	Moderate	All Overburden Groundwater Test Results (Round 1 and 2 combined) used to calculate maximum possible vapor concentrations by applying Henry's Law	NYSDEC Air Guide I

Notes:
1) See text section 6.0 for further discussion of Likelihood of Exposure.

Table No. 17
Overview of Properties of Chemicals Detected at Stuart-Olver-Holtz

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

CHEMICAL CLASS	EXAMPLES	COMMON USE/ ORIGIN	BEHAVIORAL CHARACTERISTICS IN THE ENVIRONMENT	MEDIA TYPE (TOTAL SAMPLE LOCATIONS PER MEDIA)								
				GROUNDWATER								
				Overburden (16)	Severely Weathered Bedrock (5)	Interior Wells (2)	SUBSURFACE SOILS (24)	SURFACE SOILS (8)	SURFACE WATER (3)	SURFACE WATER SEDIMENTS (2)	ON-SITE SUMP AND CATCH BASINS (4)	RUBY-GORDON SUMPS (3)
Volatile Organic Compound Compounds				Number of sample locations detected								
Halogenated Aliphatic Hydrocarbons	Trichloroethene 1,1,1-Trichloroethane 1,2-Dichloroethene Tetrachloroethene 1,1-Dichloroethane Methylene Chloride 1,2-Dichloroethane Vinyl Chloride 1,1-Dichloroethene	Industrial Solvents	Some of these compounds are more dense than water, such pure products would sink in the environment (DNAPL). Due to a relatively high Henry's Law constant, volatilization may play a significant role in transport of this chemical class. Water solubility and partitioning coefficients indicate most compounds in this class have the potential to leach from soils and to migrate in surface and ground waters	13	5	2	14	4	0	2	3	3
Aromatic Hydrocarbons	Benzene Ethylbenzene Toluene Xylenes	Petroleum Products Solvents	Less dense than water, these compounds, in pure form, tend to float (LNAPL). Due to a high Henry's Law constant, volatilization may play a significant role in transport of this chemical class. Water solubility and partitioning coefficients indicate most compounds in this class have the potential to leach from soils and migrate in surface and ground waters.	0	1	1	4	1	0	0	3	1
Ketones	Acetone 2-Hexanone	Industrial Solvents Laboratory Solvent	High vapor pressures indicate volatility of this chemical class. Water solubility and partition coefficients indicate a high potential for leaching from soils and to migrate in surface and ground waters.	1	3	0	1	0	1	0	0	0
Halogenated Aromatic Hydrocarbons	Chlorobenzene	Chemical Intermediate	While these compounds have low vapor pressures volatilization of this chemical class may be rapid. Low water solubility and the high partition coefficient suggests a tendency of these compounds to sorb onto solids. The densities are generally greater than that of water.	0	0	0	2	3	0	0	1	0

Table No. 17
Overview of Properties of Chemicals Detected at Stuart-Olver-Holtz

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

CHEMICAL CLASS	EXAMPLES	COMMON USE/ ORIGIN	BEHAVIORAL CHARACTERISTICS IN THE ENVIRONMENT	MEDIA TYPE (TOTAL SAMPLE LOCATIONS PER MEDIA)								
				GROUNDWATER								
				Overburden (16)	Severely Weathered Bedrock (5)	Interior Wells (2)	SUBSURFACE SOILS (24)	SURFACE SOILS (8)	SURFACE WATER (3)	SURFACE WATER SEDIMENTS (2)	ON-SITE SUMP AND CATCH BASINS (4)	RUBY-GORDON SUMPS (3)
Semi-Volatile Organic Compounds				Number of sample locations detected								
Polynuclear Aromatic Hydrocarbons	Benzo (a) Anthracene Benzo (a) Pyrene Chrysene Dibenz (a,h) Anthracene Fluoranthene Pyrene	Coal Burning By-product By-product of Internal Combustion Processes	Low water solubilities and high partition coefficient indicate a relatively low potential for leaching and migration. PAHs typically display low volatilization rates. Absorption is likely high	0	0	0	12	8	1	2	3	1
Phthalates	Bis(2-ethyhexyl) phthalate Butylbenzyl phthalate Di-n-octyl phthalate Di-n-butyl phthalate	Plastic Manufacturing Plasticizers	Vapor pressures of this chemical class are relatively low, indicating volatilization is not a significant transport mechanism. Water solubility ranges from low to moderate; partition coefficients are high. This suggests significant leaching to and transport by surface and ground waters to be minimal.	10	3	0	20	8	0	2	3	3
Phenols	Phenol 2-Methylphenol 4-Methylphenol	Chemical Intermediates	A moderately low vapor pressure and high water solubility suggests little volatilization. A low partition coefficient suggests minimal sorption onto solids. This class of compounds can readily leach from soils and migrate in surface and ground waters.	2	1	0	3	0	1	0	1	0
Miscellaneous SVOCs	Carbazole Dibenzofuran Isophorone	Chemical Intermediates	These miscellaneous compounds are considered SVOCs, and thus are typically characterized by a low water solubility, low vapor pressures and high partition coefficients. Additional details are presented in Appendix G.	Varies by specific compound of interest								

Table No. 17
Overview of Properties of Chemicals Detected at Stuart-Olver-Holtz

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

CHEMICAL CLASS	EXAMPLES	COMMON USE/ ORIGIN	BEHAVIORAL CHARACTERISTICS IN THE ENVIRONMENT	MEDIA TYPE (TOTAL SAMPLE LOCATIONS PER MEDIA)								
				GROUNDWATER								
				Overburden (16)	Severely Weathered Bedrock (5)	Interior Wells (2)	SUBSURFACE SOILS (24)	SURFACE SOILS (8)	SURFACE WATER (3)	SURFACE WATER SEDIMENTS (2)	ON-SITE SUMP AND CATCH BASINS (4)	RUBY-GORDON SUMPS (3)
PCBs and Pesticides				Number of sample locations detected								
Polychlorinated Biphenyl's	Aroclor 1254	Heat resistance additives to oil	Although vapor pressures of PCBs are low, atmospheric transport may occur as an aerosol. PCBs have low water solubilities and high partition coefficients, thus do not tend to migrate in groundwater. Migration may result from their tendency to bioaccumulate.	0	0	0	1	0	0	0	0	0
Pesticides	BHCs 4,4'-DDT Endosulfan Isophrone	Agricultural Pest Control	Pesticides typically have low vapor pressures, low water solubility and high partition coefficients. Thus, significant migration of pesticides within groundwater is not anticipated	0	0	0	0	0	0	0	0	0
Metals				Number of sample locations detected								
Metals	Zinc Lead Nickel Copper Chromium Cadmium	Paints and Pigments Naturally Occurring	Physical and chemical properties affecting the transport of metals vary with the metal and the environmental conditions (pH, Eh, alkalinity, etc.) as well as the presence of other compounds such as sulfate, chlorides, etc. Depending on these conditions, metals vary from highly immobile to very soluble.	16	5	2	24	8	3	2	4	3
Cyanide				Number of sample locations detected								
Cyanide	Hydrogen Cyanide			2	0	1	1	3	0	0	1	0

Notes:

1) See Appendix G for properties of specific chemicals within topological profiles.
2) See Tables 9 - 15b for analytical test data.

Table No. 18
Summary of Health Based Surface Soil ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's					Background			
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC TAGM 4046	USEPA DRAFT Residential Generic Soil Screening Levels: Inhalation	Ingestion	Protection of GW	USEPA HEAST	OW-11S 26-32' 6/22/95	Q	OW-9S 8-10' 6/20/95	Q
Volatile Organics (ug/kg)															
Methylene chloride	4	8	30	SS-3	7	SED 1&4	100	85000	7000	10	93000				
Toluene	1	8	4	SS-1	4	SS-1	1500	16000000	520000	5000	20000000				
Chlorobenzene	3	8	25	SS-1	1	SED-4	1700	16000000	94000	600	2000000				
Semi-Volatile Organics (ug/kg)															
Naphthalene	2	8	370	SS-1	280	SS-3	13000	3100000		30000	300000				
2-Methylnaphthalene	1	8	220	SS-6	220	SS-6	36400								
Acenaphthylene	6	8	3600	SS-1	49	SED-4	41000				300000				
Acenaphthene	7	8	4000	SS-6	22	SED-4	50000	4700000		200000	5000000				
Dibenzofuran	6	8	1800	SS-1	29	SS-2	6200								
Fluorene	7	8	5100	SS-1	30	SED-4	50000	3100000		160000	3000000				
Phenanthrene	8	8	69000	SS-1	60	SED-1	50000								
Anthracene	7	8	12000	SS-1	130	SED-4	50000	23000000		4300000	20000000				
Carbazole	7	8	10000	SS-1	67	SED-4	50000	32000		200	8300				
Di-n-Butylphthalate	6	8	4000	SS-3	75	SED-1	8100	7800000	100000	120000					
Fluoranthene	8	8	130000	SS-1	120	SED-1	50000	3100000		980000	3000000				
Pyrene	8	8	120000	SS-1	150	SED-1	50000	2300000		1400000	2000000				
Butylbenzylphthalate	6	8	5500	SS-3	64	SED-4	50000	16000000	530000	68000	20000000				
Benzo (a) Anthracene	8	8	54000	SS-1	49	SED-1	224 or MDL	900		700	220				
Chrysene	8	8	79000	SS-1	86	SED-1	400	88000		1000					
Bis (2-Ethylhexyl) Phthalate	8	8	27000	SS-3	80	SED-1	50000	46000	210000	11000	50000				
Di-n-Octyl Phthalate	1	8	310	SED-4	310	SED-4	50000				2000000				
Benzo (b) Fluoranthene	8	8	92000	SS-1	84	SED-1	1100	900		4000	220				
Benzo (k) Fluoranthene	7	8	25000	SS-1	58	SED-1	1100	9000		4000	220				
Benzo (a) Pyrene	8	8	58000	SS-1	64	SED-1	61 or MDL	90		4000	60				
Indeno (1,2,3-cd) Pyrene	8	8	50000	SS-1	81	SED-1	3200	900		35000					
Dibenz (a,h) Anthracene	7	8	18000	SS-1	180	SED-4	14 or MDL	90		11000	14				
Benzo(g,h,i) Perylene	8	8	23000	SS-1	32	SED-1	50000								

Table No. 18
Summary of Health Based Surface Soil ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's					Background			
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC TAGM 4046	USEPA DRAFT Residential Generic Soil Screening Levels: Inhalation	Ingestion	Protection of GW	USEPA HEAST	OW-11S 26-32' 6/22/95	Q	OW-9S 6-10' 6/20/95	Q
Metals (mg/kg)															
Aluminum	8	8	10700	SS-5	4990	SS-6						5540	*	3430	*
Antimony	2	8	24.8	SS-2	9.2	SS-3		31			30				
Arsenic	8	8	72.9	SS-3	3	SS-4 &SED-1	7.5	0.4	380	15	80	0.86	BJ	1.2	BJ
Barium	8	8	3350	SS-3	36.5	SS-6	300	5500	350000	32	4000	60.8		40.2	B
Beryllium	7	8	0.46	SS-5	0.22	SS-2	0.16	0.1	690	180	0.16	0.28	B		
Cadmium	6	8	84.9	SS-3	0.85	SED-4	1	39	920	6	80				
Calcium	8	8	71200	SS-3	3570	SED-1						80100		50100	
Chromium	8	8	1570	SS-2	13.8	SS-6	10				80000	9.5		7.4	
Cobalt	8	8	366	SS-3	3.2	SS-6	30					3.6	B	3.7	B
Copper	8	8	4710	SS-3	14.2	SED-1	25					3.6	B	10.3	J
Iron	8	8	54100	SS-3	11100	SED-1	2000					12400	*	9020	*
Lead	8	8	529	SS-3	15.8	SED-4	200-500	400			250	1.6	S	3.2	S
Magnesium	8	8	32900	SS-3	2660	SED-1						42300		18800	
Manganese	8	8	531	SS-2	113	SED-1					20000	299		260	
Mercury	3	8	0.33	SS-3	0.17	SS-2	0.1	23	7	3	20				
Nickel	8	8	5850	SS-3	11.4	SS-6	13	1600	6900	21	2000	8.5	B	9.2	
Potassium	8	8	2150	SS-3	1040	SS-6						2560		1030	B
Selenium	6	8	185	SS-3	0.33	SED-1	2	390		3					
Silver	8	8	16.3	SS-3	0.6	SS-6		390			200	0.45	U	0.44	U
Sodium	8	8	677	SS-5	107	SS-1						201	B	154	B
Vanadium	8	8	26	SS-5	12.9	SS-6	150	550			600	9.7	B	11.1	
Zinc	8	8	2280	SS-3	45.6	SED-1	20	23000		42000	20000		R		R
Others (mg/kg)															
Cyanide	3	8	40.5	SS-3	1.3	SS-5		1600			2000				

Notes

1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) TAGM 4046 = "Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives Levels", prepared by NYSDEC, January 24, 1994.
For organic compounds, a TOC of 1 percent was selected based on information obtained from TAGM 4046.
3) HEAST - Values derived from USEPA Health Effects Summary Table
4) HEAST value for chromium assumes trivalent chromium.
5) USEPA Draft Soil Screening Guidance = Soil Screening Guidance, USEPA, EPA/540/R-94/101, December, 1994. It should be noted this document is in review draft form

Table No. 19
Summary of Health Based Subsurface Soil ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum		Minimum	Location of Minimum		SCG's					Background			
				Well	Depth		Well	Depth	NYSDEC TAGM 4046	USEPA DRAFT Residential Generic Soil Screening Levels: Inhalation	Ingestion	Protection of GW	USEPA HEAST	OW-11S 28-37 6/22/95	Q	OW-9S 8-10' 6/20/95	Q
Volatile Organics (ug/kg)																	
Chloroethane	2	34	6	SB-4	24-26	4	SB-1	2-4	1900				540000				
Methylene chloride	10	34	270	OW-2S	34-36	5	OW-6S & 7R	10-12 &40-42	100	85000	7000	10	93000	—	-	—	-
Acetone	1	34	18	OW-8S	32-34	18	OW-8S	32-34	200	7800000	6.2E+07	8000	6000000	—	-	—	-
1,1-Dichloroethene	1	34	2	OW-7S	8-10	2	OW-7S	8-10	400	1000	40	30	12000	—	-	—	-
1,1-Dichloroethane	4	34	22	OW-7S	8-10	2	OW-8S	6-12	200	7000	300	10	8000000	—	-	—	-
1,2-Dichloroethene(Total)	4	34	910	OW-6S	20-22	5	SB-8	8-10	300	780000	1500000	200	800000	—	-	—	-
Chloroform	2	34	6	TP-3	composite	5	TP-1	composite	300	200	110000	300	110000	—	-	—	-
1,2-Dichloroethane	1	34	8	OW-7S	8-10	8	OW-7S	8-10	100	7000	300	10	7700	—	-	—	-
1,1,1-Trichloroethane	8	34	210	OW-7S	8-10	2	SB-8	8-10	800		980000	900	7000000	—	-	—	-
Trichloroethene	11	34	1500	OW-7S	28-30	3	SB-8	8-10	700	58000	3000	20	64000	—	-	—	-
1,1,2-Trichloroethane	2	34	26	TP-5	composite	4	OW-7S	8-10		11000	800	10	120000	—	-	—	-
Benzene	1	34	110	OW-4R	42-44	110	OW-4R	42-44	60	22000	500	20	24000	—	-	—	-
Tetrachloroethene	6	34	280	OW-6S	20-22	4	OW-7S	8-10	1400	12000	11000	40	14000	—	-	—	-
Toluene	3	34	600	OW-2S	34-36	4	OW-7S	8-10	1500	16000000	520000	5000	20000000	—	-	—	-
Chlorobenzene	2	34	4	TP-1	composite	3	TP-2	composite	1700	1600000	94000	600	2000000	—	-	—	-
Ethylbenzene	1	34	7	OW-4R	42-44	7	OW-4R	42-44	5300	7800000	260000	5000	8000000	—	-	—	-
Xylene (total)	3	34	360	OW-2S	34-36	2	TP-2	composite	1200	160000000	320000	74000	200000000	—	-	—	-
Semi-volatile Organics (ug/kg)																	
Phenol	4	35	410	SB-16	12-14	230	SB-17	16-18	30 or MDL				50000000				
1,4 Dichlorobenzene	2	35	57	TP-3	composite	47	TP-1	composite	8,500	27000	7700000	1000	29000	—	-	—	-
Diethylphthalate	3	35	90	SB-16	12-14	46	OW-10S	18-21	7100	63000000	520000	110000	60000000	—	-	—	-
Phenanthrene	10	35	160	OW-6S	2-4	23	OW-2S	34-36	50000					—	-	—	-
Anthracene	6	35	36	OW-6S	2-4	21	OW-6S & TP-1	10-12 & composite	50000	23000000		4300000	20000000	—	-	—	-
Carbazole	2	35	95	OW-6S	20-22	25	OW-6S	2-4	50000	32000		200	8300	—	-	—	-
Di-n-Butylphthalate	17	35	540	SB-16	12-14	22	TP-3	composite	8100	7800000	100000	120000		—	-	—	-
Fluoranthene	11	35	570	OW-6S	2-4	26	OW-1R	22-23	50000	3100000		980000	3000000	—	-	—	-
Pyrene	13	35	480	OW-6S	2-4	24	OW-5S	14-16	50000	2300000		1400000	2000000	—	-	—	-
Butylbenzylphthalate	5	35	280	SB-4	0-2	33	TP-3	composite	50000	16000000	530000	68000	20000000	—	-	—	-
Benzo (a) Anthracene	4	35	280	OW-6S	2-4	85	OW-6S	10-12	224 or MDL	900		700	220	—	-	—	-
Chrysene	11	35	440	OW-6S	2-4	20	OW-2S	34-36	400	88000		1000		—	-	—	-
Bis (2-Ethylhexyl) Phthalate	17	35	2200	OW-6S	10-12	28	OW-7R	34-36	50000	46000	210000	11000	50000	—	-	—	-
Di-n-Octyl Phthalate	16	35	380	OW-1R	6-8	25	TP-5	composite	50000				2000000	—	-	—	-
Benzo (b) Fluoranthene	9	35	550	OW-6S	2-4	51	TP-6	composite	1100	900		4000	220	—	-	—	-
Benzo (k) Fluoranthene	8	35	160	OW-6S	2-4	36	TP-6	composite	1100	9000		4000	220	—	-	—	-
Benzo (a) Pyrene	9	35	360	SB-4	0-2	29	TP-6	composite	61 or MDL	90		4000	60	—	-	—	-
Indeno (1,2,3-cd) Pyrene	9	35	340	OW-6S	2-4	30	TP-6	composite	3200	900		35000		—	-	—	-
Dibenz (a,h) Anthracene	4	35	72	OW-6S	2-4	23	OW-6S	10-12	14 or MDL	90		11000	14	—	-	—	-
Benzo(g,h,i) Perylene	6	35	1400	SB-4	0-2	28	TP-3,4	composite	50000					—	-	—	-

Table No. 19
Summary of Health Based Subsurface Soil ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum: Well	Location of Maximum: Depth	Minimum	Location of Minimum: Well	Location of Minimum: Depth	SCG's: NYSDEC TAGM 4046	SCG's: USEPA DRAFT Residential Generic Soil Screening Levels: Inhalation	SCG's: USEPA DRAFT Residential Generic Soil Screening Levels: Ingestion	SCG's: USEPA DRAFT Residential Generic Soil Screening Levels: Protection of GW	SCG's: USEPA HEAST	Background: OW-11S 26-32' 6/22/95	Q	Background: OW-9S 8-10' 6/20/95	Q
PCB/Pesticides (mg/kg)																	
Aroclor - 1254	1	34	41	TP-6	composite	41	TP-6	composite									
Metals (mg/kg)																	
Aluminum	34	34	22800	OW-4S	8-10	1610	SB-17	16-18						5540	*	3430	*
Antimony	2	34	3.5	OW-7S	8-10	3.2	OW-6S	0-2		31			30				
Arsenic	33	34	8.8	SB-1	2-4	0.48	OW-7S	28-30	7.5	0.4	380	15	80	0.86	BJ	1.2	BJ
Barium	34	34	158	OW-10S	18-21	16.6	OW-1R	20-22	300	5500	350000	32	4000	60.8		40.2	B
Beryllium	18	34	1.1	OW-4S	8-10	0.21	OW-7R	40-42	0.16	0.1	690	180	0.16	0.28	B		
Cadmium	8	34	1.7	TP-3	composite	0.7	TP-6	composite	1	39	920	6	80				
Calcium	34	34	107000	OW-6S	10-12	2820	TP-1	composite						80100		50100	
Chromium	34	34	30.3	OW-4S	8-10	2.8	OW-1R	22-23	10				80000	9.5		7.4	
Cobalt	34	34	14.3	OW-2S	34-36	1.5	OW-1R	22-23	30					3.6	B	3.7	B
Copper	34	34	30.8	SB-4	0-2	3.3	OW-4R	42-44	25					3.6	B	10.3	J
Iron	34	34	32400	OW-4S	8-10	4310	OW-1R	22-23	2000					12400	*	9020	*
Lead	34	34	57.6	SB-4	0-2	2	SB-17	16-18	200-500	400			250	1.6	S	3.2	S
Magnesium	34	34	42300	OW-11S	26-32	3270	TP-3	composite						42300		18800	
Manganese	34	34	1670	TP-4	composite	195	OW-1R	22-23					20000	299		260	
Mercury	5	34	1.1	OW-6S	0-2	0.12	TP-5	composite	0.1	23	7	3	20				
Nickel	33	34	106	SB-4	0-2	3.1	SB-17	16-18	13	1600	6900	21	2000	8.5	B	9.2	
Potassium	32	34	6250	OW-4R	42-44	419	SB-17	16-18						2560		1030	B
Selenium	2	34	11.2	SB-4	0-2	1.4	OW-6S	0-2	2	390		3					
Sodium	34	34	354	SB-1	2-4	69.9	TP-4	composite		390				201	B	154	B
Thallium	10	34	0.81	SB-1	2-4	0.21	OW-6S	10-12				0.4	6				
Vanadium	34	34	46	OW-4S	8-10	4.2	OW-1R	22-23	150	550			600	9.7	B	11.1	
Zinc	26	34	143	OW-6S	10-12	16.9	OW-1R	22-23	20	23000		42000	20000		R		R
Others (mg/kg)																	
Cyanide	1	34	1.6	OW-6S	0-2	1.6	OW-6S	0-2		1600			2000				

Notes:

1) Site occurrence includes maximum and minimum detected values of the respective test parameters.

2) TAGM 4046 = "Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives Levels", prepared by NYSDEC, January 24, 1994.
For organic compounds, a TOC of 1 percent was assumed. For metals, soil test results for samples from OW-11S and OW-9S are used as background as shown above

3) HEAST - Values derived from USEPA Health Effects Summary Table

4) HEAST value for chromium assumes trivalent chromium

5) USEPA Draft Soil Screening Guidance = Soil Screening Guidance, USEPA, EPA/540/R-94/101, December, 1994. It should be noted this document is in review draft form

Table No. 20
Summary of Health Based Surface Water ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence: Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	SCG's: NYSDEC Class C Water	AWQC Aquatic Acute	AWQC Aquatic Chronic	USEPA AWQC Health
Volatile Organics (ug/l)										
Acetone	1	3	25	SW-3	25	SW-3				
Semi Volatile Organics (ug/l)										
Pentachlorophenol	1	3	4	SW-2	4	SW-2	0.4			
Fluoranthene	1	3	1	SW-1	1	SW-1		3980		310
Pyrene	1	3	1	SW-1	1	SW-1				
Metals (ug/l)										
Aluminum	3	3	997	SW-2	158	SW-3	100			
Barium	3	3	183	SW-2	48.8	SW-3				
Calcium	3	3	101000	SW-1	63900	SW-3				1000
Chromium	1	3	2.2	SW-3	2.2	SW-3	5594	1700	210	170000
Cobalt	1	3	2.4	SW-3	2.4	SW-3	5			
Copper	2	3	4.1	SW-3	2.8	SW-2	368	18	12	1000
Iron	3	3	4850	SW-2	744	SW-1	300		1000	30
Lead	3	3	8.2	SW-3	7.4	SW-1	526	8.2	3.2	50
Magnesium	3	3	38500	SW-1	17400	SW-3				
Manganese	3	3	909	SW-2	185	SW-1				
Potassium	3	3	12800	SW-3	10400	SW-1				50
Silver	1	3	2.4	SW-3	2.4	SW-3	0.1	0.92	0.12	50
Sodium	3	3	96900	SW-1	38700	SW-3				
Vanadium	1	3	3.7	SW-2	3.7	SW-2	14			
Zinc	3	3	80.1	SW-2	30.6	SW-1	2530	96	86	5000
Others (mg/l)		3								
Alkalinity	1	1	360	SW-2	360	SW-2				
Hardness	1	1	5300	SW-2	5300	SW-2				

Notes:
1) Site Occurrence includes maximum and minimum detected values of the respective test parameters
2) Class C standards as promulgated in 6 NYCRR 703.
3) Class C standards for selected metals is based on the hardness of the water. .
For the purposes of making these calculations, a hardness of 250 ppm was selected based on the calciferous nature of the streambed.
Chromium = exp (0.819 [ln (ppm hardness)] + 1.561)
Copper = exp (0.8545 [ln (ppm hardness)] - 1.465)
Lead = exp (1.266 [ln (ppm hardness)] - 4.661)
Nickel = exp (0.76 [ln (ppm hardness)] + 1.06)
Zinc = exp (0.85 [ln (ppm hardness)] + 0.50)
* Hardness estimated at 250 ppm due to calciferous nature of stream bed.
4) AWQC = USEPA Ambient Water Quality Criteria for Human Health; water and fish ingestion.
5) Chromium is assumed to be trivalent chromium.
6) Silver Class C standard is for ionic silver.

Table No. 21
Summary of Health Based Surface Water Sediment ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence: Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	SCG's: NYSDEC TAGM 4046	NYSDEC Sediment Criteria Human Health Bioaccumulation	USEPA DRAFT Residential Generic Soil Screening Levels: Inhalation	Ingestion	Protection of GW	USEPA HEAST	USEPA Sediment Criteria
Volatile Organics (ug/kg)													
Methylene chloride	2	2	7	SED-2	3	SED-3	100		85000	7000	10	93000	
1,1-Dichloroethane	1	2	6	SED-3	6	SED-3	200		7800000	980000	11000	8000000	
1,1,1-Trichloroethane	1	2	7	SED-3	7	SED-3	800			980000	900	7000000	
Tetrachloroethene	1	2	3	SED-3	3	SED-3	1400	8	12000		40	14000	
Semi-Volatile Organics (ug/kg)													
Naphthalene	1	2	610	SED-3	420	SED-3	13000		3100000		30000	300000	
2-Methylnaphthalene	1	2	490	SED-3	250	SED-3	36400						
Acenaphthylene	2	2	630	SED-3	36	SED-2	41000					300000	
Acenaphthene	1	2	2700	SED-3	1400	SED-3	50000		4700000		200000	5000000	1400
Dibenzofuran	1	2	1100	SED-3	600	SED-3	6200						
Fluorene	1	2	2400	SED-3	1200	SED-3	50000		3100000		160000	3000000	
Phenanthrene	2	2	21000	SED-3	340	SED-2	50000						1200
Anthracene	2	2	3400	SED-3	62	SED-2	50000		23000000		4300000	2000000	
Carbazole	2	2	2900	SED-3	65	SED-2	50000		32000		200	8300	
Di-n-Butylphthalate	1	2	180	SED-2	85	SED-2	8100		7800000	100000	120000		
Fluoranthene	2	2	34000	SED-3	810	SED-2	50000		3100000		980000	3000000	10200
Pyrene	2	2	31000	SED-3	810	SED-2	50000		2300000		1400000	2000000	
Benzo (a) Anthracene	2	2	15000	SED-3	260	SED-2	224 or MDL	13	900		700	220	
Chrysene	2	2	18000	SED-3	450	SED-2	400	13	88000		1000		
Bis (2-Ethylhexyl) Phthalate	2	2	4700	SED-3	210	SED-2	50000		46000	210000	11000	50000	
Di-n-Octyl Phthalate	1	2	350	SED-2	350	SED-2	50000					2000000	
Benzo (b) Fluoranthene	2	2	27000	SED-3	530	SED-2	1100	13	900		4000	220	
Benzo (k) Fluoranthene	2	2	11000	SED-3	390	SED-2	1100	13	9000		4000	220	
Benzo (a) Pyrene	2	2	17000	SED-3	750	SED-2	61 or MDL	13	90		4000	60	
Indeno (1,2,3-cd) Pyrene	2	2	22000	SED-3	91	SED-2	3200	13	900		35000		
Dibenz (a,h) Anthracene	2	2	6900	SED-3	140	SED-2	14 or MDL		90		11000	14	
Benzo(g,h,i) Perylene	2	2	7900	SED-3	1200	SED-2	50000						

Table No. 21
Summary of Health Based Surface Water Sediment ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's						
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC TAGM 4046	NYSDEC Sediment Criteria Human Health Bioaccumulation	USEPA DRAFT Residential Generic Soil Screening Levels			USEPA HEAST	USEPA Sediment Criteria
Metals (mg/kg)									Inhalation	Ingestion	Protection of GW		
Aluminum	2	2	10600	SED-2	4540	SED-3							
Antimony	1	2	5.1	SED-2	5.1	SED-2			31			30	
Arsenic	2	2	6.2	SED-2	1.4	SED-3	7.5		0.4	380	15	80	
Barium	2	2	63.2	SED-2	22.1	SED-3	300		5500	350000	32	4000	
Beryllium	1	2	0.59	SED-2	0.59	SED-2	0.16		0.1	690	180	0.16	
Cadmium	1	2	1.6	SED-3	1.6	SED-3	1		39	920	6	80	
Calcium	2	2	7590	SED-3	7020	SED-2							
Chromium	2	2	35.5	SED-2	14.1	SED-3	10					80000	
Cobalt	2	2	10.1	SED-2	3.7	SED-3	30						
Copper	2	2	68.9	SED-3	17.1	SED-2	25						
Iron	2	2	51000	SED-2	8970	SED-3	2000						
Lead	2	2	61.5	SED-3	41.2	SED-2	200-500		400			250	
Magnesium	2	2	4140	SED-3	4090	SED-2							
Manganese	2	2	725	SED-2	119	SED-3						20000	
Nickel	2	2	26.2	SED-2	11.2	SED-3	13		1600	6900	21	2000	
Potassium	2	2	1850	SED-2	1210	SED-3							
Silver	2	2	1.1	SED-2	0.69	SED-3			390			200	
Sodium	2	2	529	SED-3	2.54	SED-2							
Vanadium	2	2	23.8	SED-2	13.9	SED-3	150		550			600	
Zinc	2	2	844	SED-3	442	SED-2	20		23000		42000	20000	

Notes:
1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) TAGM 4046 = "Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives Levels", prepared by NYSDEC, January 24, 1994. For organic compounds a TOC value of 1 percent was selected based on information obtained from TAGM 4046. For metals, site sediment background test results were not available.
3) HEAST - Values derived from USEPA Health Effects Summary Table
4) HEAST value for chromium assumes trivalent chromium.
5) NYSDEC Sediment Criteria = "Technical Guidance for Screening of Contaminated Sediments", NYSDEC, July 1994. A TOC value of 1 percent was assumed in deriving criteria
6) USEPA Draft Soil Screening Guidance = Soil Screening Guidance, USEPA, EPA/540/R-94/101, December, 1994. It should be noted this document is in review draft form
7) USEPA Sediment Criteria based on a TOC of 1 percent.

Table No. 22
Summary of Health Based Overburden Groundwater ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence: Samples Detected	Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	SCG's: NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	USEPA Health Advisories: Child/ One Day	Child/ Long Term	Adult Lifetime	NYSDEC Class C Water	USEPA AWQC Human Health	USEPA AWQC Aquatic Acute	USEP AWQ Aquat Chron
Volatile Organics (ug/l)																
Vinyl chloride	9	32	11000	MW-5	2.7	OW-11S	2	2	0	3000	10			2		
Chloroethane	1	32	21	OW-6S	21	OW-6S	5									
Methylene chloride	6	32	350	MW-2	3.9	MW-3	5									
Acetone	1	32	9.8	OW-8S	9.8	OW-8S	50									
1,1-Dichloroethene	16	32	900	OW-6S	3.6	OW-8S	5	7	7	2000	1000	7		0.033	11600	
1,1-Dichloroethane	18	32	10000	MW-2	8.6	OW-11S	5									
1,2-Dichloroethene (total)	16	32	10000	MW-2	2.9	OW-8S	5	70	70	20000	2000	100				
Chloroform	1	32	7.2	OW-10S	7.2	OW-10S	7	100						5.7	28900	1
1,1,1-Trichloroethane	14	32	24000	OW-6S	3.1	OW-8S	5	200	200	100000	40000	200		1.03		
Trichloroethene (TCE)	16	32	140000	OW-7S	1.4	OW-8S	5	5	0					2.7	45000	219
1,1,2-Trichloroethane	2	32	53	MW-5	12	OW-6S	35	5	3	600	400	3		0.6	18000	94
Tetrachloroethene	10	32	8800	MW-5	3.3	OW-8S	5	5	0	2000	1000			0.17		
Semi-Volatile Organics (ug/l)																
Phenol	2	17	9	OW-7S	8	MW-5	1			6000	6000	4000		20900	10200	25
4-Methyl Phenol	1	17	1.4	OW-7S	1.4	OW-7S	50									
2-Methylphenol	2	17	9	OW-7S	7.9	OW-7S	50									
Isophorone	2	17	23	OW-7S	19	OW-7S	50			15000	15000	100		5200	11700	
Di methyl Phthalate	1	17	0.74	OW-7S	0.74	OW-7S	50									
Di-n-butyl phthalate	2	17	2	OW-9S	1	OW-LS	50									
Diethyl Phthalate	1	17	1.5	OW-7S	1.5	OW-7S	50									
Bis(2-ethylhexyl)phthalate	9	17	3	OW-9S	1	OW--1S,2S &4S	50						0.6			

Table No. 22
Summary of Health Based Overburden Groundwater ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, new York

Parameter	Summary of Site Occurrence						SCG's									
	Samples Detected	Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	USEPA Health Advisories Child/ One Day	USEPA Health Advisories Child/ Long Term	USEPA Health Advisories Adult Lifetime	NYSDEC Class C Water	USEPA AWQC Human Health	USEPA AWQC Aquatic Acute	USEPA AWQC Aquatic Chronic
Metals (ug/l)																
Aluminum	16	16	14900	OW-10S	28.9	OW-8S	100						100		750	87
Arsenic	13	32	10.8	OW-4S	3.1	OW-11S	25	5					190	0.0022		
Barium	32	32	305	OW-10S	31.5	OW-8S	1000	2000	2000			2000		1000		
Cadmium	7	32	5.5	OW-7S	2	OW-1S	10	5	5	40	5	5	3.03	10	130	503
Calcium	16	16	301000	OW-10S	61000	OW-7S	10									
Chromium	19	32	39.1	OW-5S	2	OW-7S	50	100	100	1000	200	100	577.5	170000	1700	210
Cobalt	12	16	19.1	OW-10S	2.8	101-OW							5			
Copper	24	32	56.9	OW-10S	2.6	101-OW	200		1300				34.5	1000	18	12
ron	16	16	96700	OW-1S	320	OW-8S	300						300	30		1000
Lead	21	32	61.8	OW-LS	1.2	OW-3S	25		0				15.7	50	8.2	3.2
Magnesium	16	16	825000	MW-3	43400	OW-7S	35000									
Manganese	16	16	1420	OW-10S	85.4	OW-8S	500		200					50		
Mercury	1	32	0.23	OW-11S	0.23	OW-11S		2	2			2		0.144	2.4	0.012
Nickel	23	32	169	OW-5S	15.6	MW-5		100	100	1000	500	100	248	13.4	1400	100
Potassium	16	16	27500	OW-10S	2760	MW-5										
ilver	5	32	1.9	OW-LS	1.4	OW-7S	50			200	200	100	0.1		0.92	0.2
odium	16	16	168000	OW-10S	21200	OW-7S	20000									
anadium	8	16	28.2	OW-10S	2.6	OW-7S				80	30	20	14			
inc	32	32	169	OW-10S	9.6	OW-6S	300			6000	3000	2000	240		96	86
Others																
yanide (ug/l)	2	16	11.5	OW-2S	11.3	OW-1S	100	200	200	200	200	200	5.2	200	22	52
lkalinity, as CaCO3 (mg/l)	16	16	490	OW-LS	180	OW-4S										
ardness, as CaCO3 (mg/l)	16	16	970	OW-11S	350	OW-7S										

tes:
1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) The total number of samples tested includes two rounds of sampling the same wells for VOCs and selected metals One semi-VOC sample was also collected during the second round from well OW-7S
3) NYSDEC Class GA effluent standard are developed for water discharged to a Class GA groundwater.
4) USEPA MCLs and MCLGs apply to public water supplies.
5) USEPA Health Advisories developed to be protective of adverse non-carcinogenic health effects associated with exposure of child for one day and longer term (approximately 7 years or 10 % of lifetime) and lifetime exposure for adults

Table No. 23
Summary of Health Based Top of Bedrock Groundwater ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's					
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	USEPA Health Advisories Child/ One Day	Child/ Long Term	Adult Lifetime
Volatile Organics (ug/l)												
Chloromethane	1	14	8.1	OW-3R	8.1	OW-3R	5			9000	1000	3
Vinyl chloride	4	14	110	IW-1R	8.8	IW-2R	2	2	0	3000	10	
Chloroethane	1	14	21	OW-7R	21	OW-7R	5					
Methylene chloride	3	14	5500	OW-7R	7	OW-3R	5	5	0	10000		
Acetone	3	14	100	OW-7R	6.5	OW-2R	50					
Carbon disulfide	1	14	8	OW-3R	8	OW-3R	50					
1,1-Dichloroethene	3	14	250	OW-7R	5	IW-2R	5	7	7	2000	1000	7
1,1-Dichloroethane	7	14	5900	OW-7R	1.5	OW-2R	5					
1,2-Dichloroethene (total)	9	14	9000	OW-7R	3.8	OW-2R	5	70	70	20000	2000	100
1,2 Dichloroethane	1	14	12	OW-7R	12	OW-7R	5	5	0	700	700	
1,1,1-Trichloroethane	3	14	170	OW-7R	110	OW-7R, IW-2R	5	200	200	100000	40000	200
Trichloroethene (TCE)	8	14	10000	OW-7R	1.5	OW-2R	5	5	0			
Benzene	1	14	3	OW-7R	3	OW-7R	5	5	0	200		
2-Hexanone	1	14	5.4	OW-3R	5.4	OW-3R	50					
Tetrachloroethene	2	14	66	OW-7R	4	OW-7R	5	5	0	2000	1000	
Toluene	2	14	8.0	OW-7R	1.5	IW-2R	5					
Ethyl benzene	1	14	2	OW-7R	2	OW-7R	5	700	700	30000		700
Xylenes (total)	1	14	9	OW-7R	9	OW-7R	5	10000	10000	40000	40000	10000
Semi-Volatile Organics (ug/l)												
2 Methyl Phenol	1	8	1.4	OW-7R	1.4	OW-7R	50					
Phenol	1	8	10	OW-7R	10	OW-7R	1			6000	6000	4000
4-Methylphenol	2	8	2	OW-7R	0.83	OW-7R	50					
Isophorone	2	8	3	OW-7R	2.7	OW-7R	50			15000	15000	100
Di-n-butyl phthalate	4	8	1	OW-2R,-3R,-7R	0.96	OW-7R	50					
Bis (2-ehtylhexyl) Phthalate	1	8	2.7	OW-7R	2.7	OW-7R	50					

Table No. 23
Summary of Health Based Top of Bedrock Groundwater ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's					
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	USEPA Health Advisories: Child/ One Day	USEPA Health Advisories: Child/ Long Term	USEPA Health Advisories: Adult Lifetime
Metals (ug/l)												
Aluminum	7	7	1400	OW-4R	247	OW-7R	100					
Antimony	1	7	47.8	IW-1R	47.8	IW-1R		6	6	15	15	3
Arsenic	9	14	23.3	IW-1R	3	OW-7R	25	5				
Barium	14	14	109	IW-1R	4.8	OW-3R	1000	2000	2000			2000
Cadmium	8	14	797	IW-1R	2.7	OW-1R	10	5	5	40	5	5
Calcium	7	7	458000	OW-4R	73000	OW-2R						
Chromium	13	14	4380	IW-1R	2.5	OW-4R	50	100	100	1000	200	100
Cobalt	7	7	19.4	IW-1R	2.1	OW-4R						
Copper	14	14	708	IW-1R	4.5	OW-4R	200		1300			
Iron	7	7	265000	OW-1R	39300	OW-7R	300					
Lead	10	14	78.1	IW-1R	2.2	OW-2R	25		0			
Magnesium	7	7	59700	OW-4R	23400	OW-7R	35000					
Manganese	7	7	1670	OW-3R	428	IW-2R	500					
Mercury	6	14	0.41	OW-3R	0.2	IW-1R	2		200			
Nickel	12	14	7770	IW-2R	19.5	OW-1R		100	100	1000	500	100
Potassium	7	7	75600	OW-7R	6570	IW-1R						
Silver	10	14	18.3	IW-1R	1.3	OW-3R	50			200	200	100
Sodium	7	7	87600	IW-2R	16200	OW-3R	20000					
Vanadium	7	7	22.7	IW-1R	3	OW-3R				80	30	20
Zinc	14	14	4280	IW-1R	20.7	OW-4R	300			6000	3000	2000
Others												
Cyanide (ug/l)	1	7	16.6	IW-1R	16.6	IW-1R	100	200	200	200	200	200
Alkalinity, as CaCO3 (mg/l)	7	7	280	IW-2R	34	OW-3R						
Hardness, as CaCO3 (mg/l)	7	7	1500	OW-4R	330	OW-2R						

Notes:

1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) The total number of samples tested includes two rounds of sampling the same wells for VOCs and selected metals. One semi-VOC sample was also collected during the second round from well OW-7R.
3) NYSDEC Class GA criteria developed for waters with a best usage as potable water supply.
4) USEPA MCLs and MCLGs developed for public water supplies.
5) USEPA Health Advisories developed to be protective of adverse non-carcinogenic health effects associated with exposure of child for one day and longer term (approximately 7 years or 10 % of lifetime) and lifetime exposure for adults
6) This table includes observation wells installed during the course of this Remedial Investigation, as well as the two existing supply wells located within the SOH building

Table No. 24a
Summary of Health Based On-Site Sump and Catch Basin Soil ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's				
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC TAGM 4046	USEPA DRAFT Residential Generic Soil Screening Levels: Inhalation	Ingestion	Protection of GW	USEPA HEAST
Volatile Organics (ug/kg)											
1,1-Dichloroethane	1	2	32000	NSM-2	25000	NSM-2	200	7000	300	10	8000000
1,2-Dichloroethene(Total)	1	2	17000	NSM-2	17000	NSM-2	300	780000	1500000	200	800000
1,1,1-Trichloroethane	2	2	2000000	NSM-2	8300	NSM-3	800		980000	900	7000000
Trichloroethene	1	2	8900	NSM-2	8900	NSM-2	700	58000	3000	20	64000
Tetrachloroethene	2	2	91000	NSM-2	350	NSM-3	1400	12000	11000	40	14000
Toluene	2	2	110000	NSM-2	580	NSM-3	1500	16000000	520000	5000	20000000
Chlorobenzene	1	2	8600	NSM-2	8600	NSM-2	1700	1600000	94000	600	2000000
Ethyl benzene	1	2	9200	NSM-2	9200	NSM-2	5500	7800000	260000	5000	8000000
Xylene (total)	2	2	46000	NSM-2	490	NSM-3	1200	160000000	320000	74000	200000000
Semi-Volatile Organics (ug/kg)											
1,4-Dichlorobenzene	1	2	1000	NSM-2	1000	NSM-2	8500	27000	7700000	1000	29000
1,2 Dichlorobenzene	1	2	5500	NSM-2	3900	NSM-2	7900	7000000	300000	6000	700000
Naphthalene	2	2	1800	NSM-2	1100	NSM-3	13000	3100000		30000	300000
2-Methylnaphthalene	2	2	420	NSM-2	240	NSM-3	36400				
Dimethyl Phthalate	2	2	440	NSM-2	220	NSM-3		780000000	1600000	1200000	
Acenaphthylene	1	2	600	NSM-2	600	NSM-2	41000				300000
Acenaphthene	1	2	490	NSM-2	490	NSM-2	50000	4700000		200000	5000000
Dibenzofuran	1	2	440	NSM-2	440	NSM-2	6200				
Fluorene	1	2	990	NSM-2	770	NSM-2	50000	3100000		160000	3000000
Phenanthrene	2	2	16000	NSM-2	3400	NSM-3	50000				
Anthracene	2	2	1500	NSM-2	590	NSM-3	50000	23000000		4300000	20000000
Carbazole	2	2	2500	NSM-2	680	NSM-3	50000	32000		200	8300
Di-n-Butylphthalate	2	2	8000	NSM-3	2500	NSM-2	8100	7800000	100000	120000	
Fluoranthene	2	2	19000	NSM-2	7200	NSM-3	50000	3100000		980000	3000000
Pyrene	2	2	18000	NSM-2	7200	NSM-3	50000	2300000		1400000	2000000
Butylbenzylphthalate	2	2	110000	NSM-2	28000	NSM-3	50000	16000000	530000	68000	20000000
Benzo (a) Anthracene	2	2	5100	NSM-2	3100	NSM-3	224 or MDL	900		700	220
Chrysene	2	2	21000	NSM-2	5200	NSM-3	400	88000		1000	
Bis (2-Ethylhexyl) Phthalate	2	2	67000	NSM-2	8200	NSM-3	50000	46000	210000	11000	50000
Di-n-Octyl Phthalate	1	2	1700	NSM-2	1300	NSM-2	50000				2000000
Benzo (b) Fluoranthene	2	2	17000	NSM-2	5400	NSM-3	1100	900		4000	220
Benzo (k) Fluoranthene	2	2	9000	NSM-2	2000	NSM-3	1100	9000		4000	220
Benzo (a) Pyrene	2	2	4200	NSM-2	2800	NSM-2	61 or MDL	90		4000	60
Indeno (1,2,3-cd) Pyrene	2	2	9600	NSM-2	3100	NSM-3	3200	900		35000	
Dibenz (a,h) Anthracene	2	2	3100	NSM-2	750	NSM-3	14 or MDL	90		11000	14
Benzo(g,h,i) Perylene	2	2	5700	NSM-2	1200	NSM-3	50000				

Table No. 24a
Summary of Health Based On-Site Sump and Catch Basin Soil ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's				
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC TAGM 4046	USEPA DRAFT Residential Generic Soil Screening Levels			USEPA HEAST
								Inhalation	Ingestion	Protection of GW	
Metals (mg/kg)											
Aluminum	2	2	4460	NSM-2	3250	NSM-3					
Antimony	2	2	13.6	NSM-2	5.3	NSM-3		31			30
Arsenic	2	2	46.2	NSM-2	6.6	NSM-3	7.5	0.4	380	15	80
Barium	2	2	384	NSM-2	148	NSM-3	300	5500	350000	32	4000
Cadmium	2	2	63.3	NSM-2	4.2	NSM-3	1	39	920	6	80
Calcium	2	2	162000	NSM-3	60900	NSM-2					
Chromium	2	2	714	NSM-2	165	NSM-3	10				80000
Cobalt	2	2	6.1	NSM-2	3.8	NSM-3	30				
Copper	2	2	355	NSM-2	90.8	NSM-3	25				
Iron	2	2	34500	NSM-2	19700	NSM-3	2000				
Lead	2	2	381	NSM-3	253	NSM-2	200-500	400			250
Magnesium	2	2	32500	NSM-3	20000	NSM-2					
Manganese	2	2	310	NSM-2	259	NSM-3					20000
Mercury	1	2	0.8	NSM-2	0.8	NSM-2	0.1	23	7	3	20
Nickel	2	2	983	NSM-2	233	NSM-3	13	1600	6900	21	2000
Potassium	2	2	1100	NSM-3	1090	NSM-2					
Selenium	2	2	89.8	NSM-2	4.4	NSM-3	2	390		3	
Silver	2	2	16.9	NSM-2	2.9	NSM-3		390			200
Sodium	2	2	364	NSM-3	343	NSM-2					
Vanadium	2	2	13.7	NSM-2	11.5	NSM-3	150	550			600
Zinc	2	2	2210	NSM-2	256	NSM-3	20	23000		42000	20000

Notes:
1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) TAGM 4046 = "Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives Levels", prepared by NYSDEC, January 24, 1994.
For organic compounds, a TOC of 1 percent was selected based on
3) HEAST - Values derived from USEPA Health Effects Summary Table.
4) HEAST value for chromium assumes trivalent chromium
5) USEPA Draft Soil Screening Guidance = Soil Screening Guidance, USEPA, EPA/540/R-94/101, December, 1994. It should be noted this document is in review draft form.

Table No 24b
Summary of Health Based On-Site Sump and Catch Basin Water ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's										
	Samples Detected	Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	USEPA Health Advisories Child/ One Day	Child/ Long Term	Adult Lifetime	NYSDEC Class C Water	USEPA AWQC Health	AWQC Aquatic Acute	AWQC Aquatic Chronic
Metals (ug/l)																
Aluminum	2	2	15700	NSM-4	2940	NSM-1	100						100		750	87
Antimony	2	2	111	NSM-4	13.2	NSM-1		6	6	1.5	1.5	3		146	88	30
Arsenic	1	2	4.1	NSM-1	4.1	NSM-1	25	50					190	0.0022		
Barium	2	2	918	NSM-4	198	NSM-1	1000	2000	2000			2000		1000		
Cadmium	2	2	4430	NSM-4	34.7	NSM-1	10	5	5	40	5	5	3.03	10	130	503
Calcium	2	2	191000	NSM-4	36800	NSM-1										
Chromium	2	2	4940	NSM-4	454	NSM-1	50	100	100	1000	200	100	824	170000	1700	210
Cobalt	2	2	266	NSM-4	11.6	NSM-1							5			
Copper	2	2	3580	NSM-4	261	NSM-1	200		1300				50	1000	16	12
Iron	2	2	1700000	NSM-4	5830	NSM-1	300						300	30		1000
Lead	2	2	696	NSM-4	457	NSM-1	25		0				27	50	8.2	3.2
Magnesium	2	2	17300	NSM-4	4870	NSM-1	35000									
Manganese	2	2	7980	NSM-4	288	NSM-1	500		200					50		
Mercury	1	2	2.4	NSM-1	2.4	NSM-1	2							0.144	2.4	0.012
Nickel	2	2	58700	NSM-4	840	NSM-1		100	100	1000	500	100	345	13.4	1400	100
Potassium	2	2	66800	NSM-4	2140	NSM-1										
Selenium	1	2	3.6	NSM-1	3.6	NSM-1	10	60	50				1	10	20	5
Silver	2	2	99.9	NSM-4	6.3	NSM-1	50			200	200	100	0.1	50	0.92	0.12
Sodium	2	2	193000	NSM-4	7770	NSM-1	20000									
Thallium	1	2	20	NSM-4	20	NSM-4		2	0.5	7	7	0.4	8	13	1400	40
Vanadium	2	2	102	NSM-4	3.7	NSM-1				80	30	20	14			
Zinc	2	2	63500	NSM-4	7610	NSM-1	300			6000	3000	2000	348	5000	98	88
Others																
Cyanide ug/l	1	2	30	NSM-1	30	NSM-1	100	200	200	200	200	200	5.2	200	22	52
Alkalinity mg/l	2	2	250	NSM-4	80	NSM-1										
Hardness mg/l	2	2	1100	NSM-4	540	NSM-1										

Notes:
1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) NYSDEC Class GA effluent standard are developed for water discharged to a Class GA groundwater.
3) Class C Surface Water Standards as promulgated in 6 NYCRR 703.
4) Class C Surface Water Standards for selected metals is based on the hardness of the water.
For the purposes of making these calculations, a hardness of 540 ppm was assumed
Chromium = exp (0.819 [ln (ppm hardness)] + 1.561)
Copper = exp (0.8545 [ln (ppm hardness)] - 1.465)
Lead = exp (1.266 [ln (ppm hardness)] - 4.661)
Nickel = exp (0.76 [ln (ppm hardness)] + 1.06)
Zinc = exp (0.85 [ln (ppm hardness)] + 0.50)
5) AWQC = USEPA Ambient Water Quality Criteria for Human Health; water and fish ingestion
6) Chromium is assumed to be trivalent chromium.
7) Silver Class C Surface Water Standard is for ionic silver.
8) USEPA MCLs and MCLGs apply to public water supplies
9) USEPA Health Advisories developed to be protective of adverse non-carcinogenic health effects associated with exposure of child for one day and longer term (approximately 7 years or 10 % of lifetime) and lifetime exposure for adults.

Table No 24b
Summary of Health Based On-Site Sump and Catch Basin Water ARARs/SCGs

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's									
	Samples Detected	Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class GA	USEPA MCL's	USEPA MCLG's	USEPA Health Advisories: Child/ One Day	Child/ Long Term	Adult Lifetime	NYSDEC Class C Water	USEPA AWQC Health	AWQC Aquatic Acute	AWQC Aquatic Chronic
Volatile Organics (ug/l)																
1,1-Dichloroethane	1	2	72000	NSM-4	61000	NSM-4	5									
1,1,1-Trichloroethane	1	2	7900	NSM-4	6500	NSM-4	5	200	200	100000	40000	200		1.03		
Toluene	1	2	5800	NSM-4	5800	NSM-4	5	1000	1000	20000	2000	1000		14300	17500	
Ethyl benzene	1	2	2700	NSM-4	2700	NSM-4	5	700	700	30000	1000	700		3000	32000	
Xylene (total)	1	2	15000	NSM-4	15000	NSM-4	5	10000	10000	40000	40000	10000				
Semi-Volatile Organics (ug/l)																
Phenol	1	2	360	NSM-4	360	NSM-4	1			6000	6000	4000		20900	10200	2560
4-Methylphenol	1	2	24	NSM-4	24	NSM-4	50									
Phenanthrene	1	2	2	NSM-1	2	NSM-1	50									
Anthracene	1	2	1	NSM-1	1	NSM-1	50									
Fluoranthene	1	2	5	NSM-1	5	NSM-1	50							310	3980	
Pyrene	1	2	5	NSM-1	4	NSM-1	50									
Butylbenzylphthalate	1	2	14	NSM-1	13	NSM-1	50	100	0							
Benzo (a) Anthracene	1	2	2	NSM-1	1	NSM-1	50									
Chrysene	1	2	3	NSM-1	3	NSM-1	50	0.2	0							
Bis (2-Ethylhexyl) Phthalate	1	2	10	NSM-1	10	NSM-1	50						0.6			
Benzo (b) Fluoranthene	1	2	5	NSM-1	4	NSM-1	50	0.2	0							
Benzo (k) Fluoranthene	1	2	3	NSM-1	2	NSM-1	50	0.2	0							
Benzo (a) Pyrene	1	2	3	NSM-1	3	NSM-1	50	0.2	0					2800		
Indeno (1,2,3-cd) Pyrene	1	2	3	NSM-1	2	NSM-1	50	0.4	0							
Benzo(g,h,i) Perylene	1	2	3	NSM-1	3	NSM-1	50									

Table 25
Summary of Health Based Ruby Gordon Basement
Equilibrium Vapor Concentration ARARs/SCGs

Renedial Invostigation
Stuart-Olver-Holtz
8-28-079
Henrietta, New York

Parameter	Summary of Occurrence										SCGs	
	Number of Samples Detected	Number of Samples Tested	Maximum (ug/l)	Location of Maximum	Dilution Based Vapor Concentration (1/2 Vol per hour) (mg/m³)	Dilution Based Vapor Concentration (1 Vol per day) (mg/m³)	Minimum (ug/l)	Location of Minimum	Dilution Based Vapor Concentration (1/2 Vol. per hour) (mg/m³)	Dilution Based Vapor Concentration (1 Vol per day) (mg/m³)	Air Guide - 1 SGC (mg/m³)	Air Guide - 1 AGC (mg/m³)
Volatile Organics												
Vinyl chloride	3	6	130	SUMP-2	0 0208	0 247	15	SUMP-3	0.0024	0.0285	1.3	0.00002
Chloroethane	1	6	8 8	SUMP-2	0.001408	0 01672	8 8	SUMP-2	0 001408	0 01672	63	13
Methylene chloride	5	6	120	SUMP-2	0 0192	0 228	4	SUMP-1	0 00064	0 0076		
1,1-Dichloroethene	4	6	120	SUMP-2	0.0192	0 228	3 6	SUMP-1	0 000576	0 00684	2	0 00002
1,1-Dichloroethane	6	6	750	SUMP-2	0 12	1.425	26	SUMP-1	0.00416	0.0494	96	0 5
1,2-Dichloroethene(Total)	6	6	760	SUMP-2	0.1216	1 444	5 2	SUMP-1	0 000832	0.00988	190	1.9
1,2-Dichloroethane	3	6	4 1	SUMP-2	0 000656	0 00779	3	SUMP-2,3	0.00048	0 0057	0 95	0 000039
1,1,1-Trichloroethane	6	6	3200	SUMP-2	0 512	6 08	15	SUMP-1	0 0024	0.0285	450	1
Trichloroethene	6	6	560	SUMP-2	0 0896	1 064	4 4	SUMP-1	0 000704	0 00836	33	0 00045
1,1,2 Trichloroethane	2	6	19	SUMP-2	0 00304	0 0361	8	SUMP-2,3	0 00128	0 0152	13	0 00006
Bromoform	2	6	15	SUMP-2	0 0024	0 0285	1	SUMP-3	0 00016	0 0019	1 2	0.0009
4-Methyl-2-Pentanone	2	6	21	SUMP-2	0 00336	0 0399	2	SUMP-3	0 00032	0 0038	48	0 48
Tetrachloroethene	6	6	180	SUMP-2	0 0288	0 342	4 6	SUMP-1	0 000736	0 00874	40	0 0012
1,1,2,2-Tetrachloroethane	2	6	23	SUMP-2	0 00368	0 0437	2	SUMP-3	0 00032	0 0038	1 6	0 00002
Xylenes (total)	1	6	1 6	SUMP-1	0 000256	0 00304	1 6	SUMP-1	0 000256	0 00304	100	0 3

Notes

1) Site occurrence includes maximum and minimum detected values of the respective test parameters
2) PEL = Permissible Exposure Level REL = Recommended Exposure Limits IDLH =Immediately Dangerous to Life or Health
3) TWA = Time Weighted Average Exposure Limit for a max 10 hour day (NIOSH) and max 8 hr day (OSHA) of a 40 hour work week
4) Ca = NIOSH identified occupational carcinogen
5) SGC - Short Term Guidance Criteria
6) AGC - Annual Guidance Criteria

Table No. 26
Qualitative Assessment of Ecological Risks in Surface Water

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

	Summary of Site Occurrence						SCG's		
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class C Water	AWQC Aquatic Acute	AWQC Aquatic Chronic
Volatile Organics (ug/l)									
Acetone	1	3	25	SW-3	25	SW-3			
Semi Volatile Organics (ug/l)									
Pentachlorophenol	1	3	4	SW-2	4	SW-2	0.4		
Fluoranthene	1	3	1	SW-1	1	SW-1		3980	
Pyrene	1	3	1	SW-1	1	SW-1			
Metals (ug/l)									
Aluminum	3	3	997	SW-2	158	SW-3	100		
Barium	3	3	183	SW-2	48.8	SW-3			
Calcium	3	3	101000	SW-1	63900	SW-3			
Chromium	1	3	2.2	SW-3	2.2	SW-3	5594	1700	210
Cobalt	1	3	2.4	SW-3	2.4	SW-3	5		
Copper	2	3	4.1	SW-3	2.8	SW-2	368	18	12
Iron	3	3	4850	SW-2	744	SW-1	300		100[illegible]
Lead	3	3	8.2	SW-3	7.4	SW-1	526	8.2	3.2
Magnesium	3	3	38500	SW-1	17400	SW-3			
Manganese	3	3	909	SW-2	185	SW-1			
Potassium	3	3	12800	SW-3	10400	SW-1			
Silver	1	3	2.4	SW-3	2.4	SW-3	0.1	0.92	0.12
Sodium	3	3	96900	SW-1	38700	SW-3			
Vanadium	1	3	3.7	SW-2	3.7	SW-2	14		
Zinc	3	3	80.1	SW-2	30.6	SW-1	2530	96	86
OTHERS (mg/l)		3							
Alkalinity	1	1	360	SW-2	360	SW-2			
Hardness	1	1	5300	SW-2	5300	SW-2			

Notes:

1) Site Occurrence includes maximum and minimum detected values of the respective test parameters.

2) Class C standards as promulgated in 6 NYCRR 703

Table No. 27
Qualitative Assessment of Ecological Risks in Surface Water Sediments

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's					
							NYSDEC Sediment Criteria			NOAA Memo SOMA52		USEPA Sediment Criteria
							Aquatic Toxicity		Wildlife			
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	Acute	Chronic	Bioaccumulation	ER-L	ER-M	
Volatile Organics (ug/kg)												
Methylene chloride	2	2	7	SED-2	3	SED-3						
1,1-Dichloroethane	1	2	6	SED-3	6	SED-3						
1,1,1-Trichloroethane	1	2	7	SED-3	7	SED-3						
Tetrachloroethene	1	2	3	SED-3	3	SED-3						
Semi-Volatile Organics (ug/kg)												
Naphthalene	1	2	610	SED-3	420	SED-3				140	2100	
2-Methylnaphthalene	1	2	490	SED-3	250	SED-3				65	670	
Acenaphthylene	2	2	630	SED-3	36	SED-2						
Acenaphthene	1	2	2700	SED-3	1400	SED-3		1400		150	650	1440
Dibenzofuran	1	2	1100	SED-3	600	SED-3						
Fluorene	1	2	2400	SED-3	1200	SED-3				35	640	
Phenanthrene	2	2	21000	SED-3	340	SED-2		1200		225	1380	1200
Anthracene	2	2	3400	SED-3	62	SED-2				85	960	
Carbazole	2	2	2900	SED-3	65	SED-2						
Di-n-Butylphthalate	1	2	180	SED-2	85	SED-2						
Fluoranthene	2	2	34000	SED-3	810	SED-2		10200		600	3600	10200
Pyrene	2	2	31000	SED-3	810	SED-2				350	2200	
Benzo (a) Anthracene	2	2	15000	SED-3	260	SED-2				230	1600	
Chrysene	2	2	18000	SED-3	450	SED-2				400	2800	
Bis (2-Ethylhexyl) Phthalate	2	2	4700	SED-3	210	SED-2		1995				
Di-n-Octyl Phthalate	1	2	350	SED-2	350	SED-2						
Benzo (b) Fluoranthene	2	2	27000	SED-3	530	SED-2						
Benzo (k) Fluoranthene	2	2	11000	SED-3	390	SED-2						
Benzo (a) Pyrene	2	2	17000	SED-3	750	SED-2				400	2500	
Indeno (1,2,3-cd) Pyrene	2	2	22000	SED-3	91	SED-2						
Dibenz (a,h) Anthracene	2	2	6900	SED-3	140	SED-2				60	260	
Benzo(g,h,i) Perylene	2	2	7900	SED-3	1200	SED-2						

Notes:
1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) NOAA Memo SOMA 52 = "The Potential for Biological Effects of Sediment Sorbed Contaminants Tested in National Status and Trends Program", NOAA, 1990. ER-L = Effects Range Low, ER-M - Effects Range Median.
3) NYSDEC Sediment Criteria = "Technical Guidance for Screening of Contaminated Sediments", NYSDEC, July 1994. A TOC value of 1 percent was assumed in deriving criteria.
4) USEPA Sediment Criteria based on a TOC of 1 percent.

Table No. 27
Qualitative Assessment of Ecological Risks in Surface Water Sediments

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's					
							NYSDEC Sediment Criteria			NOAA Memo SOMA52		USEPA Sediment Criteria
	Number of Samples Detected	Number of Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	Background (1)	Lowest Effect Level	Severe Effect Level	ER-L	ER-M	
Metals (mg/kg)												
Aluminum	2	2	10600	SED-2	4540	SED-3						
Antimony	1	2	5.1	SED-2	5.1	SED-2		2	25	2	25	
Arsenic	2	2	6.2	SED-2	1.4	SED-3	7.5	6	33	33	85	
Barium	2	2	63.2	SED-2	22.1	SED-3	300					
Beryllium	1	2	0.59	SED-2	0.59	SED-2	0.16					
Cadmium	1	2	1.6	SED-3	1.6	SED-3	1	0.6	9	5	9	
Calcium	2	2	7590	SED-3	7020	SED-2						
Chromium	2	2	35.5	SED-2	14.1	SED-3	10	26	110	80	145	
Cobalt	2	2	10.1	SED-2	3.7	SED-3	30					
Copper	2	2	68.9	SED-3	17.1	SED-2	25	16	110	70	390	
Iron	2	2	51000	SED-2	8970	SED-3	2000	20000	40000			
Lead	2	2	61.5	SED-3	41.2	SED-2	200-500	31	110	35	110	
Magnesium	2	2	4140	SED-3	4090	SED-2						
Manganese	2	2	725	SED-2	119	SED-3		460	1100			
Nickel	2	2	26.2	SED-2	11.2	SED-3	13	16	50	30	50	
Potassium	2	2	1850	SED-2	1210	SED-3						
Silver	2	2	1.1	SED-2	0.69	SED-3		1	2.2	1	2.2	
Sodium	2	2	529	SED-3	2.54	SED-2						
Vanadium	2	2	23.8	SED-2	13.9	SED-3	150					
Zinc	2	2	844	SED-3	442	SED-2	20	120	270	120	270	

Notes:
1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) NOAA Memo SOMA 52 = "The Potential for Biological Effects of Sediment Sorbed Contaminants Tested in National Status and Trends Program", NOAA, 1990. ER-L = Effects Range Low, ER-M - Effects Range Median
3) NYSDEC Sediment Criteria = "Technical Guidance for Screening of Contaminated Sediments", NYSDEC, July 1994. A TOC value of 1 percent was assumed in deriving criteria.
4) USEPA Sediment Criteria based on a TOC of 1 percent.

Table No. 28
Qualitative Risk Assessment of Ecological Risks in Overburden Groundwater

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's		
	Samples Detected	Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class C Water	USEPA AWQC Aquatic Acute	USEPA AWQC Aquatic Chronic
• Volatile Organics (ug/l)									
Vinyl chloride	9	32	11000	MW-5	2.7	OW-11S			
Chloroethane	1	32	21	OW-6S	21	OW-6S			
Methylene chloride	6	32	350	MW-2	3.9	MW-3			
Acetone	1	32	9.8	OW-8S	9.8	OW-8S			
1,1-Dichloroethene	16	32	900	OW-6S	3.6	OW-8S		11600	
1,1-Dichloroethane	18	32	10000	MW-2	8.6	OW-11S			
1,2-Dichloroethene (total)	16	32	10000	MW-2	2.9	OW-8S			
Chloroform	1	32	7.2	OW-10S	7.2	OW-10S		28900	1240
1,1,1-Trichloroethane	14	32	24000	OW-6S	3.1	OW-8S			
Trichloroethene (TCE)	16	32	140000	OW-7S	1.4	OW-8S		45000	219000
1,1,2-Trichloroethane	2	32	53	MW-5	12	OW-6S		18000	94000
Tetrachloroethene	10	32	8800	MW-5	3.3	OW-8S			
Semi-Volatile Organics (ug/l)									
Phenol	2	17	9	OW-7S	8	MW-5		10200	2560
4-Methyl Phenol	1	17	1.4	OW-7S	1.4	OW-7S			
2-Methylphenol	2	17	9	OW-7S	7.9	OW-7S			
Isophorone	2	17	23	OW-7S	19	OW-7S		11700	
Dimethyl Phthalate	1	17	0.74	OW-7S	0.74	OW-7S			
Di-n-butyl phthalate	2	17	2	OW-9S	1	OW-LS			
Diethyl Phthalate	1	17	1.5	OW-7S	1.5	OW-7S			
Bis(2-ethylhexyl)phthalate	9	17	3	OW-9S	1	OW--1S,2S &4S	0.6		

Table No. 28
Qualitative Risk Assessment of Ecological Risks In Overburden Groundwater

Remedial Investigation
Stuart-Olver-Holtz
Site No. 8-28-079
Henrietta, New York

Parameter	Summary of Site Occurrence						SCG's		
	Samples Detected	Samples Tested	Maximum	Location of Maximum	Minimum	Location of Minimum	NYSDEC Class C Water	USEPA AWQC Aquatic Acute	USEPA AWQC Aquatic Chronic
Metals (ug/l)									
Aluminum	16	16	14900	OW-10S	28.9	OW-8S	100	750	87
Arsenic	13	32	10.8	OW-4S	3.1	OW-11S	190		
Barium	32	32	305	OW-10S	31.5	OW-8S			
Cadmium	7	32	5.5	OW-7S	2	OW-1S	3.03	130	503
Calcium	16	16	301000	OW-10S	61000	OW-7S			
Chromium	19	32	39.1	OW-5S	2	OW-7S	577.5	1700	210
Cobalt	12	16	19.1	OW-10S	2.8	101-OW	5		
Copper	24	32	56.9	OW-10S	2.6	101-OW	34.5	18	12
Iron	16	16	96700	OW-1S	320	OW-8S	300		1000
Lead	21	32	61.8	OW-LS	1.2	OW-3S	15.7	8.2	3.2
Magnesium	16	16	825000	MW-3	43400	OW-7S			
Manganese	16	16	1420	OW-10S	85.4	OW-8S			
Mercury	1	32	0.23	OW-11S	0.23	OW-11S		2.4	0.012
Nickel	23	32	169	OW-5S	15.6	MW-5	248	1400	100
Potassium	16	16	27500	OW-10S	2760	MW-5			
Silver	5	32	1.9	OW-LS	1.4	OW-7S	0.1	0.92	0.2
Sodium	16	16	168000	OW-10S	21200	OW-7S			
Vanadium	8	16	28.2	OW-10S	2.6	OW-7S	14		
Zinc	32	32	169	OW-10S	9.6	OW-6S	240	96	86
Others									
Cyanide (ug/l)	2	16	11.5	OW-2S	11.3	OW-1S	5.2	22	52
Alkalinity, as CaCO3 (mg/l)	16	16	490	OW-LS	180	OW-4S			
Hardness, as CaCO3 (mg/l)	16	16	970	OW-11S	350	OW-7S			

Notes:

1) Site occurrence includes maximum and minimum detected values of the respective test parameters.
2) The total number of samples tested includes two rounds of sampling the same wells for VOCs and selected metals. One semi-VOC sample was also collected during the second round from well OW-7S.
3) AWQC = USEPA Ambient Quality Criteria for Human Health; water and fish ingestion.
4) Class C Surface Water Standards as promulgated in 6 NYCRR 703.
5) Class C Surface Water Standards for selected metals are based on the hardness of the water. For the purposes of making these calculations, a hardness of 350 ppm was assumed
   Chromium = exp (0.819 [ln (ppm hardness)] + 1.561)
   Copper = exp (0.8545 [ln (ppm hardness)] - 1.465)
   Lead = exp (1.266 [ln (ppm hardness)] - 4.661)
   Nickel = exp (0.76 [ln (ppm hardness)] + 1.06)
   Zinc = exp (0.85 [ln (ppm hardness)] + 0.50)
6) Chromium is assumed to be trivalent chromium.
7) Silver Class C Surface Water Standard is for ionic silver.

APPENDIX I

ORDER OF MAGNITUDE COST ESTIMATE AND

COMPARISON LETTER DATED MAY 7, 2002

Shaw Environmental & Infrastructure, Inc.

13 British American Boulevard
Latham, NY 12110-1405
518.783.1996
Fax 518.783.8397

Shaw The Shaw Group Inc.™

May 7, 2002 Project #: 784222 - 03070000

Mr. Gary Kline, P.E.
New York State Department of Environmental Conservation
Bureau of Western Remedial Action
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7017

Re: Order of Magnitude Cost Estimate and Comparison
Groundwater Cutoff System
Stuart-Olver-Holtz Site, Henrietta, NY

Dear Mr. Kline:

This letter documents Shaw Environmental and Infrastructure, Inc.'s (Shaw E & I) research in response to our teleconference with you on April 25, 2002. Specifically, this correspondence describes and estimates the costs associated with several schemes to intercept and passively treat dissolved Volatile Organic Compounds (VOCs) migrating from the referenced site toward the basement sumps at the adjacent Ruby Gordon's Furniture building. Shaw E&I understands that preference was to be given to:

- Passive means of interception (in lieu of any pumping or active schemes); and
- Systems that are do not require site upkeep or operation and maintenance expenditures (including treatment of pumped effluent).

In consultation with NYSDEC, Shaw E&I understands that:

indicates 19,000 gallons were discharged in calendar year 2000 (average flow rate of 0.04 gpm of 52 gallons per day).

Because the analytical results from Sump #3 are post air striping, it is unknown what the concentrations entering this sump are. To better understand the approximate water quality in the sumps, IT reviewed the available file documentation on the sump (attached). Based upon this tabulation, the sump groundwater is estimate to contain an average of approximately 317 ug/L of total VOCs.

With these preferences and site conditions in mind, Shaw E&I considered four alternatives, briefly described below:

1. Engineering Barrier – Steel sheet pile wall – installation of steel interlocked sheet pile barrier;
2. Engineering Barrier – Grout Wall – surficial cut and installation of bentonite impermeable wall;
3. Bioaugmentation Wall – Sodium Lactate Wall – emplacement of carbon amendments using injection wells to provide a subsurface reductive zone. Periodically, these addition points will have to be re-dosed with additional amendment fluids; and
4. Granular Activated Carbon (GAC) Slurry Injection Wall – emplacement (via pressure addition or large diameter offset augered borings filled with) carbon.

A matrix of relative advantages and disadvantages and approximate costs for each follows for your use and consideration. Shaw E&I must note that the costs provided represent approximate costs only and do not provide construction estimates or bid quantities.

If you have any questions or comments, please do not hesitate to contact Rick Lewis at 508-435-9561 or myself at 518-783-6088 ext. 215.

Stuart-Olver-Holtz Site, Henrietta NY
GROUNDWATER BARRIER INSTALLATION
NET PRESENT WORTH
COMPARISON OF ALTERNATIVES

Alternative	Description	Estimated Initial (Capital) Cost	Estimated Annual Operating Cost	Years of Operation	Present Worth Factor	Present Worth of Annual Costs	Total Present Worth
1	Engineering Barrier - Steel Sheet Piling	$282,895	$ -	10	9.973	$0	**$282,895**
2	Engineering Barrier - Slurry Wall	$451,708	$ -	10	9.973	$0	**$451,708**
3	Sodium Lactate Injection	$87,655	$15,752	10	9.973	$157,088	**$244,743**
4	Granular Activated Carbon (GAC) Slurry Injection	$349,879	$ -	10	9.973	$0	**$349,879**

ASSUMPTIONS:

Calculations based on Interest rate: 5.00%

The interest rate is a net rate accounting for inflation costs

Barriers are 250 ft long across the area of influence of sump pumps in adjacent property

NOTES:

1) Initial costs have been estimated and are presented on the attached cost estimate forms.
These costs are for comparison purposes, actual installation costs may vary and will depend on final design details.
2) Operating costs have been estimated and are presented on the attached cost estimate forms.
Annual operating costs for alternatives include operation and maintenance, but exclude sampling.
3) Years of Operation is estimated
4) No contingencies are included in the estimates.
5) Treatment barriers - Lactate Injection and GAC - may be reduced to 200 ft or less in final design reducing total costs of those alternatives

Stuart-Olver-Holtz Site, Henrietta NY
GROUNDWATER BARRIER INSTALLATION
NET PRESENT WORTH
COMPARISON OF ALTERNATIVES

Alternative	Description	PROs	CONs
1	Engineering Barrier - Steel Sheet Piling	1. Low Cost 2. No annual costs 3.Short installation period 4. Will provide protection during future oxidation or biological treatments to source area 5. Barrier effect is immediate	1. Potential vibration damage to adjacent structures 2. Noise during installation 3. Material handling in the area may be difficult 4. Contamination that is already past the barrier location will persist for several years before treatment of sump waters can be discontinued.
2	Engineering Barrier - Slurry Wall	1. No annual costs 2. Will provide protection during future oxidation or biological treatments to source area 3. Barrier effect is immediate	1. Soil disposal may cost more than anticipated 2. Contamination that is already past the barrier location will persist for several years before treatment of sump waters can be discontinued. 3. Material handling in the area may be difficult
3	Sodium Lactate Injection	1. Low initial cost 2. Annual replenishment maybe reduced from estimated amount as plume treatment progresses 3. Barrier technology matches what is proposed for site plume treatment 4. Barrier installation will likely treat contamination between barrier and sumps as lactate is pulled toward the sumps 5. Barrier length and cost may be reduced in final design	1. Annual replenishment of lactate required 2. Treatment chemicals may be pumped into adjacent sumps
4	Granular Activated Carbon (GAC) Slurry Injection	1. Single installation	1. High contaminant concentration in a soil layer may cause breakthrough at that layer

Contaminant Concentrations - Offsite Sumps
Stuart - Olver - Holtz
Henrietta, New York
All Results in ug/L Unless Otherwise Noted

Sump #1 Untreated	01/10/2000	02/02/2000	03/28/2000	04/25/2000	05/19/2000	06/16/2000	07/25/2000	08/09/2000	09/26/2000
Chlorinated VOCs									
1,1,1-TCA (Y636)	135	22	1,723	35	34	163	18	7	21
1,1-DCA (Y625)	11		170	6	24	17	3		4
1,1-DCE (Y627)									
Cis-1,2-DCE (Y628)									
PCE (Y635)	9	3	45	3	3	11	2	3	3
TCE (Y638)	4	2	168	4	3	5	2		3
Subtotal VOCs	159	28	2,106	47	63	196	25	9	31
Additional Compounds									
Benzene	0	0	0	0	0	0	0	0	0
Chloroform	0	0	0	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0	0	0	0
Total VOCs	159	28	2,106	47	63	196	25	9	31

Sump #3 Treated	01/10/2000	02/02/2000	03/28/2000	04/25/2000	05/19/2000	06/16/2000	07/25/2000	08/09/2000	09/26/2000
Chlorinated VOCs									
1,1,1-TCA	3,261	56	374	292	287	396	9	16	12
1,1-DCA	325		17	17	20	22		3	
1,1-DCE									
Cis-1,2-DCE									
PCE	206	5	34	15	13	37	5	2	5
TCE	40		5	2	8				3
Subtotal VOCs	3,832	61	4	328	328	455	14	21	20
Additional Compounds									
Benzene	0	0	0	0	0	0	0	0	0
Chloroform	0	0	0	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0	0	0	0
Total VOCs	3,832	61	4	326	328	455	14	21	20

Contaminant Concentrations - Offsite Sumps
Stuart - Olver - Holtz
Henrietta, New York

All Results in ug/L Unless Otherwise Noted

Sump #1 Untreated	10/16/2000	11/15/2000	12/15/2000	01/09/2001	02/16/2001	02/15/2001	03/13/2001	Statistics Maximum	Average	Minimum
Chlorinated VOCs										
1,1,1-TCA (Y636)	24	10	33	20	244	296	41	7	150	1,723
1,1-DCA (Y625)	5	2	10		32	0	0	0	11	170
1,1-DCE (Y627)				4	36	22	3	3	16	36
Cis-1,2-DCE (Y628)				4	7	5	0	0	4	7
PCE (Y635)	2		2	2	14	10	0	0	6	45
TCE (Y638)	3		2		5	2	0	0	2	168
Subtotal VOCs	33	12	48	29	338	335	44	-	190	-
Additional compounds										
Benzene	0	0	0	0	0	0	0	0	0	0
Chloroform	0	0	0	0	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0	0	0	0	0
Total VOCs	33	12	48	29	338	335	44	-	190	-

Sump #3 Treated	10/16/2000	11/15/2000	12/15/2000	01/09/2001	02/16/2001	02/15/2001	03/13/2001	Statistics Maximum	Average	Minimum
Chlorinated VOCs										
1,1,1-TCA	15	2	348	142	766	75	594	2	394	3,261
1,1-DCA			13	0	27	0	0	0	7	325
1,1-DCE				7	62	2	24	2	24	62
Cis-1,2-DCE				0	0	0	0	0	0	0
PCE	3		8	5	32	3	21	2	16	206
TCE	3			0	4	0	4	0	2	40
Subtotal VOCs	21	2	368	155	891	81	643	-	443	-
Additional compounds										
Benzene	0	0	0	0	4	0	0	0	1	4
Chloroform	0	0	0	0	0	0	0	0	0	0
Methylene Chloride	0	0	0	0	0	0	0	0	0	0
Total VOCs	21	2	368	155	896	81	643	-	444	-

Alternative 1 - Cost Estimate - Engineering Barrier - Sheet Piling

Stuart-Olver-Holtz Site
Henrietta, New York
784222 03070000

Dated: April 29, 2002
Prepared by: Jennifer Wills

Item	Quantity	Units	Unit Cost	Total Cost
1.0 REMEDIAL SYSTEM INSTALLATION - ESTIMATED INITIAL COSTS				
Sheet Piling and Monitoring Well Installation				
Remove Asphalt Covering	500	cy	$5.00	$2,500
Sheet Piling	7500	sf	$30.00	$225,000
Contingency for Water Tight Gaskets	1	LS	$22,500.00	$22,500
Monitoring Well Install, screened 10 - 20' HSA)	2	each	$1,000.00	$2,000
Monitoring Well Install, screened 25' - 35' HSA)	2	each	$1,200.00	$2,400
Road Boxes & Assoc. Install	4	each	$200.00	$800
Utilities (5% of sheet piling and monitoring well install costs)	1	LS	$12,760.00	$12,760
SUBTOTAL				**$267,960**
Labor				
Technician (assume one technician for 10 days plus 5 hrs prep)-	105	hours	$47.00	$4,935
Project Director	4	Hours	$140.00	$560
Project Manager / LSP	16	Hours	$120.00	$1,920
Senior Project Engineer/Geologist -	20	Hours	$95.00	$1,900
Staff Project Engineer/Geologist -	50	Hours	$74.00	$3,700
PMA/Secretary	10	Hours	$52.00	$520
SUBTOTAL				**$13,535**
Equipment/Truck Rental				
PID/FID	10	each	$80.00	$800
Truck	10	days	$60.00	$600
SUBTOTAL				**$1,400**
TOTAL CONSTRUCTION COST				**$282,895**
2.0 YEARLY OPERATION and MAINTENANCE				
Item	Quantity	Units	Unit Cost	Total Cost
TOTAL O&M COST				**$ -**

CONSTRUCTION ASSUMPTIONS

1. Sheet Piling Rate	**1000**	**SF/day**
2. Sheet Piling Time	**8**	**days**

Alternative 2 - Cost Estimate - Engineering Barrier - Slurry Wall

Stuart-Olver-Holtz Site
Henrietta, New York
784222 03070000

Dated: April 29, 2002
Prepared by: Jennifer Wills

Item	Quantity	Units	Unit Cost	Total Cost
1.0 REMEDIAL SYSTEM INSTALLATION - ESTIMATED INITIAL COSTS				
Slurry Trench and Monitoring Well Installation				
Remove Asphalt Covering	500	CY	$5.00	$2,500
Slurry Trench	7500	SF	$44.50	$333,750
Monitoring Well Install, screened 10 - 20' HSA)	2	each	$1,000.00	$2,000
Monitoring Well Install, screened 25' - 35' HSA)	2	each	$1,000.00	$2,000
Road Boxes & Assoc. Install	4	each	$200.00	$800
Utilities (5% of Slurry and Monitoring Well Install Costs)	1	LS	$17,052.50	$17,053
SUBTOTAL				**$358,103**
Waste Disposal				
Soils (non-hazardous)	1350	tons	$45.00	$60,750
Soils Analytical	1	LS	$1,000.00	$1,000
SUBTOTAL				**$61,750**
IT Labor				
Technician (assume one technician for 34 days, 5hrs. p	345	hours	$47.00	$16,215
Project Director	5	Hours	$140.00	$700
Project Manager / LSP	24	Hours	$120.00	$2,880
Senior Project Engineer/Geologist -	30	Hours	$120.00	$3,600
Staff Project Engineer/Geologist -	60	Hours	$74.00	$4,440
PMA/Secretary	15	Hours	$52.00	$780
SUBTOTAL				**$28,615**
Equipment/Truck Rental				
PID/FID	2	each	$600.00	$1,200
Truck	34	days	$60.00	$2,040
SUBTOTAL				**$3,240**
TOTAL CONSTRUCTION COST				**$451,708**
2.0 YEARLY OPERATION and MAINTENANCE				
Item	Quantity	Units	Unit Rate	Total Cost
TOTAL O&M COST				$ -

CONSTRUCTION ASSUMPTIONS

1. Soils excavated will be transported and disposed off as non-hazardous.
2. Slurry Trench Rate 120 SF/day
3. Length of Time for Slurry Trench for one crew 63 days
4. Assume two crews will perform slurry wall installation with one technician providing

Alternative 3 - Cost Estimate - Sodium Lactate Injection

Stuart-Olver-Holtz Site
Henrietta, New York
784222 03070000

Dated: April 29, 2002
Prepared by: Jennifer Wills

Item	Quantity	Units	Unit Cost	Total Cost
1.0 REMEDIAL SYSTEM INSTALLATION - ESTIMATED INITIAL COSTS (Includes initial injection of sodium lactate)				
Well Installation				
Injection Wells, Screened 0 -10 ft, Geoprobe	14	each	$700.00	$9,800
Injection Wells, Screened 10 -20 ft, HSA	14	each	$1,000.00	$14,000
Injection Wells, Screened 20 -30 ft, HSA	14	each	$1,000.00	$14,000
Monitoring Well Install, screened 10 - 20' HSA)	2	each	$1,000.00	$2,000
Monitoring Well Install, screened 25' - 35' HSA)	2	each	$1,000.00	$2,000
Road Boxes & Assoc. Install	46	each	$200.00	$9,200
Utilities (5% of well installation and material cost	1	LS	$2,672.00	$2,672
SUBTOTAL				$53,672
Materials for Sodium Lactate Injection				
Pump	8	days	$50.00	$400
PVC piping and valving	42	each	$20.00	$840
Sodium Lactate	1500	pounds	$0.80	$1,200
SUBTOTAL				$2,440
Waste Disposal				
Soils (non-hazardous)	4.1	tons	$45.00	$183
Soils Analytical	1	LS	$1,000.00	$1,000
SUBTOTAL				$1,183
Labor/Admin				
Technician	320	Hours	$47.00	$15,040
Project Director	4	Hours	$140.00	$560
Project Manager / LSP	24	Hours	$120.00	$2,880
Senior Project Engineer/Geologist -	30	Hours	$120.00	$3,600
Staff Project Engineer/Geologist -	60	Hours	$74.00	$4,440
PMA/Secretary	15	Hours	$52.00	$780
SUBTOTAL				$27,300
Equipment/Truck Rental				
PID/FID	2	each	$600.00	$1,200
Truck	31	days	$60.00	$1,860
SUBTOTAL				$3,060
TOTAL CONSTRUCTION COST				$87,655
2.0 YEARLY SODIUM LACTATE INJECTION (years 2 - 10)				
Item	Quantity	Units	Unit Cost	Total Cost
Materials				
Pump	8	days	$50.00	$400
PVC piping and valving	42	each	$20.00	$840
Sodium Lactate	1500	pounds	$0.80	$1,200
Utilities (5% of material costs)	1	LS	$122.00	$122
SUBTOTAL				$2,562
Labor				
Technician (assumes two technicians for eight d	170	hours	$47.00	$7,990
Project Director	1	Hours	$140.00	$140
Project Manager / LSP	8	Hours	$120.00	$960
Senior Project Engineer/Geologist -	10	Hours	$120.00	$1,200
Staff Project Engineer/Geologist -	20	Hours	$74.00	$1,480
PMA/Secretary	5	Hours	$52.00	$260
SUBTOTAL				$12,030

Alternative 4 - Cost Estimate - Granular Activated Carbon Slurry Injection

Stuart-Olver-Holtz Site
Henrietta, New York
784222 03070000

Dated: April 29, 2002
Prepared by: Jennifer Wills

Item	Quantity	Units	Unit Cost	Total Cost
1.0 REMEDIAL SYSTEM INSTALLATION - ESTIMATED INITIAL COSTS				
Well Installation and GAC Injection				
Injection Wells, 30-inch HSA	25	each	$6,000.00	$150,000
Monitoring Well Install, screened 10 - 20' HSA)	2	each	$1,000.00	$2,000
Monitoring Well Install, screened 25' - 35' HSA)	2	each	$1,000.00	$2,000
Road Boxes & Assoc. Install for 30-inch well	25	each	$750.00	$18,750
Road Boxes & Assoc. Install for 2-inch well	4	each	$200.00	$800
Vactor Truck Rental	13	days	$1,500.00	$19,500
Frac Tank, 6 Frac Tanks	104	days	$30.00	$3,120
Materials for GAC addition	25	each	$200.00	$5,000
Purchase of GAC	72000	pounds	$1.25	$90,000
Utilities (5% of well installation and GAC injection costs)	1	LS	$14,558.50	$14,559
SUBTOTAL				**$305,729**
Waste Disposal				
Soils (non-hazardous)	300	tons	$45.00	$13,500
Soils Analytical	1	LS	$1,000.00	$1,000
SUBTOTAL				**$14,500**
Labor/Admin				
Technician (15 Days for well installation and 13 for GAC ad	290	Hours	$47.00	$13,630
Project Director	5	Hours	$140.00	$700
Project Manager / LSP	24	Hours	$120.00	$2,880
Senior Project Engineer/Geologist -	30	Hours	$120.00	$3,600
Staff Project Engineer/Geologist -	70	Hours	$74.00	$5,180
PMA/Secretary	15	Hours	$52.00	$780
SUBTOTAL				**$26,770**
Equipment/Truck Rental				
PID/FID	2	each	$600.00	$1,200
Truck	28	days	$60.00	$1,680
SUBTOTAL				**$2,880**
TOTAL CONSTRUCTION COST				**$349,879**
2.0 YEARLY OPERATION and MAINTENANCE				
Item	Quantity	Units	Unit Cost	Total Cost
TOTAL O&M				$ -

CONSTRUCTION ASSUMPTIONS

1. Drill cuttings will be transported and disposed off as non-hazardous.

2. Well Installation Rate Wells/Day

3. Well GAC Addition Rate Wells/Day

TABLES

Table 1
Soil Gas Survey Analytical Results

NYSDEC - SOH
Henrietta, New York

Analyte	Soil Gas Survey Results (mg/cu.m.)								
	GP-1	GP-2	GP-3	GP-4	GP-6	GP-10	GP-12	GP-19	GP-20
PID Reading	180	213	158	88.4	33	51.7	48	28.7	620
Vinyl Chloride	4	7	24		0.8 J		2	0.7 J	0.8 J
Chloroethane	3		28		2			0.5 J	
1,1-Dichloroethene	890 E	310 E	130 E	5	25	150 E	2	20	640 E
Acetone	41 E	6	3		3				
Methylene Chloride	62 E	4	1		0.5 J	0.4 J		0.5 J	14
trans-1,2-Dichloroethene		1	1					0.8 J	
Methyl tert-butyl ether		1	0.8 J	0.7 J	0.4 J	0.2 J	0.2 J		0.4 J
1,1-Dichloroethane	180 E	49 E	83 E	0.9 J	2	6	0.3 J	6	62 E
cis-1,2-Dichloroethene	2	130 E	130 E	2	14	0.5J	1	20	11
1,1,1-Trichloroethane	910 E	640 E	400 E	39	100 E	120 E	22	190 E	710 E
Benzene	0.2 J	0.2	0.3 J	0.3 J				0.2 J	
Trichloroethene	25 B	98 EB	86 EB	5 B	8 B	3 B	2 B	27	20
Toluene	3	2	2	2	1	1	0.9	0.8	2
Tetrachloroethene	22	19	7	2	10	4	3	2	6
Ethylbenzene	0.3 J	0.2 J	0.3 J	0.3 J	0.3 J	0.3 J		0.2 J	0.3 J
Xylene (total)	0.9 J	0.9 J	1	1	0.8 J	1	0.8 J	1	1
1,2,4-Trimethylbenzene			0.2 J	0.3 J					
Total BTEX	*4.4*	*3.3*	*1.8*	*3.6*	*2.1*	*2.3*	*1.7*	*2.2*	*3.3*
Total Ethenes	*943*	*564*	*378*	*14*	*57.8*	*157.5*	*10*	*72.5*	*677.8*
Total Ethanes	*1093*	*689*	*511*	*39.9*	*104*	*128*	*22.3*	*196.5*	*772*
Total VOCs	*2143.4*	*1567*	*895.8*	*58.5*	*167.8*	*288.4*	*24.2*	*271.7*	*1453.1*
Method Detection Limit	1	1	1	1	1	1	1	1	1

Notes:
1) Soil gas samples analyzed by Mitkem Corporation.
2) PID - Photoionization Detector.
3) J - Refers to an estimated value, concentration less than calibration curve.
4) B - Compound detected in method blank.
5) E - Refers to an estimated value, concentration in excess of calibration curve.
6) No value refers to a concentration below the detection limit.
7) All other VOCs below detection limits.

Table 1
Soil Gas Survey Analytical Results

NYSDEC - 100 Oser Avenue
Hauppauge, New York

Analyte	Soil Gas Survey Results (ug/cu.m.)			
	GP-21	**GP-22**	**GP-24**	**GP-28**
PID Reading	24.8	64.7	140.6	NA
Vinyl Chloride		2	12	1
Chloroethane		80 E	4	0.8 J
1,1-Dichloroethene	64 E	160 E	150 E	43 E
Acetone				
Methylene Chloride	0.6 J	4	5	7
trans-1,2-Dichloroethene				
Methyl tert-butyl ether				0.2 J
1,1-Dichloroethane	120 E	130 E	34	30
cis-1,2-Dichloroethene	0.8 J	2	120 E	11
1,1,1-Trichloroethane	320 E	470 E	350 E	200 E
Benzene				
Trichloroethene	3	2	44 E	5
Toluene	0.7 J	0.7 J	0.9 J	0.9 J
Tetrachloroethene	4	2	2	2
Ethylbenzene				
Xylene (total)	0.8 J	0.7 J	0.8 J	0.8 J
1,2,4-Trimethylbenzene				
Total BTEX	*1.5*	*1.4*	*1.7*	*1.7*
Total Ethenes	*71.8*	*168*	*328*	*62*
Total Ethanes	*440*	*680*	*388*	*230.8*
Total VOCs	*513.3*	*853.4*	*722.7*	*301.7*
Method Detection Limit	1	1	1	1

Notes:
1) Soil gas samples analyzed by Mitkem Corporation.
2) PID - Photoionization Detector.
3) J - Refers to an estimated value, concentration less than calibration curve.
4) B - Compound detected in method blank.
5) E - Refers to an estimated value, concentration in excess of calibration curve.
6) No value refers to a concentration below the detection limit.
7) All other VOCs below detection limits.

Table 2
Soil Sample Analytical Results

NYSDEC - SOH
Henrietta, New York

Boring ID / Depth / PID Reading	TAGM 4046 Allowable Limits	Soil Sample Survey Results (ug/kg)						
Boring ID		**GP-3**	**GP-13**	**GP-20**	**GP-21**	**GP-24**	**GP-26**	**GP-28**
Depth		**6.5**	**6**	**7.5**	**3**	**6.5**	**6.5**	**6.5**
PID Reading		73.6	118.3	241	94	238	91.7	122
1,1-Dichloroethene	400					**460**	**450**	**4600**
Acetone	200	6		5 J	26			
Methylene Chloride	100	4 JB	6 B		7 B			
Methyl tert-butyl ether		12	2 J	2 J	1 J			
2-Butanone	300			4 J	3 J			
1,1-Dichloroethane	200	2 J			8			
cis-1,2-Dichloroethene		13	13		2 J	160 J	510	
1,1,1-Trichloroethane	800	5 J	21	33	3 J	**4100**	**4200**	**42000**
Trichloroethene	700	19	26	1 J		**3800**	590	**830 J**
Toluene	1500	3 J	3 J	1 J	4 J	62 J		
1,1,2-Trichloroethane			2 J	1 J				
Tetrachloroethene	1400		6	1 J	3 J	94 J	130 J	
Ethylbenzene					4 J			
Xylene (total)	1200	5 J	3 J	1 J	12		180 J	
Isopropylbenzene					2 J			
1,2,4-Trimethylbenzene		2 J		3 J	6		84 J	
sec-Butylbenzene					20			
Naphthalene				2 J			180 J	
Total BTEX		*8*	*6*	*2*	*9*	*62*	*180*	
Total Ethenes		*32*	*45*	*2*	*5*	*4514*	*1680*	*5430*
Total Ethanes		*7*	*23*	*33*	*11*	*4100*	*4200*	*42000*
Total VOCs		*69*	*82*	*54*	*101*	*8676*	*6324*	*47430*
Method Detection Limit		6	5	6	6	270	270	1,700

Notes:
1) Soil gas samples analyzed by Mitkem Corporation.
2) PID - Photoionization Detector.
3) J - Refers to an estimated value, concentration less than calibration curve.
4) B - Compound detected in method blank.
5) E - Refers to an estimated value, concentration in excess of calibration curve.
6) No value refers to a concentration below the detection limit.
7) All other VOCs below detection limits.

REFERENCE:

BASE MAP SOURCE: YEC, INC.

Shaw E & I, Inc.

NYSDEC-SOH

FIGURE 1
SITE MAP

TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

DRAWING NUMBER	784222-B5
APPROVED BY	
CHECKED BY	
DRAWN BY	S. SHKOLNIK 07-29-02
OFFICE	ALBANY, NY

Image: .
Xref: .

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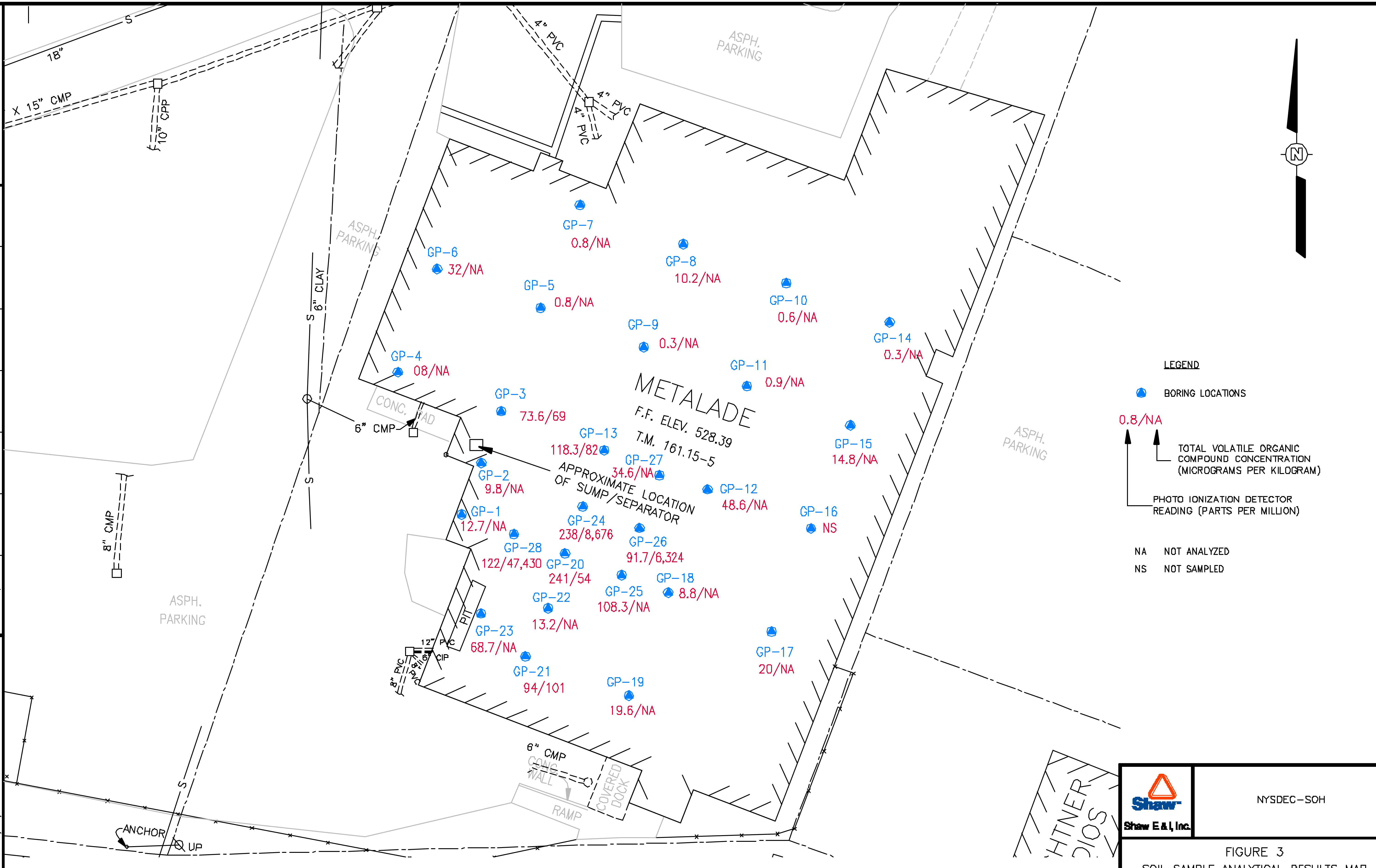
Format Revised: 12/15/99



REFERENCE:
BASE MAP SOURCE: YEC, INC.

Shaw E & I, Inc.

NYSDEC-SOH

FIGURE 3
SOIL SAMPLE ANALYTICAL RESULTS MAP

TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

DRAWING NUMBER	784222-B7
APPROVED BY	
CHECKED BY	
DRAWN BY	S. SHKOLNIK 07-30-02
OFFICE	ALBANY, NY

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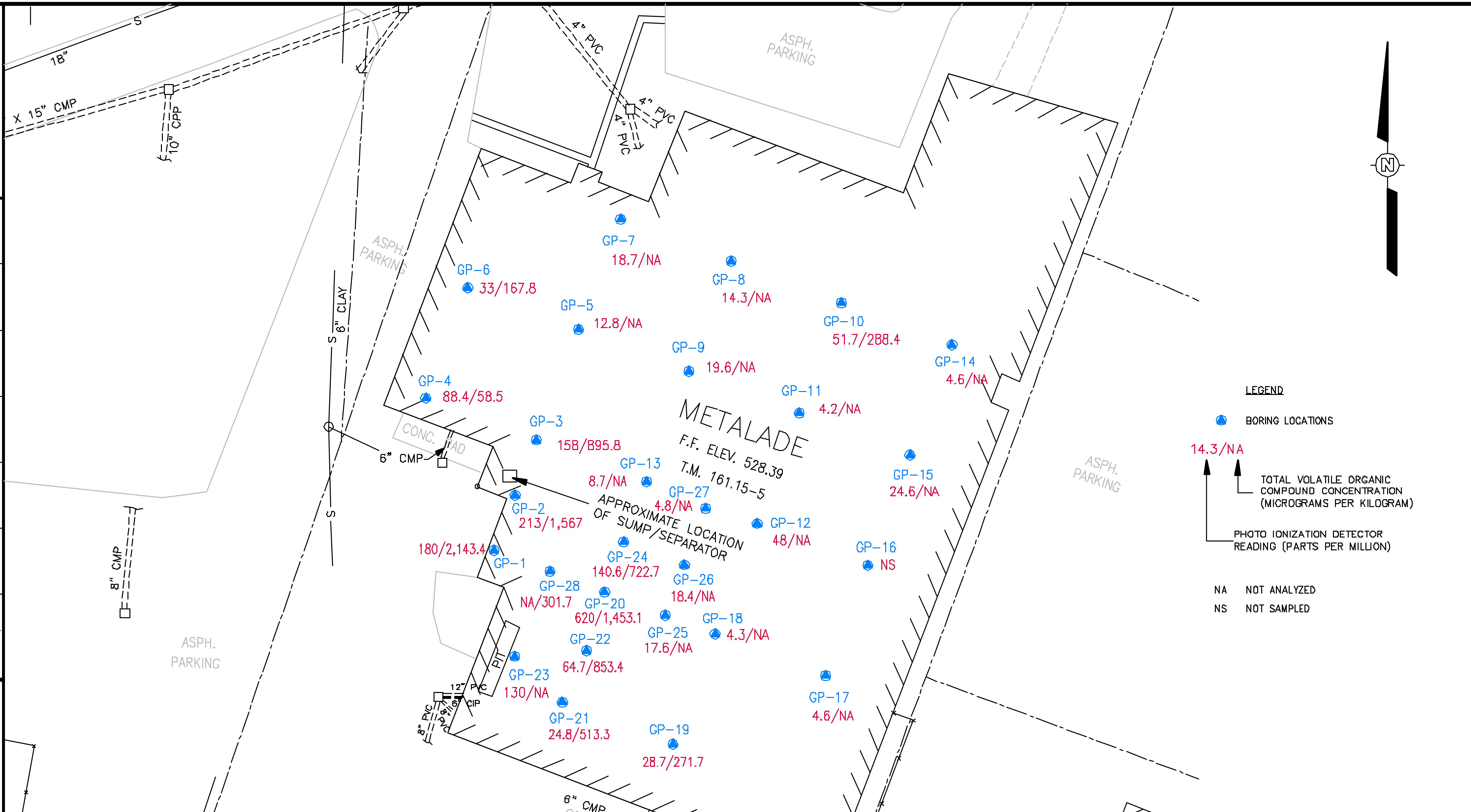
Plot Date/Time: 12/02/02 09:29am
Format Revised: 12/15/99
Image: .
Xref: .



Shaw
Shaw E & I, Inc.

NYSDEC-SOH

FIGURE 2
SOIL GAS SAMPLE ANALYTICAL RESULTS MAP

TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

REFERENCE:
BASE MAP SOURCE: YEC, INC.

OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
ALBANY, NY	S. SHKOLNIK 07-30-02			784222-B6

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Format Revised: 12/15/99
Image: .
Xref: .

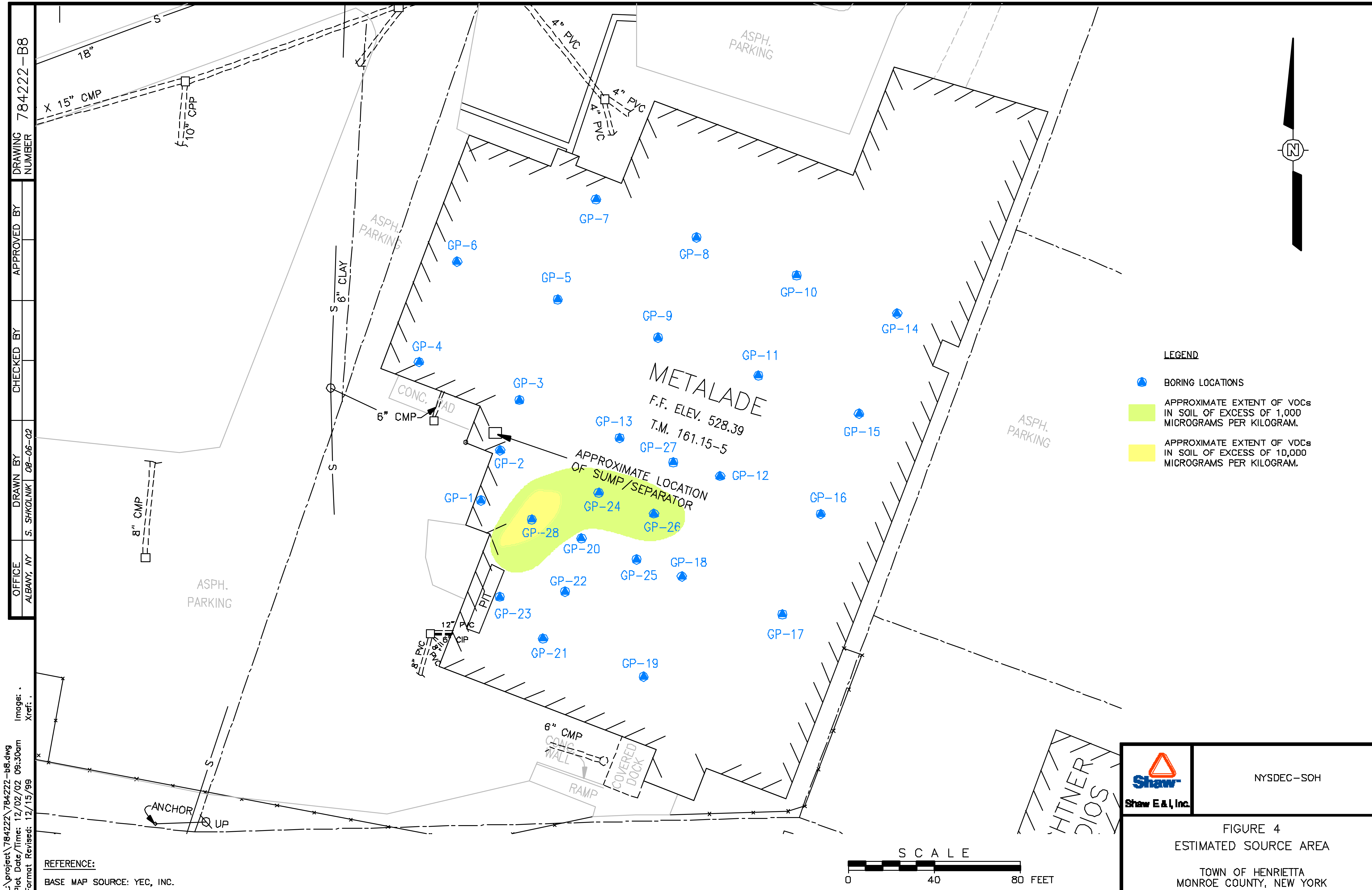
DRAWING NUMBER 784222-B8
APPROVED BY
CHECKED BY
DRAWN BY S. SHKOLNIK 08-06-02
OFFICE ALBANY, NY
METALADE
F.F. ELEV. 528.39
T.M. 161.15-5
APPROXIMATE LOCATION OF SUMP/SEPARATOR
GP-1
GP-2
GP-3
GP-4
GP-5
GP-6
GP-7
GP-8
GP-9
GP-10
GP-11
GP-12
GP-13
GP-14
GP-15
GP-16
GP-17
GP-18
GP-19
GP-20
GP-21
GP-22
GP-23
GP-24
GP-25
GP-26
GP-27
GP-28
ASPH. PARKING
CONC. PAD
PIT
COVERED DOCK
CONC. WALL
RAMP
6" CMP
15" CMP
18"
10" CPP
6" CLAY
8" CMP
4" PVC
12" PVC
8" PVC
CIP
ANCHOR
UP
LEGEND
BORING LOCATIONS
APPROXIMATE EXTENT OF VOCs IN SOIL OF EXCESS OF 1,000 MICROGRAMS PER KILOGRAM.
APPROXIMATE EXTENT OF VOCs IN SOIL OF EXCESS OF 10,000 MICROGRAMS PER KILOGRAM.
SCALE
0 40 80 FEET
REFERENCE:
BASE MAP SOURCE: YEC, INC.
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Image: .
Xref: .
Shaw E&I, Inc.
NYSDEC-SOH
FIGURE 4
ESTIMATED SOURCE AREA
TOWN OF HENRIETTA
MONROE COUNTY, NEW YORK

APPENDIX A

DRILLING LOGS

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-1**

Project: Stuart-Olver-Holtz
Owner: NYSDEC
Location: Henrietta, New York
Proj. No.: 784222
Surface Elev.: NA
Total Hole Depth: 8.0 ft.
North:
East:
Top of Casing: NA
Water Level Initial: NA
Static: NA
Diameter:
Screen: Dia: NA
Length: NA
Type/Size: NA
Casing: Dia: NA
Length: NA
Type: NA
Fill Material: Bentonite
Rig/Core: Geoprobe
Drill Co.: ADT
Method: Direct Push
Driller: Arty Hurst
Log By: Jeff Larock
Date: 6/17/02
Permit #: NA
Checked By: Drew Graham
License No.:

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						SAND, fine grained, some silt, trace gravel, brown to tan, dry.
2	0.5	30%			SM	
4						SAND, fine grained, trace silt, reddish brown, dry.
					SM	

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-2**

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/17/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						SAND, fine grained, some gravel and silt, brown, dry.
2	0.5	20%				
					SM	
4						

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-3**

Project *Stuart-Olver-Holtz* Owner *NYSDEC*

Location *Henrietta, New York* Proj. No. *784222*

Surface Elev. *NA* Total Hole Depth *8.0 ft.* North ____ East ____

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter ____

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *Bentonite* Rig/Core *Geoprobe*

Drill Co. *ADT* Method *Direct Push*

Driller *Arty Hurst* Log By *Jeff Larock* Date *6/17/02* Permit # *NA*

Checked By *Drew Graham* License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						SAND, fine grained, trace silt, clay, and gravel, brown/reddish brown.
2	0.8	75%			SM	
4						SAND, poorly sorted, trace of silt and gravel, sub-angular clasts, tan/light brown.
					SM	

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-4

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ____ East ____

Top of Casing NA Water Level Initial NA Static NA Diameter ____

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/17/02 Permit # NA

Checked By Drew Graham License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						CLAY, trace gravel, brown/reddish brown, mottled.
2	0.8	50%			OL	
4						CLAY, tight, cohesive, dry, reddish brown.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-5**

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ______ East ______

Top of Casing NA Water Level Initial NA Static NA Diameter ______

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/17/02 Permit # NA

Checked By Drew Graham License No. ______

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
						CLAY, trace of gravel and coarse sand, dark brown.
2	1	75%			OL	
					SM	SAND, fine grained, tan.
					OL	CLAY, dark brown.
4						CLAY, some coarse clasts, dry and dense, dark brown.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-6

Project	*Stuart-Olver-Holtz*	Owner	*NYSDEC*		
Location	*Henrietta, New York*	Proj. No.	*784222*		
Surface Elev.	*NA*	Total Hole Depth	*8.0 ft.*	North	East
Top of Casing	*NA*	Water Level Initial	*NA*	Static *NA*	Diameter
Screen: Dia	*NA*	Length	*NA*	Type/Size *NA*	
Casing: Dia	*NA*	Length	*NA*	Type *NA*	
Fill Material	*Bentonite*	Rig/Core	*Geoprobe*		
Drill Co.	*ADT*	Method	*Direct Push*		
Driller	*Arty Hurst*	Log By	*Jeff Larock*	Date *6/17/02*	Permit # *NA*
Checked By	*Drew Graham*	License No.			

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
					OL	CLAY, some gravel, light brown.
2	1	65%				
					SM	SAND, fine grained, some silt and clay, dark brown.
4						CLAY, tight and cohesive, reddish brown to dark brown.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-7**

Project Stuart-Olver-Holtz   Owner NYSDEC

Location Henrietta, New York   Proj. No. 784222

Surface Elev. NA   Total Hole Depth 5.5 ft.   North ____   East ____

Top of Casing NA   Water Level Initial NA   Static NA   Diameter ____

Screen: Dia NA   Length NA   Type/Size NA

Casing: Dia NA   Length NA   Type NA

Fill Material Bentonite   Rig/Core Geoprobe

Drill Co. ADT   Method Direct Push

Driller Arty Hurst   Log By Jeff Larock   Date 6/17/02   Permit # NA

Checked By Drew Graham   License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
						CLAY, some gravel and sand, dark to reddish brown. Refusal at 5.5 feet.
2	0.8	75%				
					OL	
4						

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-8**

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/17/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
					OL	CLAY, dense, dark brown.
2	10.2	75%			SM	SAND, fine to medium grained, tan to yellowish brown.
4						CLAY, trace of gravel, dark brown.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-9

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/17/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
2	0.3	60%				CLAY, dens, dry, trace gravel, dark brown.
					OL	
4						CLAY, trace of snad and gravel, dark brown.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-10**

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ____ East ____

Top of Casing NA Water Level Initial NA Static NA Diameter ____

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/17/02 Permit # NA

Checked By Drew Graham License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
						CLAY, sandy near top, fining downward.
2	0.6	50%			OL	
						CLAY, trace sand and gravel, light brown.
4					OL	
						CLAY, increasing sand content, trace gravel, wet.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-11**

Page: 1 of 1

Project Stuart-Olver-Holtz   Owner NYSDEC

Location Henrietta, New York   Proj. No. 784222

Surface Elev. NA   Total Hole Depth 8.0 ft.   North   East

Top of Casing NA   Water Level Initial NA   Static NA   Diameter

Screen: Dia NA   Length NA   Type/Size NA

Casing: Dia NA   Length NA   Type NA

Fill Material Bentonite   Rig/Core Geoprobe

Drill Co. ADT   Method Direct Push

Driller Arty Hurst   Log By Jeff Larock   Date 6/17/02   Permit # NA

Checked By Drew Graham   License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete, sand, and gravel.
2	0.9	40%				
					OL	CLAY, dense, light brown.
4						SAND, some silt, clay, and gravel.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-12**

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ____ East ____

Top of Casing NA Water Level Initial NA Static NA Diameter ____

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/17/02 Permit # NA

Checked By Drew Graham License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
						CLAY, trace of sand and gravel.
2	3.2	65%			OL	
						CLAY, some fine sand, light gray.
4					OL	

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-13**

Project *Stuart-Olver-Holtz* Owner *NYSDEC*
Location *Henrietta, New York* Proj. No. *784222*
Surface Elev. *NA* Total Hole Depth *8.0 ft.* North ____ East ____
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter ____
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *Bentonite* Rig/Core *Geoprobe*
Drill Co. *ADT* Method *Direct Push*
Driller *Arty Hurst* Log By *Jeff Larock* Date *6/17/02* Permit # *NA*
Checked By *Drew Graham* License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
2	46.2	50%			OL	CLAY, trace sand and gravel.
						CLAY, trace of gravel and cobbles.
4					OL	

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-14

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count / Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL
						CLAY, brown, organic (rootlets).
2	0.0	90%			OL	
4						CLAY, trace sand and gravel, brown/gray, wet.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-15**

Project Stuart-Olver-Holtz Owner NYSDEC
Location Henrietta, New York Proj. No. 784222
Surface Elev. NA Total Hole Depth 8.0 ft. North ____ East ____
Top of Casing NA Water Level Initial NA Static NA Diameter ____
Screen: Dia NA Length NA Type/Size NA
Casing: Dia NA Length NA Type NA
Fill Material Bentonite Rig/Core Geoprobe
Drill Co. ADT Method Direct Push
Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA
Checked By Drew Graham License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
2		0%				
4						SAND, coarse gained, trace gravel and silt, gray, wet.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-16

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC
Location Henrietta, New York Proj. No. 784222
Surface Elev. NA Total Hole Depth 0.0 ft. North East
Top of Casing NA Water Level Initial NA Static NA Diameter
Screen: Dia NA Length NA Type/Size NA
Casing: Dia NA Length NA Type NA
Fill Material Bentonite Rig/Core Geoprobe
Drill Co. ADT Method Direct Push
Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA
Checked By Drew Graham License No.

COMMENTS
Concrete slab was extremenly thick at this boring location. Drilling tool broke while attempting to advance boring. Boring abandoned.

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
2						
4						

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-17**

Project *Stuart-Olver-Holtz* Owner *NYSDEC*

Location *Henrietta, New York* Proj. No. *784222*

Surface Elev. *NA* Total Hole Depth *8.0 ft.* North ____ East ____

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter ____

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *Bentonite* Rig/Core *Geoprobe*

Drill Co. *ADT* Method *Direct Push*

Driller *Arty Hurst* Log By *Jeff Larock* Date *6/18/02* Permit # *NA*

Checked By *Drew Graham* License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL.
						SAND, fine grained.
2	20	35%			SM	
						CLAY, trace gravel, brown, mottled, organic (rootlets).
4						
					OL	

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-18**

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						CLAY, trace sand and silt, gray to light brown.
2	0.3	10%				
4					OL	

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-19**

Project Stuart-Olver-Holtz Owner NYSDEC
Location Henrietta, New York Proj. No. 784222
Surface Elev. NA Total Hole Depth 8.0 ft. North ____ East ____
Top of Casing NA Water Level Initial NA Static NA Diameter ____
Screen: Dia NA Length NA Type/Size NA
Casing: Dia NA Length NA Type NA
Fill Material Bentonite Rig/Core Geoprobe
Drill Co. ADT Method Direct Push
Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA
Checked By Drew Graham License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
2		0%				
4					SM	SAND, fine grained, trace cobbles.
					SM	SAND, coarse grained, some gravel.
						SAND, fine grained, grace gravel and cobbles.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-20

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ______ East ______

Top of Casing NA Water Level Initial NA Static NA Diameter ______

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No. ______

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						SAND, fine grained, trace of silt and clay.
2	18.3	35%			SM	
4						
						CLAY, tight, brown.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-21

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
						FILL, concrete, sand, and gravel.
2	94	50%				
					SM	SAND, trace silt and clay, some gravel and cobbles, dark staining and chemical odor noted.
4						SAND, fine grained, trace cobbles.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-22

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ___ East ___

Top of Casing NA Water Level Initial NA Static NA Diameter ___

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No. ___

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, cobbles and sand.
2	2.1	50%				
					SM	SAND, some cobbles, gray, slight chemical odor.
4					SM	SAND, fine to medium grained, trace gravel and cobbles, reddish brown, black staining.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-23

Project	Stuart-Olver-Holtz	Owner	NYSDEC		
Location	Henrietta, New York			Proj. No.	784222
Surface Elev.	NA	Total Hole Depth	8.0 ft.	North	East
Top of Casing	NA	Water Level Initial	NA	Static NA	Diameter
Screen: Dia	NA	Length	NA	Type/Size	NA
Casing: Dia	NA	Length	NA	Type	NA
Fill Material	Bentonite	Rig/Core	Geoprobe		
Drill Co.	ADT	Method	Direct Push		
Driller	Arty Hurst	Log By	Jeff Larock	Date 6/18/02	Permit # NA
Checked By	Drew Graham	License No.			

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0					SM	SAND, large rock fragments in shoe.
2	8.1	15%				
4					OL	CLAY, trace fine sand and gravel.
					SM	SAND, coarse grained, some gravel, strong chemical odor.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-24**

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
2	42.7	50%			OL	CLAY, silty.
					SM	SAND, fine grained, trace gravel, slight chemical odor.
4					SM	SAND, fine grained, trace clay and gravel.
					SM	SAND, fine to medium grained, trace gravel.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-25**

Page: 1 of 1

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 6.0 ft. North East

Top of Casing NA Water Level Initial NA Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
2		0%				
4						
6	108.3					

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-26**

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ____ East ____

Top of Casing NA Water Level Initial NA Static NA Diameter ____

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
					SM	SAND, poorly sorted, tan.
2	41.5	60%				SAND, fine grained, trace cobbles.
					SM	
4						SAND, fine grained, trace silt and cobbles, brown and gray.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring **GP-27**

Page: 1 of 1

Project	Stuart-Olver-Holtz			Owner	NYSDEC		
Location	Henrietta, New York			Proj. No.	784222		
Surface Elev.	NA	Total Hole Depth	8.0 ft.	North		East	
Top of Casing	NA	Water Level Initial	NA	Static	NA	Diameter	
Screen: Dia	NA	Length	NA	Type/Size	NA		
Casing: Dia	NA	Length	NA	Type	NA		
Fill Material	Bentonite			Rig/Core	Geoprobe		
Drill Co.	ADT	Method	Direct Push				
Driller	Arty Hurst	Log By	Jeff Larock	Date	6/18/02	Permit #	NA
Checked By	Drew Graham	License No.					

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						FILL, concrete.
					SM	SAND, coarse grained, wet, tan.
2	0.6	75%			SM	SAND, fine grained, trace silt.
					OL	CLAY, silty, gray.
4						SAND, fine grained, silty, trace cobbles, fining with depth, gray/brown.

INTERNATIONAL TECHNOLOGY CORPORATION

Drilling Log

Soil Boring GP-28

Project Stuart-Olver-Holtz Owner NYSDEC

Location Henrietta, New York Proj. No. 784222

Surface Elev. NA Total Hole Depth 8.0 ft. North ____ East ____

Top of Casing NA Water Level Initial NA Static NA Diameter ____

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material Bentonite Rig/Core Geoprobe

Drill Co. ADT Method Direct Push

Driller Arty Hurst Log By Jeff Larock Date 6/18/02 Permit # NA

Checked By Drew Graham License No. ____

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						SAND, fine grained, trace clay and cobbles.
2	8.1	60%			SM	
4						SAND, fine grained, trace silt and cobbles.
6	122	----			SM	

APPENDIX B

ANALYTICAL LABORATORY REPORT

MITKEM
CORPORATION

"Environmental Testing For The New Millennium"

July 17, 2002

Shaw Environmental & Infrastructure, Inc.
13 British American Boulevard
Latham, NY 12110
Attn: Mr. Drew Graham

RE: Client Project: SOH, 784222
Mitkem Lab Project # A0951

Dear Mr. O'Neill:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project.

If you have any questions regarding this report, please call me.

We appreciate your business

Sincerely,

Agnes R Ng

Agnes R. Ng

MITKEM
CORPORATION

* Data Summary Package *

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-10AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-07A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0956

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) MG/M3

CAS NO.	COMPOUND	(ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	150	E
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	0.4	J
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	0.2	J
75-34-3	1,1-Dichloroethane	6	
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	0.5	J
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	120	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-10AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-07A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0956

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	4	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.3	J
1330-20-7	Xylene (Total)	1	
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-10AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-07A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0956

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	14.57	2	J
2.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-12AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-02A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0954

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	2	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	2	
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	0.2	J
75-34-3	1,1-Dichloroethane	0.3	J
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	1	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	22	
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	[illegible]	[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-12AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-02A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0954

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	3	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	0.8	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-12AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-02A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0954

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ________ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-19AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-04A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0976

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	0.7	J
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	0.5	J
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	20	
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	0.5	J
156-60-5	trans-1,2-Dichloroethene	0.8	J
1634-04-4	Methyl tert-butyl ether	1	U
75-34-3	1,1-Dichloroethane	6	
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	20	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	190	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	0.2	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-19AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-04A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0976

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	2	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.2	J
1330-20-7	Xylene (Total)	1	
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-19AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-04A

Sample wt/vol: 25 (g/mL) ML   Lab File ID: V6C0976

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 79-38-9	ETHENE, CHLOROTRIFLUORO-	1.99	9	NJ
2.	UNKNOWN	3.03	1	J
3.	UNKNOWN	3.31	1	J
4. 354-23-4	ETHANE, 1,2-DICHLORO-1,1,2-T	3.60	1	NJ
5.	UNKNOWN	4.37	2	J
6.	STRAIGHT-CHAINED ALKANE	4.95	1	J
7. 589-34-4	HEXANE, 3-METHYL-	6.52	1	NJ
8. 108-87-2	CYCLOHEXANE, METHYL-	7.70	3	NJ
9.	UNKNOWN	14.58	1	J
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11.				
12.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-1AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-11A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0959

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/01/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	4	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	3	
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	890	E
67-64-1	Acetone	41	E
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	62	E
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	1	U
75-34-3	1,1-Dichloroethane	180	E
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	2	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	910	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	0.2	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-1AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-11A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0959

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	22	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.3	J
1330-20-7	Xylene (Total)	0.9	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-1AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-11A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0959

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

Number TICs found: 10

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.63	3	J
2.	590-21-6	1-PROPENE, 1-CHLORO-	3.30	3	NJ
3.		UNKNOWN	8.19	4	J
4.		BRANCHED ALKANE	8.43	2	J
5.		CYCLIC ALKANE	8.89	2	J
6.		UNKNOWN	9.14	1	J
7.		CYCLIC ALKANE	9.34	1	J
8.		UNKNOWN	11.91	1	J
9.		UNKNOWN	12.43	1	J
10.		UNKNOWN	14.58	2	J
11.					
12.					
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20.					
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23.					
24.					

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-20AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-20A

Sample wt/vol: 25____ (g/mL) ML Lab File ID: V6C0980

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	0.8	J
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	640	E
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	14	
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	0.4	J
75-34-3	1,1-Dichloroethane	62	E
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	11	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	710	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-20AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-20A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0980

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	6	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.3	J
1330-20-7	Xylene (Total)	1	
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	1	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-20AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-20A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0980

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BRANCHED ALKANE	6.52	5	J
2.	UNKNOWN	6.78	4	J
3.	CYCLIC ALKANE	7.71	4	J
4.	UNKNOWN	14.58	2	J
5.				
6.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-21AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-05A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0977

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	64	E
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	0.6	J
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	1	U
75-34-3	1,1-Dichloroethane	120	E
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	0.8	J
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	320	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	[illegible]	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-21AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-05A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0977

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	4	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	0.8	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	[illegible]	[illegible]

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-21AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-05A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0977

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.31	1	J
2. 354-23-4	ETHANE, 1,2-DICHLORO-1,1,2-T	3.55	2	J
3.	UNKNOWN	3.60	4	J
4.	UNKNOWN	4.37	1	J
5.	UNKNOWN	6.52	1	J
6.	CYCLIC ALKANE	7.70	2	J
7.	UNKNOWN	14.58	2	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-22AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-06A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0978

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	2	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	80	E
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	160	E
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	4	
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	1	U
75-34-3	1,1-Dichloroethane	130	E
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	2	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	470	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-22AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-06A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0978

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	2	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	0.7	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-22AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-06A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0978

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.60	1	J
2.	UNKNOWN	6.52	2	J
3.	CYCLIC ALKANE	7.71	2	J
4.	UNKNOWN	14.58	2	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-24AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-09A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0979

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	12	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	4	
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	150	E
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	5	
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	1	U
75-34-3	1,1-Dichloroethane	34	
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	120	E
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	350	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	[illegible]	[illegible]

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-24AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-09A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0979

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/02/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	2	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	0.8	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-24AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-09A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0979

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BRANCHED ALKANE	6.51	2	J
2.	CYCLIC ALKANE	7.70	3	J
3.	UNKNOWN	14.58	2	J
4.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-28AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-01A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0975

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	0.8	J
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	43	E
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	7	
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	0.2	J
75-34-3	1,1-Dichloroethane	30	
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	11	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	200	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-28AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-01A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0975

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	2	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	1	U
1330-20-7	Xylene (Total)	0.8	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-28AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-01A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0975

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BRANCHED ALKANE	6.52	2	J
2.	UNKNOWN	14.58	2	J
3.				
4.				
5.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-2AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-08A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0957

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/01/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	7	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	310	E
67-64-1	Acetone	6	
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	4	
156-60-5	trans-1,2-Dichloroethene	1	
1634-04-4	Methyl tert-butyl ether	1	
75-34-3	1,1-Dichloroethane	49	E
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	130	E
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	640	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	0.2	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-2AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-08A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0957

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/01/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	19	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.2	J
1330-20-7	Xylene (Total)	0.9	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-2AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-08A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0957

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.31	2	J
2. 354-23-4	ETHANE, 1,2-DICHLORO-1,1,2-T	3.60	2	J
3.	UNKNOWN	6.62	2	J
4.	UNKNOWN	14.58	1	J
5.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-3AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-12A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0960

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/01/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	24	
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	28	
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	130	E
67-64-1	Acetone	3	
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	1	
156-60-5	trans-1,2-Dichloroethene	1	
1634-04-4	Methyl tert-butyl ether	0.8	J
75-34-3	1,1-Dichloroethane	83	E
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	130	E
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	400	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	0.3	J
79-01-6	Trichloroethene	86	EB

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-3AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-12A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0960

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	7	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.3	J
1330-20-7	Xylene (Total)	1	
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	0.2	J
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-3AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-12A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0960

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 79-38-9	ETHENE, CHLOROTRIFLUORO-	1.99	5	NJ
2.	UNKNOWN	3.56	2	J
3. 354-23-4	ETHANE, 1,2-DICHLORO-1,1,2-T	3.60	16	NJ
4.	UNKNOWN	4.37	3	J
5.	UNKNOWN	6.86	2	J
6.	CYCLIC ALKANE	7.70	2	J
7.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-4AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-10A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0958

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	5	
67-64-1	Acetone	1	U
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	0.7	J
75-34-3	1,1-Dichloroethane	0.9	J
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	2	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	39	
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	0.3	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-4AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-10A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0958

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	2	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.3	J
1330-20-7	Xylene (Total)	1	
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	0.3	J
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
104-51-8	n-Butylbenzene	1	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-4AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-10A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0958

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.42	2	J
2.	UNKNOWN	3.03	2	J
3.	UNKNOWN	3.33	1	J
4.	UNKNOWN	3.52	1	J
5.	UNKNOWN	4.38	2	J
6.	UNKNOWN	6.84	1	J
7.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-6AIR

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) AIR   Lab Sample ID: A0951-03A

Sample wt/vol: 25___ (g/mL) ML   Lab File ID: V6C0955

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. ________   Date Analyzed: 07/01/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	0.8	J
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	2	
75-69-4	Trichlorofluoromethane	1	U
75-35-4	1,1-Dichloroethene	25	
67-64-1	Acetone	3	
74-88-4	Iodomethane	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	0.5	J
156-60-5	trans-1,2-Dichloroethene	1	U
1634-04-4	Methyl tert-butyl ether	0.4	J
75-34-3	1,1-Dichloroethane	2	
108-05-4	Vinyl acetate	1	U
78-93-3	2-Butanone	1	U
156-59-2	cis-1,2-Dichloroethene	14	
590-20-7	2,2-Dichloropropane	1	U
74-97-5	Bromochloromethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	100	E
563-58-6	1,1-Dichloropropene	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-6AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-03A

Sample wt/vol: 25___ (g/mL) ML Lab File ID: V6C0955

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/M3	Q
142-28-9	1,3-Dichloropropane	1	U
127-18-4	Tetrachloroethene	10	
591-78-6	2-Hexanone	1	U
124-48-1	Dibromochloromethane	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
630-20-6	1,1,1,2-Tetrachloroethane	1	U
100-41-4	Ethylbenzene	0.3	J
1330-20-7	Xylene (Total)	0.8	J
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
98-82-8	Isopropylbenzene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-86-1	Bromobenzene	1	U
96-18-4	1,2,3-Trichloropropane	1	U
103-65-1	n-Propylbenzene	1	U
95-49-8	2-Chlorotoluene	1	U
108-67-8	1,3,5-Trimethylbenzene	1	U
106-43-4	4-Chlorotoluene	1	U
98-06-6	tert-Butylbenzene	1	U
95-63-6	1,2,4-Trimethylbenzene	1	U
135-98-8	sec-Butylbenzene	1	U
99-87-6	4-Isopropyltoluene	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
[illegible]	[illegible]	[illegible]	[illegible]

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-6AIR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) AIR Lab Sample ID: A0951-03A

Sample wt/vol: 25 (g/mL) ML Lab File ID: V6C0955

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) mg/m3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 79-38-9	ETHENE, CHLOROTRIFLUORO-	1.99	3	NJ
2.	UNKNOWN	2.14	2	J
3.	UNKNOWN	2.48	2	J
4.	UNKNOWN	2.89	2	J
5. 354-23-4	ETHANE, 1,2-DICHLORO-1,1,2-T	3.60	1	NJ
6.	CYCLIC ALKANE	7.70	1	J
7.	UNKNOWN	14.58	2	J
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
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17.				
18.				
19.				
20.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-136

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-13A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8774

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 6 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	J
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	6	B
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	2	J
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	13	
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	21	
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	26	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-136

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-13A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8774

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 6 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	6	
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	3	J
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-136

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-13A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8774

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 6 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	12.66	70	J
2.		UNKNOWN	14.45	6	J
3.		BRANCHED ALKANE	15.19	10	J
4.		UNKNOWN	16.23	6	J
5.		UNKNOWN	16.40	6	J
6.	475-03-6	NAPHTHALENE, 1,2,3,4-TETRAHY	16.79	10	NJ
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-207.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-14A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8775

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 10 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	6	U
74-87-3	Chloromethane	6	U
75-01-4	Vinyl Chloride	6	U
74-83-9	Bromomethane	6	U
75-00-3	Chloroethane	6	U
75-69-4	Trichlorofluoromethane	6	U
75-35-4	1,1-Dichloroethene	6	U
67-64-1	Acetone	5	J
74-88-4	Iodomethane	6	U
75-15-0	Carbon Disulfide	6	U
75-09-2	Methylene Chloride	6	U
156-60-5	trans-1,2-Dichloroethene	6	U
1634-04-4	Methyl tert-butyl ether	2	J
75-34-3	1,1-Dichloroethane	6	U
108-05-4	Vinyl acetate	6	U
78-93-3	2-Butanone	4	J
156-59-2	cis-1,2-Dichloroethene	6	U
590-20-7	2,2-Dichloropropane	6	U
74-97-5	Bromochloromethane	6	U
67-66-3	Chloroform	6	U
71-55-6	1,1,1-Trichloroethane	33	
563-58-6	1,1-Dichloropropene	6	U
56-23-5	Carbon Tetrachloride	6	U
107-06-2	1,2-Dichloroethane	6	U
71-43-2	Benzene	6	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-207.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-14A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8775

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 10 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	6	U
127-18-4	Tetrachloroethene	1	J
591-78-6	2-Hexanone	6	U
124-48-1	Dibromochloromethane	6	U
106-93-4	1,2-Dibromoethane	6	U
108-90-7	Chlorobenzene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
100-41-4	Ethylbenzene	6	U
1330-20-7	Xylene (Total)	1	J
100-42-5	Styrene	6	U
75-25-2	Bromoform	6	U
98-82-8	Isopropylbenzene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-86-1	Bromobenzene	6	U
96-18-4	1,2,3-Trichloropropane	6	U
103-65-1	n-Propylbenzene	6	U
95-49-8	2-Chlorotoluene	6	U
108-67-8	1,3,5-Trimethylbenzene	6	U
106-43-4	4-Chlorotoluene	6	U
98-06-6	tert-Butylbenzene	6	U
95-63-6	1,2,4-Trimethylbenzene	3	J
135-98-8	sec-Butylbenzene	6	U
99-87-6	4-Isopropyltoluene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
104-51-8	n-Butylbenzene	6	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-207.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-14A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8775

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 10 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (mL) Soil Aliquot Volume: ________ (uL)

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-91-1	1,4-DIOXANE	7.09	7	NJ
2.	STRAIGHT-CHAINED ALKANE	11.46	7	J
3.	UNKNOWN	12.66	18	J
4.	BRANCHED ALKANE	12.76	9	J
5.	STRAIGHT-CHAINED ALKANE	12.91	7	J
6.	BRANCHED ALKANE	13.13	7	J
7.	UNKNOWN	13.39	6	J
8.	UNKNOWN	14.30	8	J
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
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25.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-213

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-15A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8776

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 10 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	6	U
74-87-3	Chloromethane	6	U
75-01-4	Vinyl Chloride	6	U
74-83-9	Bromomethane	6	U
75-00-3	Chloroethane	6	U
75-69-4	Trichlorofluoromethane	6	U
75-35-4	1,1-Dichloroethene	6	U
67-64-1	Acetone	26	
74-88-4	Iodomethane	6	U
75-15-0	Carbon Disulfide	6	U
75-09-2	Methylene Chloride	7	B
156-60-5	trans-1,2-Dichloroethene	6	U
1634-04-4	Methyl tert-butyl ether	1	J
75-34-3	1,1-Dichloroethane	8	
108-05-4	Vinyl acetate	6	U
78-93-3	2-Butanone	3	J
156-59-2	cis-1,2-Dichloroethene	2	J
590-20-7	2,2-Dichloropropane	6	U
74-97-5	Bromochloromethane	6	U
67-66-3	Chloroform	6	U
71-55-6	1,1,1-Trichloroethane	3	J
563-58-6	1,1-Dichloropropene	6	U
56-23-5	Carbon Tetrachloride	6	U
107-06-2	1,2-Dichloroethane	6	U
71-43-2	Benzene	6	U
79-01-6	Trichloroethene	6	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-213

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: A0951-15A

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V5D8776

Level: (low/med) LOW   Date Received: 06/20/02

% Moisture: not dec. 10   Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(mL)   Soil Aliquot Volume: ________(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	CONCENTRATION	Q
142-28-9	1,3-Dichloropropane	6	U
127-18-4	Tetrachloroethene	3	J
591-78-6	2-Hexanone	6	U
124-48-1	Dibromochloromethane	6	U
106-93-4	1,2-Dibromoethane	6	U
108-90-7	Chlorobenzene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
100-41-4	Ethylbenzene	4	J
1330-20-7	Xylene (Total)	12	
100-42-5	Styrene	6	U
75-25-2	Bromoform	6	U
98-82-8	Isopropylbenzene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-86-1	Bromobenzene	6	U
96-18-4	1,2,3-Trichloropropane	6	U
103-65-1	n-Propylbenzene	6	U
95-49-8	2-Chlorotoluene	6	U
108-67-8	1,3,5-Trimethylbenzene	6	U
106-43-4	4-Chlorotoluene	6	U
98-06-6	tert-Butylbenzene	6	U
95-63-6	1,2,4-Trimethylbenzene	6	
135-98-8	sec-Butylbenzene	20	
99-87-6	4-Isopropyltoluene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
104-51-8	n-Butylbenzene	6	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-213

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-15A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8776

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 10 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_______(mL) Soil Aliquot Volume: _______(uL)

Number TICs found: 24

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	10.62	450	J
2.	BRANCHED ALKANE	11.82	69	J
3.	CYCLIC ALKANE	12.20	50	J
4.	BRANCHED ALKANE	12.41	39	J
5.	BRANCHED ALKANE	12.53	58	J
6. 141-93-5	BENZENE, 1,3-DIETHYL-	12.66	29	NJ
7.	UNKNOWN	12.92	84	J
8.	UNKNOWN	13.00	80	J
9.	UNKNOWN	13.17	140	J
10. 934-80-5	BENZENE, 4-ETHYL-1,2-DIMETHY	13.22	76	NJ
11.	UNKNOWN	13.33	60	J
12. 25550-13-4	BENZENE, DIETHYLMETHYL-	13.51	43	NJ
13. 2958-76-1	NAPHTHALENE, DECAHYDRO-2-MET	13.57	70	NJ
14.	UNKNOWN	13.67	140	J
15. 2958-76-1	NAPHTHALENE, DECAHYDRO-2-MET	13.83	48	NJ
16.	UNKNOWN	13.90	71	J
17.	UNKNOWN	14.07	37	J
18.	UNKNOWN	14.18	49	J
19.	UNKNOWN	14.27	81	J
20.	UNKNOWN	14.31	100	J
21.	UNKNOWN	14.39	29	J
22.	UNKNOWN	14.52	170	J
23.	UNKNOWN	15.03	84	J
24.	UNKNOWN	15.20	100	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-246.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-16A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6C0882

Level: (low/med) MED Date Received: 06/20/02

% Moisture: not dec. 9 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	270	U
74-87-3	Chloromethane	270	U
75-01-4	Vinyl Chloride	270	U
74-83-9	Bromomethane	270	U
75-00-3	Chloroethane	270	U
75-69-4	Trichlorofluoromethane	270	U
75-35-4	1,1-Dichloroethene	460	
67-64-1	Acetone	270	U
74-88-4	Iodomethane	270	U
75-15-0	Carbon Disulfide	270	U
75-09-2	Methylene Chloride	270	U
156-60-5	trans-1,2-Dichloroethene	270	U
1634-04-4	Methyl tert-butyl ether	270	U
75-34-3	1,1-Dichloroethane	270	U
108-05-4	Vinyl acetate	270	U
78-93-3	2-Butanone	270	U
156-59-2	cis-1,2-Dichloroethene	160	J
590-20-7	2,2-Dichloropropane	270	U
74-97-5	Bromochloromethane	270	U
67-66-3	Chloroform	270	U
71-55-6	1,1,1-Trichloroethane	4100	
563-58-6	1,1-Dichloropropene	270	U
56-23-5	Carbon Tetrachloride	270	U
107-06-2	1,2-Dichloroethane	270	U
71-43-2	Benzene	270	U
79-01-6	Trichloroethene	3800	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-246.5

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: A0951-16A

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V6C0882

Level: (low/med) MED   Date Received: 06/20/02

% Moisture: not dec. 9   Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 5 (mL)   Soil Aliquot Volume: 100.0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	270	U
127-18-4	Tetrachloroethene	94	J
591-78-6	2-Hexanone	270	U
124-48-1	Dibromochloromethane	270	U
106-93-4	1,2-Dibromoethane	270	U
108-90-7	Chlorobenzene	270	U
630-20-6	1,1,1,2-Tetrachloroethane	270	U
100-41-4	Ethylbenzene	270	U
1330-20-7	Xylene (Total)	270	U
100-42-5	Styrene	270	U
75-25-2	Bromoform	270	U
98-82-8	Isopropylbenzene	270	U
79-34-5	1,1,2,2-Tetrachloroethane	270	U
108-86-1	Bromobenzene	270	U
96-18-4	1,2,3-Trichloropropane	270	U
103-65-1	n-Propylbenzene	270	U
95-49-8	2-Chlorotoluene	270	U
108-67-8	1,3,5-Trimethylbenzene	270	U
106-43-4	4-Chlorotoluene	270	U
98-06-6	tert-Butylbenzene	270	U
95-63-6	1,2,4-Trimethylbenzene	270	U
135-98-8	sec-Butylbenzene	270	U
99-87-6	4-Isopropyltoluene	270	U
541-73-1	1,3-Dichlorobenzene	270	U
106-46-7	1,4-Dichlorobenzene	270	U
104-51-8	n-Butylbenzene	270	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-246.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-16A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6C0882

Level: (low/med) MED Date Received: 06/20/02

% Moisture: not dec. 9 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100(uL)

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.68	990	J
2.	STRAIGHT-CHAINED ALKANE	12.74	320	J
3.	UNKNOWN	13.91	1300	J
4.	UNKNOWN	16.13	440	J
5.	BRANCHED ALKANE	17.20	1800	J
6. 475-03-6	NAPHTHALENE, 1,2,3,4-TETRAHY	17.61	1800	NJ
7.	UNKNOWN	17.99	1300	J
8.	UNKNOWN	18.31	1200	J
9.	UNKNOWN	18.71	750	J
10.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-266.5

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: A0951-17A

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V6C0883

Level: (low/med) MED   Date Received: 06/20/02

% Moisture: not dec. 7   Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 5 (mL)   Soil Aliquot Volume: 100.0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	270	U
74-87-3	Chloromethane	270	U
75-01-4	Vinyl Chloride	270	U
74-83-9	Bromomethane	270	U
75-00-3	Chloroethane	270	U
75-69-4	Trichlorofluoromethane	270	U
75-35-4	1,1-Dichloroethene	450	
67-64-1	Acetone	270	U
74-88-4	Iodomethane	270	U
75-15-0	Carbon Disulfide	270	U
75-09-2	Methylene Chloride	270	U
156-60-5	trans-1,2-Dichloroethene	270	U
1634-04-4	Methyl tert-butyl ether	270	U
75-34-3	1,1-Dichloroethane	270	U
108-05-4	Vinyl acetate	270	U
78-93-3	2-Butanone	270	U
156-59-2	cis-1,2-Dichloroethene	510	
590-20-7	2,2-Dichloropropane	270	U
74-97-5	Bromochloromethane	270	U
67-66-3	Chloroform	270	U
71-55-6	1,1,1-Trichloroethane	4200	
563-58-6	1,1-Dichloropropene	270	U
56-23-5	Carbon Tetrachloride	270	U
107-06-2	1,2-Dichloroethane	270	U
71-43-2	Benzene	270	U
79-01-6	Trichloroethene	590	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-266.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-17A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6C0883

Level: (low/med) MED Date Received: 06/20/02

% Moisture: not dec. 7 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	270	U
127-18-4	Tetrachloroethene	130	J
591-78-6	2-Hexanone	270	U
124-48-1	Dibromochloromethane	270	U
106-93-4	1,2-Dibromoethane	270	U
108-90-7	Chlorobenzene	270	U
630-20-6	1,1,1,2-Tetrachloroethane	270	U
100-41-4	Ethylbenzene	270	U
1330-20-7	Xylene (Total)	180	J
100-42-5	Styrene	270	U
75-25-2	Bromoform	270	U
98-82-8	Isopropylbenzene	270	U
79-34-5	1,1,2,2-Tetrachloroethane	270	U
108-86-1	Bromobenzene	270	U
96-18-4	1,2,3-Trichloropropane	270	U
103-65-1	n-Propylbenzene	270	U
95-49-8	2-Chlorotoluene	270	U
108-67-8	1,3,5-Trimethylbenzene	270	U
106-43-4	4-Chlorotoluene	270	U
98-06-6	tert-Butylbenzene	270	U
95-63-6	1,2,4-Trimethylbenzene	84	J
135-98-8	sec-Butylbenzene	270	U
99-87-6	4-Isopropyltoluene	270	U
541-73-1	1,3-Dichlorobenzene	270	U
106-46-7	1,4-Dichlorobenzene	270	U
104-51-8	n-Butylbenzene	270	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-266.5

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: A0951-17A

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V6C0883

Level: (low/med) MED   Date Received: 06/20/02

% Moisture: not dec. 7   Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 5 (mL)   Soil Aliquot Volume: 100 (uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.73	1200	J
2.	UNKNOWN	13.90	3400	J
3.	UNKNOWN	16.13	520	J
4.	UNKNOWN	16.55	2400	J
5.	UNKNOWN	17.99	8200	J
6.	UNKNOWN	18.31	1600	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-286.5

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: A0951-19A

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V6C0884

Level: (low/med) MED   Date Received: 06/20/02

% Moisture: not dec. 11   Date Analyzed: 06/27/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 6.0

Soil Extract Volume: 5(mL)   Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	1700	U
74-87-3	Chloromethane	1700	U
75-01-4	Vinyl Chloride	1700	U
74-83-9	Bromomethane	1700	U
75-00-3	Chloroethane	1700	U
75-69-4	Trichlorofluoromethane	1700	U
75-35-4	1,1-Dichloroethene	4600	
67-64-1	Acetone	1700	U
74-88-4	Iodomethane	1700	U
75-15-0	Carbon Disulfide	1700	U
75-09-2	Methylene Chloride	1700	U
156-60-5	trans-1,2-Dichloroethene	1700	U
1634-04-4	Methyl tert-butyl ether	1700	U
75-34-3	1,1-Dichloroethane	1700	U
108-05-4	Vinyl acetate	1700	U
78-93-3	2-Butanone	1700	U
156-59-2	cis-1,2-Dichloroethene	1700	U
590-20-7	2,2-Dichloropropane	1700	U
74-97-5	Bromochloromethane	1700	U
67-66-3	Chloroform	1700	U
71-55-6	1,1,1-Trichloroethane	42000	
563-58-6	1,1-Dichloropropene	1700	U
56-23-5	Carbon Tetrachloride	1700	U
107-06-2	1,2-Dichloroethane	1700	U
71-43-2	Benzene	1700	U
79-01-6	Trichloroethene	830	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-286.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-19A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6C0884

Level: (low/med) MED Date Received: 06/20/02

% Moisture: not dec. 11 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 6.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	1700	U
127-18-4	Tetrachloroethene	1700	U
591-78-6	2-Hexanone	1700	U
124-48-1	Dibromochloromethane	1700	U
106-93-4	1,2-Dibromoethane	1700	U
108-90-7	Chlorobenzene	1700	U
630-20-6	1,1,1,2-Tetrachloroethane	1700	U
100-41-4	Ethylbenzene	1700	U
1330-20-7	Xylene (Total)	1700	U
100-42-5	Styrene	1700	U
75-25-2	Bromoform	1700	U
98-82-8	Isopropylbenzene	1700	U
79-34-5	1,1,2,2-Tetrachloroethane	1700	U
108-86-1	Bromobenzene	1700	U
96-18-4	1,2,3-Trichloropropane	1700	U
103-65-1	n-Propylbenzene	1700	U
95-49-8	2-Chlorotoluene	1700	U
108-67-8	1,3,5-Trimethylbenzene	1700	U
106-43-4	4-Chlorotoluene	1700	U
98-06-6	tert-Butylbenzene	1700	U
95-63-6	1,2,4-Trimethylbenzene	1700	U
135-98-8	sec-Butylbenzene	1700	U
99-87-6	4-Isopropyltoluene	1700	U
541-73-1	1,3-Dichlorobenzene	1700	U
106-46-7	1,4-Dichlorobenzene	1700	U
104-51-8	n-Butylbenzene	1700	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-286.5

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: A0951-19A

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V6C0884

Level: (low/med) MED   Date Received: 06/20/02

% Moisture: not dec. 11   Date Analyzed: 06/27/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 6.0

Soil Extract Volume: 5 (mL)   Soil Aliquot Volume: 100 (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-36.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-18A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V5D8773

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 13 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	6	U
74-87-3	Chloromethane	6	U
75-01-4	Vinyl Chloride	6	U
74-83-9	Bromomethane	6	U
75-00-3	Chloroethane	6	U
75-69-4	Trichlorofluoromethane	6	U
75-35-4	1,1-Dichloroethene	6	U
67-64-1	Acetone	6	
74-88-4	Iodomethane	6	U
75-15-0	Carbon Disulfide	6	U
75-09-2	Methylene Chloride	4	JB
156-60-5	trans-1,2-Dichloroethene	6	U
1634-04-4	Methyl tert-butyl ether	12	
75-34-3	1,1-Dichloroethane	2	J
108-05-4	Vinyl acetate	6	U
78-93-3	2-Butanone	6	U
156-59-2	cis-1,2-Dichloroethene	13	
590-20-7	2,2-Dichloropropane	6	U
74-97-5	Bromochloromethane	6	U
67-66-3	Chloroform	6	U
71-55-6	1,1,1-Trichloroethane	5	J
563-58-6	1,1-Dichloropropene	6	U
56-23-5	Carbon Tetrachloride	6	U
107-06-2	1,2-Dichloroethane	6	U
71-43-2	Benzene	6	U
79-01-6	Trichloroethene	[illegible]	[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-36.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-18A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V5D8773

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 13 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	6	U
127-18-4	Tetrachloroethene	6	U
591-78-6	2-Hexanone	6	U
124-48-1	Dibromochloromethane	6	U
106-93-4	1,2-Dibromoethane	6	U
108-90-7	Chlorobenzene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
100-41-4	Ethylbenzene	6	U
1330-20-7	Xylene (Total)	5	J
100-42-5	Styrene	6	U
75-25-2	Bromoform	6	U
98-82-8	Isopropylbenzene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-86-1	Bromobenzene	6	U
96-18-4	1,2,3-Trichloropropane	6	U
103-65-1	n-Propylbenzene	6	U
95-49-8	2-Chlorotoluene	6	U
108-67-8	1,3,5-Trimethylbenzene	6	U
106-43-4	4-Chlorotoluene	6	U
98-06-6	tert-Butylbenzene	6	U
95-63-6	1,2,4-Trimethylbenzene	2	J
135-98-8	sec-Butylbenzene	6	U
99-87-6	4-Isopropyltoluene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
104-51-8	n-Butylbenzene	6	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GP-36.5

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: A0951-18A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V5D8773

Level: (low/med) LOW Date Received: 06/20/02

% Moisture: not dec. 13 Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

V5ZLCS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: V5L0627A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8764

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	46	
74-87-3	Chloromethane	47	
75-01-4	Vinyl Chloride	47	
74-83-9	Bromomethane	52	
75-00-3	Chloroethane	48	
75-69-4	Trichlorofluoromethane	49	
75-35-4	1,1-Dichloroethene	44	
67-64-1	Acetone	41	
74-88-4	Iodomethane	44	
75-15-0	Carbon Disulfide	45	
75-09-2	Methylene Chloride	43	B
156-60-5	trans-1,2-Dichloroethene	45	
1634-04-4	Methyl tert-butyl ether	40	
75-34-3	1,1-Dichloroethane	45	
108-05-4	Vinyl acetate	24	
78-93-3	2-Butanone	35	
156-59-2	cis-1,2-Dichloroethene	45	
590-20-7	2,2-Dichloropropane	38	
74-97-5	Bromochloromethane	44	
67-66-3	Chloroform	46	
71-55-6	1,1,1-Trichloroethane	47	
563-58-6	1,1-Dichloropropene	48	
56-23-5	Carbon Tetrachloride	49	
107-06-2	1,2-Dichloroethane	42	
71-43-2	Benzene	46	
79-01-6	Trichloroethene	48	
78-87-5	1,2-Dichloropropane	45	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

V5ZLCS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: V5L0627A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8764

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	43	
127-18-4	Tetrachloroethene	46	
591-78-6	2-Hexanone	35	
124-48-1	Dibromochloromethane	45	
106-93-4	1,2-Dibromoethane	44	
108-90-7	Chlorobenzene	46	
630-20-6	1,1,1,2-Tetrachloroethane	47	
100-41-4	Ethylbenzene	47	
1330-20-7	Xylene (Total)	140	
100-42-5	Styrene	46	
75-25-2	Bromoform	44	
98-82-8	Isopropylbenzene	47	
79-34-5	1,1,2,2-Tetrachloroethane	43	
108-86-1	Bromobenzene	47	
96-18-4	1,2,3-Trichloropropane	42	
103-65-1	n-Propylbenzene	47	
95-49-8	2-Chlorotoluene	48	
108-67-8	1,3,5-Trimethylbenzene	46	
106-43-4	4-Chlorotoluene	46	
98-06-6	tert-Butylbenzene	47	
95-63-6	1,2,4-Trimethylbenzene	46	
135-98-8	sec-Butylbenzene	48	
99-87-6	4-Isopropyltoluene	46	
541-73-1	1,3-Dichlorobenzene	46	
106-46-7	1,4-Dichlorobenzene	45	
104-51-8	n-Butylbenzene	43	
95-50-1	1,2-Dichlorobenzene	[illegible]	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

V5ZLCSD

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: V5L0627B

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V5D8765

Level: (low/med) LOW   Date Received: ________

% Moisture: not dec. ________   Date Analyzed: 06/27/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(mL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	49	
74-87-3	Chloromethane	48	
75-01-4	Vinyl Chloride	49	
74-83-9	Bromomethane	54	
75-00-3	Chloroethane	48	
75-69-4	Trichlorofluoromethane	49	
75-35-4	1,1-Dichloroethene	48	
67-64-1	Acetone	42	
74-88-4	Iodomethane	46	
75-15-0	Carbon Disulfide	46	
75-09-2	Methylene Chloride	45	B
156-60-5	trans-1,2-Dichloroethene	49	
1634-04-4	Methyl tert-butyl ether	43	
75-34-3	1,1-Dichloroethane	49	
108-05-4	Vinyl acetate	23	
78-93-3	2-Butanone	38	
156-59-2	cis-1,2-Dichloroethene	48	
590-20-7	2,2-Dichloropropane	39	
74-97-5	Bromochloromethane	47	
67-66-3	Chloroform	48	
71-55-6	1,1,1-Trichloroethane	49	
563-58-6	1,1-Dichloropropene	50	
56-23-5	Carbon Tetrachloride	52	
107-06-2	1,2-Dichloroethane	44	
71-43-2	Benzene	49	
79-01-6	Trichloroethene	50	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

V5ZLCSD

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: V5L0627B

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V5D8765

Level: (low/med) LOW   Date Received: ________

% Moisture: not dec. ________   Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(mL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	46	
127-18-4	Tetrachloroethene	50	
591-78-6	2-Hexanone	40	
124-48-1	Dibromochloromethane	50	
106-93-4	1,2-Dibromoethane	47	
108-90-7	Chlorobenzene	49	
630-20-6	1,1,1,2-Tetrachloroethane	51	
100-41-4	Ethylbenzene	50	
1330-20-7	Xylene (Total)	150	
100-42-5	Styrene	49	
75-25-2	Bromoform	49	
98-82-8	Isopropylbenzene	50	
79-34-5	1,1,2,2-Tetrachloroethane	47	
108-86-1	Bromobenzene	52	
96-18-4	1,2,3-Trichloropropane	46	
103-65-1	n-Propylbenzene	51	
95-49-8	2-Chlorotoluene	52	
108-67-8	1,3,5-Trimethylbenzene	50	
106-43-4	4-Chlorotoluene	51	
98-06-6	tert-Butylbenzene	51	
95-63-6	1,2,4-Trimethylbenzene	50	
135-98-8	sec-Butylbenzene	52	
99-87-6	4-Isopropyltoluene	50	
541-73-1	1,3-Dichlorobenzene	50	
106-46-7	1,4-Dichlorobenzene	50	
104-51-8	n-Butylbenzene	46	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

V6OLCS

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: V6L0627B

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V6C0875

Level: (low/med) MED   Date Received: ________

% Moisture: not dec. ________   Date Analyzed: 06/27/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 5(mL)   Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	2400	
74-87-3	Chloromethane	2900	
75-01-4	Vinyl Chloride	2700	
74-83-9	Bromomethane	2700	
75-00-3	Chloroethane	2500	
75-69-4	Trichlorofluoromethane	2700	
75-35-4	1,1-Dichloroethene	2800	
67-64-1	Acetone	2500	
74-88-4	Iodomethane	2300	
75-15-0	Carbon Disulfide	2800	
75-09-2	Methylene Chloride	2500	
156-60-5	trans-1,2-Dichloroethene	2300	
1634-04-4	Methyl tert-butyl ether	2500	
75-34-3	1,1-Dichloroethane	2400	
108-05-4	Vinyl acetate	2500	
78-93-3	2-Butanone	2400	
156-59-2	cis-1,2-Dichloroethene	2400	
590-20-7	2,2-Dichloropropane	2400	
74-97-5	Bromochloromethane	2400	
67-66-3	Chloroform	2400	
71-55-6	1,1,1-Trichloroethane	2300	
563-58-6	1,1-Dichloropropene	2400	
56-23-5	Carbon Tetrachloride	2300	
107-06-2	1,2-Dichloroethane	2500	
71-43-2	Benzene	2400	
79-01-6	Trichloroethene	2400	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

V6OLCS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: V6L0627B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6C0875

Level: (low/med) MED Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	2400	
127-18-4	Tetrachloroethene	2400	
591-78-6	2-Hexanone	2600	
124-48-1	Dibromochloromethane	2300	
106-93-4	1,2-Dibromoethane	2300	
108-90-7	Chlorobenzene	2400	
630-20-6	1,1,1,2-Tetrachloroethane	2400	
100-41-4	Ethylbenzene	2400	
1330-20-7	Xylene (Total)	7400	
100-42-5	Styrene	2500	
75-25-2	Bromoform	2200	
98-82-8	Isopropylbenzene	2600	
79-34-5	1,1,2,2-Tetrachloroethane	2400	
108-86-1	Bromobenzene	2400	
96-18-4	1,2,3-Trichloropropane	2500	
103-65-1	n-Propylbenzene	2400	
95-49-8	2-Chlorotoluene	2400	
108-67-8	1,3,5-Trimethylbenzene	2400	
106-43-4	4-Chlorotoluene	2300	
98-06-6	tert-Butylbenzene	2500	
95-63-6	1,2,4-Trimethylbenzene	2400	
135-98-8	sec-Butylbenzene	2500	
99-87-6	4-Isopropyltoluene	2500	
541-73-1	1,3-Dichlorobenzene	2400	
106-46-7	1,4-Dichlorobenzene	2400	
104-51-8	n-Butylbenzene	2600	

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

	EPA SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER (BFB) #	TOT OUT
01	VBLK6S	90	94	100	95	0
02	V6SLCS	92	93	100	96	0
03	VBLK6U	94	97	100	94	0
04	V6ULCS	92	95	100	101	0
05	V6ULCSD	88	91	93	93	0
06						
07						
08						
09						
10						
11						
12						
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19						
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22						
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24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1	= Dibromofluoromethane	(78-117)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(62-124)
SMC3 (TOL)	= Toluene-d8	(81-116)
OTHER (BFB)	= Bromofluorobenzene	(74-126)

2B
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER (BFB) #	TOT OUT
01	VBLK5Z	88	84	90	87	0
02	V5ZLCS	90	88	93	88	0
03	V5ZLCSD	95	92	97	93	0
04	GP-36.5	89	87	92	94	0
05	GP-136	89	86	92	93	0
06	GP-207.5	89	83	94	94	0
07	GP-213	87	83	96	146	0
08						
09						
10						
11						
12						
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26						
27						
28						
29						
30						

		QC LIMITS
SMC1	= Dibromofluoromethane	(52-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(50-126)
SMC3 (TOL)	= Toluene-d8	(25-156)
OTHER (BFB)	= Bromofluorobenzene	(49-146)

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Level:(low/med) MED

	EPA SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER (BFB) #	TOT OUT
01	VBLK6O	97	97	102	93	0
02	V6OLCS	92	95	96	103	0
03	GP-246.5	94	97	100	94	0
04	GP-266.5	90	94	99	95	0
05	GP-286.5	92	97	100	96	0
06						
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30						

		QC LIMITS
SMC1	= Dibromofluoromethane	(52-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(50-126)
SMC3 (TOL)	= Toluene-d8	(25-156)
OTHER (BFB)	= Bromofluorobenzene	(49-146)

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6SLCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT (ug/L)	LCS AMOUNT (ug/L)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50		40	80	48-135
Chloromethane	50		47	94	60-118
Vinyl Chloride	50		47	94	65-113
Bromomethane	50		28	56*	73-122
Chloroethane	50		50	100	72-118
Trichlorofluoromethane	50		46	92	68-129
1,1-Dichloroethene	50		50	100	67-121
Acetone	50		26	52	38-161
Iodomethane	50		50	100	72-130
Carbon Disulfide	50		52	104	53-137
Methylene Chloride	50		47	94	59-132
trans-1,2-Dichloroethen	50		49	98	71-124
Methyl tert-butyl ether	50		50	100	75-123
1,1-Dichloroethane	50		44	88	83-116
Vinyl acetate	50		44	88	44-160
2-Butanone	50		36	72	64-139
cis-1,2-Dichloroethene	50		51	102	83-120
2,2-Dichloropropane	50		48	96	70-129
Bromochloromethane	50		50	100	85-124
Chloroform	50		46	92	89-118
1,1,1-Trichloroethane	50		46	92	81-122
1,1-Dichloropropene	50		52	104	76-122
Carbon Tetrachloride	50		44	88	79-125
1,2-Dichloroethane	50		44	88	83-123
Benzene	50		46	92	81-120
Trichloroethene	50		55	110	77-121
1,2-Dichloropropane	50		44	88	81-116
Dibromomethane	50		46	92	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6SLCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT (ug/L)	LCS AMOUNT (ug/L)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	50		46	92	90-114
cis-1,3-Dichloropropene	50		48	96	78-119
4-Methyl-2-pentanone	50		45	90	57-138
Toluene	50		50	100	81-121
trans-1,3-Dichloroprope	50		49	98	85-118
1,1,2-Trichloroethane	50		47	94	44-159
1,3-Dichloropropane	50		47	94	79-125
Tetrachloroethene	50		53	106	73-121
2-Hexanone	50		41	82	53-145
Dibromochloromethane	50		45	90	80-124
1,2-Dibromoethane	50		48	96	80-124
Chlorobenzene	50		48	96	82-118
1,1,1,2-Tetrachloroetha	50		48	96	84-121
Ethylbenzene	50		51	102	80-122
Xylene (Total)	150		150	100	81-121
Styrene	50		51	102	77-128
Bromoform	50		42	84	77-130
Isopropylbenzene	50		53	106	58-148
1,1,2,2-Tetrachloroetha	50		45	90	76-125
Bromobenzene	50		52	104	76-124
1,2,3-Trichloropropane	50		42	84	57-140
n-Propylbenzene	50		52	104	72-119
2-Chlorotoluene	50		50	100	75-120
1,3,5-Trimethylbenzene	50		50	100	76-116
4-Chlorotoluene	50		48	96	78-116
tert-Butylbenzene	50		51	102	71-115
1,2,4-Trimethylbenzene	50		49	98	77-117
sec-Butylbenzene	50		51	102	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6SLCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT (ug/L)	LCS AMOUNT (ug/L)	LCS % REC #	QC. LIMITS REC.
4-Isopropyltoluene	50		51	102	68-118
1,3-Dichlorobenzene	50		48	96	80-116
1,4-Dichlorobenzene	50		48	96	80-114
n-Butylbenzene	50		50	100	58-121
1,2-Dichlorobenzene	50		48	96	81-116
1,2-Dibromo-3-chloropro	50		49	98	71-126
1,2,4-Trichlorobenzene	50		53	106	67-114
Hexachlorobutadiene	50		45	90	50-111
Naphthalene	50		56	112	58-133
1,2,3-Trichlorobenzene	50		51	102	64-118

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 1 out of 66 outside limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6ULCS

COMPOUND	SPIKE ADDED ()	SAMPLE AMOUNT (ug/L)	LCS AMOUNT ()	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50		41	82	48-135
Chloromethane	50		38	76	60-118
Vinyl Chloride	50		41	82	65-113
Bromomethane	50		38	76	73-122
Chloroethane	50		34	68*	72-118
Trichlorofluoromethane	50		50	100	68-129
1,1-Dichloroethene	50		49	98	67-121
Acetone	50		34	68	38-161
Iodomethane	50		46	92	72-130
Carbon Disulfide	50		51	102	53-137
Methylene Chloride	50		45	90	59-132
trans-1,2-Dichloroethen	50		47	94	71-124
Methyl tert-butyl ether	50		49	98	75-123
1,1-Dichloroethane	50		46	92	83-116
Vinyl acetate	50		45	90	44-160
2-Butanone	50		44	88	64-139
cis-1,2-Dichloroethene	50		50	100	83-120
2,2-Dichloropropane	50		50	100	70-129
Bromochloromethane	50		48	96	85-124
Chloroform	50		46	92	89-118
1,1,1-Trichloroethane	50		45	90	81-122
1,1-Dichloropropene	50		51	102	76-122
Carbon Tetrachloride	50		45	90	79-125
1,2-Dichloroethane	50		44	88	83-123
Benzene	50		47	94	81-120
Trichloroethene	50		52	104	77-121
1,2-Dichloropropane	50		46	92	81-116
Dibromomethane	50		46	92	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6ULCS

COMPOUND	SPIKE ADDED ()	SAMPLE AMOUNT (ug/L)	LCS AMOUNT ()	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	50		47	94	90-114
cis-1,3-Dichloropropene	50		50	100	78-119
4-Methyl-2-pentanone	50		47	94	57-138
Toluene	50		50	100	81-121
trans-1,3-Dichloroprope	50		50	100	85-118
1,1,2-Trichloroethane	50		47	94	44-159
1,3-Dichloropropane	50		49	98	79-125
Tetrachloroethene	50		50	100	73-121
2-Hexanone	50		50	100	53-145
Dibromochloromethane	50		46	92	80-124
1,2-Dibromoethane	50		50	100	80-124
Chlorobenzene	50		48	96	82-118
1,1,1,2-Tetrachloroetha	50		48	96	84-121
Ethylbenzene	50		50	100	80-122
Xylene (Total)	150		160	107	81-121
Styrene	50		52	104	77-128
Bromoform	50		42	84	77-130
Isopropylbenzene	50		54	108	58-148
1,1,2,2-Tetrachloroetha	50		47	94	76-125
Bromobenzene	50		50	100	76-124
1,2,3-Trichloropropane	50		42	84	57-140
n-Propylbenzene	50		52	104	72-119
2-Chlorotoluene	50		50	100	75-120
1,3,5-Trimethylbenzene	50		51	102	76-116
4-Chlorotoluene	50		49	98	78-116
tert-Butylbenzene	50		52	104	71-115
1,2,4-Trimethylbenzene	50		50	100	77-117
sec-Butylbenzene	50		52	104	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6ULCS

COMPOUND	SPIKE ADDED ()	SAMPLE AMOUNT (ug/L)	LCS AMOUNT ()	LCS % REC #	QC. LIMITS REC.
4-Isopropyltoluene	50		52	104	68-118
1,3-Dichlorobenzene	50		49	98	80-116
1,4-Dichlorobenzene	50		48	96	80-114
n-Butylbenzene	50		51	102	58-121
1,2-Dichlorobenzene	50		49	98	81-116
1,2-Dibromo-3-chloropro	50		49	98	71-126
1,2,4-Trichlorobenzene	50		52	104	67-114
Hexachlorobutadiene	50		47	94	50-111
Naphthalene	50		55	110	58-133
1,2,3-Trichlorobenzene	50		52	104	64-118

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6ULCS

COMPOUND	SPIKE ADDED ()	LCSD AMOUNT ()	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Dichlorodifluoromethane	50	41	82	0	40	48-135
Chloromethane	50	40	80	5	40	60-118
Vinyl Chloride	50	42	84	2	40	65-113
Bromomethane	50	43	86	12	40	73-122
Chloroethane	50	36	72	6	40	72-118
Trichlorofluoromethane	50	48	96	4	40	68-129
1,1-Dichloroethene	50	49	98	0	40	67-121
Acetone	50	39	78	14	40	38-161
Iodomethane	50	47	94	2	40	72-130
Carbon Disulfide	50	51	102	0	40	53-137
Methylene Chloride	50	44	88	2	40	59-132
trans-1,2-Dichloroethen	50	47	94	0	40	71-124
Methyl tert-butyl ether	50	50	100	2	40	75-123
1,1-Dichloroethane	50	45	90	2	40	83-116
Vinyl acetate	50	41	82	9	40	44-160
2-Butanone	50	46	92	4	40	64-139
cis-1,2-Dichloroethene	50	49	98	2	40	83-120
2,2-Dichloropropane	50	48	96	4	40	70-129
Bromochloromethane	50	48	96	0	40	85-124
Chloroform	50	46	92	0	40	89-118
1,1,1-Trichloroethane	50	44	88	2	40	81-122
1,1-Dichloropropene	50	49	98	4	40	76-122
Carbon Tetrachloride	50	44	88	2	40	79-125
1,2-Dichloroethane	50	44	88	0	40	83-123
Benzene	50	46	92	2	40	81-120
Trichloroethene	50	51	102	2	40	77-121
1,2-Dichloropropane	50	45	90	2	40	81-116
Dibromomethane	50	46	92	0	40	86-124

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6ULCS

COMPOUND	SPIKE ADDED ()	LCSD AMOUNT ()	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Bromodichloromethane	50	46	92	2	40	90-114
cis-1,3-Dichloropropene	50	49	98	2	40	78-119
4-Methyl-2-pentanone	50	48	96	2	40	57-138
Toluene	50	49	98	2	40	81-121
trans-1,3-Dichloroprope	50	50	100	0	40	85-118
1,1,2-Trichloroethane	50	47	94	0	40	44-159
1,3-Dichloropropane	50	48	96	2	40	79-125
Tetrachloroethene	50	51	102	2	40	73-121
2-Hexanone	50	51	102	2	40	53-145
Dibromochloromethane	50	45	90	2	40	80-124
1,2-Dibromoethane	50	48	96	4	40	80-124
Chlorobenzene	50	47	94	2	40	82-118
1,1,1,2-Tetrachloroetha	50	48	96	0	40	84-121
Ethylbenzene	50	50	100	0	40	80-122
Xylene (Total)	150	150	100	7	40	81-121
Styrene	50	50	100	4	40	77-128
Bromoform	50	40	80	5	40	77-130
Isopropylbenzene	50	52	104	4	40	58-148
1,1,2,2-Tetrachloroetha	50	46	92	2	40	76-125
Bromobenzene	50	51	102	2	40	76-124
1,2,3-Trichloropropane	50	43	86	2	40	57-140
n-Propylbenzene	50	52	104	0	40	72-119
2-Chlorotoluene	50	49	98	2	40	75-120
1,3,5-Trimethylbenzene	50	50	100	2	40	76-116
4-Chlorotoluene	50	48	96	2	40	78-116
tert-Butylbenzene	50	51	102	2	40	71-115
1,2,4-Trimethylbenzene	50	49	98	2	40	77-117
sec-Butylbenzene	50	51	102	2	40	67-117

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
WATER VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V6ULCS

COMPOUND	SPIKE ADDED ()	LCSD AMOUNT ()	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
4-Isopropyltoluene	50	51	102	2	40	68-118
1,3-Dichlorobenzene	50	48	96	2	40	80-116
1,4-Dichlorobenzene	50	48	96	0	40	80-114
n-Butylbenzene	50	51	102	0	40	58-121
1,2-Dichlorobenzene	50	48	96	2	40	81-116
1,2-Dibromo-3-chloropro	50	50	100	2	40	71-126
1,2,4-Trichlorobenzene	50	53	106	2	40	67-114
Hexachlorobutadiene	50	48	96	2	40	50-111
Naphthalene	50	57	114	4	40	58-133
1,2,3-Trichlorobenzene	50	51	102	2	40	64-118

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 66 outside limits
Spike Recovery: 1 out of 132 outside limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V5ZLCS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50		46	92	58-131
Chloromethane	50		47	94	63-120
Vinyl Chloride	50		47	94	61-134
Bromomethane	50		52	104	10-215
Chloroethane	50		48	96	55-146
Trichlorofluoromethane	50		49	98	63-126
1,1-Dichloroethene	50		44	88	67-127
Acetone	50		41	82	0-154
Iodomethane	50		44	88	20-163
Carbon Disulfide	50		45	90	63-126
Methylene Chloride	50		43	86	62-128
trans-1,2-Dichloroethen	50		45	90	76-120
Methyl tert-butyl ether	50		40	80	52-130
1,1-Dichloroethane	50		45	90	74-118
Vinyl acetate	50		24	48	31-137
2-Butanone	50		35	70	14-154
cis-1,2-Dichloroethene	50		45	90	83-115
2,2-Dichloropropane	50		38	76	64-125
Bromochloromethane	50		44	88	70-119
Chloroform	50		46	92	77-120
1,1,1-Trichloroethane	50		47	94	72-126
1,1-Dichloropropene	50		48	96	71-132
Carbon Tetrachloride	50		49	98	69-135
1,2-Dichloroethane	50		42	84	65-126
Benzene	50		46	92	78-121
Trichloroethene	50		48	96	75-125
1,2-Dichloropropane	50		45	90	78-117
Dibromomethane	50		42	84	65-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix Spike - Sample No.: V5ZLCS   Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	50		45	90	75-118
cis-1,3-Dichloropropene	50		42	84	78-120
4-Methyl-2-pentanone	50		35	70	45-141
Toluene	50		46	92	80-126
trans-1,3-Dichloroprope	50		41	82	73-123
1,1,2-Trichloroethane	50		42	84	66-125
1,3-Dichloropropane	50		43	86	76-119
Tetrachloroethene	50		46	92	65-134
2-Hexanone	50		35	70	37-136
Dibromochloromethane	50		45	90	76-115
1,2-Dibromoethane	50		44	88	72-117
Chlorobenzene	50		46	92	78-117
1,1,1,2-Tetrachloroetha	50		47	94	80-115
Ethylbenzene	50		47	94	79-129
Xylene (Total)	150		140	93	83-125
Styrene	50		46	92	83-122
Bromoform	50		44	88	67-126
Isopropylbenzene	50		47	94	80-135
1,1,2,2-Tetrachloroetha	50		43	86	70-117
Bromobenzene	50		47	94	79-119
1,2,3-Trichloropropane	50		42	84	0-154
n-Propylbenzene	50		47	94	64-141
2-Chlorotoluene	50		48	96	70-132
1,3,5-Trimethylbenzene	50		46	92	72-133
4-Chlorotoluene	50		46	92	77-122
tert-Butylbenzene	50		47	94	31-159
1,2,4-Trimethylbenzene	50		46	92	73-126
sec-Butylbenzene	50		48	96	68-137

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V5ZLCS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
4-Isopropyltoluene	50		46	92	66-131
1,3-Dichlorobenzene	50		46	92	75-115
1,4-Dichlorobenzene	50		45	90	72-110
n-Butylbenzene	50		43	86	66-130
1,2-Dichlorobenzene	50		45	90	78-113
1,2-Dibromo-3-chloropro	50		39	78	52-128
1,2,4-Trichlorobenzene	50		41	82	49-126
Hexachlorobutadiene	50		42	84	58-115
Naphthalene	50		32	64	45-130
1,2,3-Trichlorobenzene	50		39	78	44-131

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V5ZLCS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Dichlorodifluoromethane	50	49	98	6	40	58-131
Chloromethane	50	48	96	2	40	63-120
Vinyl Chloride	50	49	98	4	40	61-134
Bromomethane	50	54	108	4	40	10-215
Chloroethane	50	48	96	0	40	55-146
Trichlorofluoromethane	50	49	98	0	40	63-126
1,1-Dichloroethene	50	48	96	9	40	67-127
Acetone	50	42	84	2	40	0-154
Iodomethane	50	46	92	4	100	20-163
Carbon Disulfide	50	46	92	2	40	63-126
Methylene Chloride	50	45	90	4	40	62-128
trans-1,2-Dichloroethen	50	49	98	8	40	76-120
Methyl tert-butyl ether	50	43	86	7	40	52-130
1,1-Dichloroethane	50	49	98	8	40	74-118
Vinyl acetate	50	23	46	4	40	31-137
2-Butanone	50	38	76	8	40	14-154
cis-1,2-Dichloroethene	50	48	96	6	40	83-115
2,2-Dichloropropane	50	39	78	2	40	64-125
Bromochloromethane	50	47	94	6	40	70-119
Chloroform	50	48	96	4	40	77-120
1,1,1-Trichloroethane	50	49	98	4	40	72-126
1,1-Dichloropropene	50	50	100	4	40	71-132
Carbon Tetrachloride	50	52	104	6	40	69-135
1,2-Dichloroethane	50	44	88	5	40	65-126
Benzene	50	49	98	6	40	78-121
Trichloroethene	50	50	100	4	40	75-125
1,2-Dichloropropane	50	48	96	6	40	78-117
Dibromomethane	50	46	92	9	40	65-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V5ZLCS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Bromodichloromethane	50	48	96	6	40	75-118
cis-1,3-Dichloropropene	50	46	92	9	40	78-120
4-Methyl-2-pentanone	50	40	80	13	40	45-141
Toluene	50	48	96	4	40	80-126
trans-1,3-Dichloroprope	50	44	88	7	40	73-123
1,1,2-Trichloroethane	50	46	92	9	40	66-125
1,3-Dichloropropane	50	46	92	7	40	76-119
Tetrachloroethene	50	50	100	8	40	65-134
2-Hexanone	50	40	80	13	40	37-136
Dibromochloromethane	50	50	100	10	40	76-115
1,2-Dibromoethane	50	47	94	6	40	72-117
Chlorobenzene	50	49	98	6	40	78-117
1,1,1,2-Tetrachloroetha	50	51	102	8	40	80-115
Ethylbenzene	50	50	100	6	40	79-129
Xylene (Total)	150	150	100	7	40	83-125
Styrene	50	49	98	6	40	83-122
Bromoform	50	49	98	11	40	67-126
Isopropylbenzene	50	50	100	6	40	80-135
1,1,2,2-Tetrachloroetha	50	47	94	9	40	70-117
Bromobenzene	50	52	104	10	40	79-119
1,2,3-Trichloropropane	50	46	92	9	40	0-154
n-Propylbenzene	50	51	102	8	40	64-141
2-Chlorotoluene	50	52	104	8	40	70-132
1,3,5-Trimethylbenzene	50	50	100	8	40	72-133
4-Chlorotoluene	50	51	102	10	40	77-122
tert-Butylbenzene	50	51	102	8	40	31-159
1,2,4-Trimethylbenzene	50	50	100	8	40	73-126
sec-Butylbenzene	50	52	104	8	40	68-137

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V5ZLCS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
4-Isopropyltoluene	50	50	100	8	40	66-131
1,3-Dichlorobenzene	50	50	100	8	40	75-115
1,4-Dichlorobenzene	50	50	100	10	40	72-110
n-Butylbenzene	50	46	92	7	40	66-130
1,2-Dichlorobenzene	50	49	98	8	40	78-113
1,2-Dibromo-3-chloropro	50	45	90	14	40	52-128
1,2,4-Trichlorobenzene	50	44	88	7	40	49-126
Hexachlorobutadiene	50	46	92	9	40	58-115
Naphthalene	50	43	86	29	40	45-130
1,2,3-Trichlorobenzene	50	45	90	14	40	44-131

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 66 outside limits
Spike Recovery: 0 out of 132 outside limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V60LCS Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Dichlorodifluoromethane	2500		2400	96	58-131
Chloromethane	2500		2900	116	63-120
Vinyl Chloride	2500		2700	108	61-134
Bromomethane	2500		2700	108	10-215
Chloroethane	2500		2500	100	55-146
Trichlorofluoromethane	2500		2700	108	63-126
1,1-Dichloroethene	2500		2800	112	67-127
Acetone	2500		2500	100	0-154
Iodomethane	2500		2300	92	20-163
Carbon Disulfide	2500		2800	112	63-126
Methylene Chloride	2500		2500	100	62-128
trans-1,2-Dichloroethen	2500		2300	92	76-120
Methyl tert-butyl ether	2500		2500	100	52-130
1,1-Dichloroethane	2500		2400	96	74-118
Vinyl acetate	2500		2500	100	31-137
2-Butanone	2500		2400	96	14-154
cis-1,2-Dichloroethene	2500		2400	96	83-115
2,2-Dichloropropane	2500		2400	96	64-125
Bromochloromethane	2500		2400	96	70-119
Chloroform	2500		2400	96	77-120
1,1,1-Trichloroethane	2500		2300	92	72-126
1,1-Dichloropropene	2500		2400	96	71-132
Carbon Tetrachloride	2500		2300	92	69-135
1,2-Dichloroethane	2500		2500	100	65-126
Benzene	2500		2400	96	78-121
Trichloroethene	2500		2400	96	75-125
1,2-Dichloropropane	2500		2400	96	78-117
Dibromomethane	2500		2400	96	65-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix Spike - Sample No.: V60LCS   Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Bromodichloromethane	2500		2400	96	75-118
cis-1,3-Dichloropropene	2500		2500	100	78-120
4-Methyl-2-pentanone	2500		2700	108	45-141
Toluene	2500		2500	100	80-126
trans-1,3-Dichloroprope	2500		2500	100	73-123
1,1,2-Trichloroethane	2500		2300	92	66-125
1,3-Dichloropropane	2500		2400	96	76-119
Tetrachloroethene	2500		2400	96	65-134
2-Hexanone	2500		2600	104	37-136
Dibromochloromethane	2500		2300	92	76-115
1,2-Dibromoethane	2500		2300	92	72-117
Chlorobenzene	2500		2400	96	78-117
1,1,1,2-Tetrachloroetha	2500		2400	96	80-115
Ethylbenzene	2500		2400	96	79-129
Xylene (Total)	7500		7400	99	83-125
Styrene	2500		2500	100	83-122
Bromoform	2500		2200	88	67-126
Isopropylbenzene	2500		2600	104	80-135
1,1,2,2-Tetrachloroetha	2500		2400	96	70-117
Bromobenzene	2500		2400	96	79-119
1,2,3-Trichloropropane	2500		2500	100	0-154
n-Propylbenzene	2500		2400	96	64-141
2-Chlorotoluene	2500		2400	96	70-132
1,3,5-Trimethylbenzene	2500		2400	96	72-133
4-Chlorotoluene	2500		2300	92	77-122
tert-Butylbenzene	2500		2500	100	31-159
1,2,4-Trimethylbenzene	2500		2400	96	73-126
sec-Butylbenzene	2500		2500	100	68-137

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix Spike - Sample No.: V60LCS Level:(low/med) MED

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
4-Isopropyltoluene	2500		2500	100	66-131
1,3-Dichlorobenzene	2500		2400	96	75-115
1,4-Dichlorobenzene	2500		2400	96	72-110
n-Butylbenzene	2500		2600	104	66-130
1,2-Dichlorobenzene	2500		2400	96	78-113
1,2-Dibromo-3-chloropro	2500		2800	112	52-128
1,2,4-Trichlorobenzene	2500		2600	104	49-126
Hexachlorobutadiene	2500		2300	92	58-115
Naphthalene	2500		2800	112	45-130
1,2,3-Trichlorobenzene	2500		2500	100	44-131

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 66 outside limits

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK6S

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Lab File ID: V6C0952   Lab Sample ID: V6B0701A

Date Analyzed: 07/01/02   Time Analyzed: 1157

GC Column: DB-624   ID: 0.25 (mm)   Heated Purge: (Y/N) N

Instrument ID: V6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V6SLCS	V6L0701A	V6C0953	1226
02	GP-12AIR	A0951-02A	V6C0954	1300
03	GP-6AIR	A0951-03A	V6C0955	1330
04	GP-10AIR	A0951-07A	V6C0956	1359
05	GP-2AIR	A0951-08A	V6C0957	1430
06	GP-4AIR	A0951-10A	V6C0958	1509
07	GP-1AIR	A0951-11A	V6C0959	1541
08	GP-3AIR	A0951-12A	V6C0960	1612
09				
10				
11				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK6S

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) WATER Lab Sample ID: V6B0701A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V6C0952

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	3	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK6S

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) WATER Lab Sample ID: V6B0701A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V6C0952

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK6S

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) WATER Lab Sample ID: V6B0701A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V6C0952

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 07/01/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK6U

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Lab File ID: V6C0972 Lab Sample ID: V6B0702A

Date Analyzed: 07/02/02 Time Analyzed: 0945

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: V6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V6ULCS	V6L0702A	V6C0973	1014
02	V6ULCSD	V6L0702B	V6C0974	1043
03	GP-28AIR	A0951-01A	V6C0975	1113
04	GP-19AIR	A0951-04A	V6C0976	1144
05	GP-21AIR	A0951-05A	V6C0977	1214
06	GP-22AIR	A0951-06A	V6C0978	1245
07	GP-24AIR	A0951-09A	V6C0979	1321
08	GP-20AIR	A0951-20A	V6C0980	1352
09				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK6U

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) WATER Lab Sample ID: V6B0702A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V6C0972

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK6U

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) WATER Lab Sample ID: V6B0702A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V6C0972

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK6U

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) WATER Lab Sample ID: V6B0702A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V6C0972

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 07/02/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(uL) Soil Aliquot Volume: ________(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK5Z

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Lab File ID: V5D8763 Lab Sample ID: V5B0627A

Date Analyzed: 06/27/02 Time Analyzed: 0652

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

Instrument ID: V5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V5ZLCS	V5L0627A	V5D8764	0720
02	V5ZLCSD	V5L0627B	V5D8765	0748
03	GP-36.5	A0951-18A	V5D8773	1253
04	GP-136	A0951-13A	V5D8774	1324
05	GP-207.5	A0951-14A	V5D8775	1355
06	GP-213	A0951-15A	V5D8776	1427
07				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK5Z

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: V5B0627A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8763

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
74-88-4	Iodomethane	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	6	
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
108-05-4	Vinyl acetate	5	U
78-93-3	2-Butanone	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
590-20-7	2,2-Dichloropropane	5	U
74-97-5	Bromochloromethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK5Z

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: V5B0627A

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V5D8763

Level: (low/med) LOW   Date Received: ________

% Moisture: not dec. ________   Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume:________(mL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-Hexanone	5	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylene (Total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
103-65-1	n-Propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
106-43-4	4-Chlorotoluene	5	U
98-06-6	tert-Butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	sec-Butylbenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
104-51-8	n-Butylbenzene	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK5Z

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: V5B0627A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V5D8763

Level: (low/med) LOW Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:________(mL) Soil Aliquot Volume: ________(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK60

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Lab File ID: V6C0873 Lab Sample ID: V6B0627B

Date Analyzed: 06/27/02 Time Analyzed: 1010

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: V6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	V6OLCS	V6L0627B	V6C0875	1110
02	GP-246.5	A0951-16A	V6C0882	1444
03	GP-266.5	A0951-17A	V6C0883	1515
04	GP-286.5	A0951-19A	V6C0884	1546
05				
06				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK60

Lab Name: MITKEM CORPORATION   Contract:

Lab Code: MITKEM   Case No.:   SAS No.:   SDG No.: A0951

Matrix: (soil/water) SOIL   Lab Sample ID: V6B0627B

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: V6C0873

Level: (low/med) MED   Date Received: ________

% Moisture: not dec. ________   Date Analyzed: 06/27/02

GC Column: DB-624   ID: 0.25 (mm)   Dilution Factor: 1.0

Soil Extract Volume: 5 (mL)   Soil Aliquot Volume: 100.0 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	250	U
74-87-3	Chloromethane	250	U
75-01-4	Vinyl Chloride	250	U
74-83-9	Bromomethane	250	U
75-00-3	Chloroethane	250	U
75-69-4	Trichlorofluoromethane	250	U
75-35-4	1,1-Dichloroethene	250	U
67-64-1	Acetone	250	U
74-88-4	Iodomethane	250	U
75-15-0	Carbon Disulfide	250	U
75-09-2	Methylene Chloride	250	U
156-60-5	trans-1,2-Dichloroethene	250	U
1634-04-4	Methyl tert-butyl ether	250	U
75-34-3	1,1-Dichloroethane	250	U
108-05-4	Vinyl acetate	250	U
78-93-3	2-Butanone	250	U
156-59-2	cis-1,2-Dichloroethene	250	U
590-20-7	2,2-Dichloropropane	250	U
74-97-5	Bromochloromethane	250	U
67-66-3	Chloroform	250	U
71-55-6	1,1,1-Trichloroethane	250	U
563-58-6	1,1-Dichloropropene	250	U
56-23-5	Carbon Tetrachloride	250	U
107-06-2	1,2-Dichloroethane	250	U
71-43-2	Benzene	250	U
79-01-6	Trichloroethene	250	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK60

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: V6B0627B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6C0873

Level: (low/med) MED Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100.0(uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
142-28-9	1,3-Dichloropropane	250	U
127-18-4	Tetrachloroethene	250	U
591-78-6	2-Hexanone	250	U
124-48-1	Dibromochloromethane	250	U
106-93-4	1,2-Dibromoethane	250	U
108-90-7	Chlorobenzene	250	U
630-20-6	1,1,1,2-Tetrachloroethane	250	U
100-41-4	Ethylbenzene	250	U
1330-20-7	Xylene (Total)	250	U
100-42-5	Styrene	250	U
75-25-2	Bromoform	250	U
98-82-8	Isopropylbenzene	250	U
79-34-5	1,1,2,2-Tetrachloroethane	250	U
108-86-1	Bromobenzene	250	U
96-18-4	1,2,3-Trichloropropane	250	U
103-65-1	n-Propylbenzene	250	U
95-49-8	2-Chlorotoluene	250	U
108-67-8	1,3,5-Trimethylbenzene	250	U
106-43-4	4-Chlorotoluene	250	U
98-06-6	tert-Butylbenzene	250	U
95-63-6	1,2,4-Trimethylbenzene	250	U
135-98-8	sec-Butylbenzene	250	U
99-87-6	4-Isopropyltoluene	250	U
541-73-1	1,3-Dichlorobenzene	250	U
106-46-7	1,4-Dichlorobenzene	250	U
104-51-8	n-Butylbenzene	250	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK60

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Matrix: (soil/water) SOIL Lab Sample ID: V6B0627B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6C0873

Level: (low/med) MED Date Received: ________

% Moisture: not dec. ________ Date Analyzed: 06/27/02

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5(mL) Soil Aliquot Volume: 100(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Lab File ID (Standard): V6C0951 Date Analyzed: 07/01/02

Instrument ID: V6 Time Analyzed: 1021

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
	12 HOUR STD	1979824	7.03	1481675	10.77	737176	13.58
	UPPER LIMIT	3959648	7.53	2963350	11.27	1474352	14.08
	LOWER LIMIT	494956	6.53	370419	10.27	184294	13.08
	EPA SAMPLE NO.						
01	VBLK6S	1980927	7.03	1428294	10.77	697851	13.59
02	V6SLCS	2027813	7.03	1493047	10.77	756781	13.59
03	GP-12AIR	2164671	7.03	1559982	10.77	764581	13.59
04	GP-6AIR	2120473	7.03	1558227	10.76	772860	13.59
05	GP-10AIR	1990097	7.03	1474488	10.77	738107	13.59
06	GP-2AIR	1632010	7.03	1210485	10.76	614614	13.59
07	GP-4AIR	1852058	7.03	1318021	10.77	646261	13.59
08	GP-1AIR	1562864	7.03	1251686	10.77	634188	13.59
09	GP-3AIR	1589412	7.03	1184964	10.76	579232	13.59
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IS1 = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Lab File ID (Standard): V6C0971 Date Analyzed: 07/02/02

Instrument ID: V6 Time Analyzed: 0912

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
	12 HOUR STD	1751087	7.03	1269726	10.77	660496	13.59
	UPPER LIMIT	3502174	7.53	2539452	11.27	1320992	14.09
	LOWER LIMIT	437772	6.53	317432	10.27	165124	13.09
	EPA SAMPLE NO.						
01	VBLK6U	1862871	7.02	1335329	10.76	650171	13.59
02	V6ULCS	1632236	7.02	1192952	10.77	617479	13.59
03	V6ULCSD	1646590	7.02	1220049	10.76	619169	13.59
04	GP-28AIR	1664014	7.03	1204342	10.77	585797	13.59
05	GP-19AIR	1533726	7.03	1078454	10.76	519227	13.59
06	GP-21AIR	1603357	7.03	1122720	10.77	541571	13.59
07	GP-22AIR	1532543	7.03	1084524	10.77	527126	13.59
08	GP-24AIR	1361333	7.03	943843	10.77	460337	13.59
09	GP-20AIR	1415771	7.03	999963	10.77	476458	13.59
10							
11							
12							
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16							
17							
18							
19							
20							
21							
22							

IS1 = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Lab File ID (Standard): V5D8761 Date Analyzed: 06/27/02

Instrument ID: V5 Time Analyzed: 0528

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) Y

		IS1 AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
	12 HOUR STD	1927871	6.34	1398634	9.57	649456	12.32
	UPPER LIMIT	3855742	6.84	2797268	10.07	1298912	12.82
	LOWER LIMIT	963936	5.84	699317	9.07	324728	11.82
	EPA SAMPLE NO.						
01	VBLK5Z	2199735	6.34	1568936	9.57	683635	12.32
02	V5ZLCS	1855028	6.35	1355508	9.58	636651	12.33
03	V5ZLCSD	1874625	6.35	1352278	9.57	631054	12.33
04	GP-36.5	1495625	6.35	1047707	9.57	503001	12.32
05	GP-136	1454000	6.35	1018856	9.58	484010	12.32
06	GP-207.5	1482469	6.35	1035928	9.57	520369	12.32
07	GP-213	1475015	6.35	1093611	9.58	849800	12.33
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 = Fluorobenzene

IS2 (CBZ) = Chlorobenzene-d5

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: A0951

Lab File ID (Standard): V6C0871 Date Analyzed: 06/27/02

Instrument ID: V6 Time Analyzed: 0907

GC Column: DB-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
	12 HOUR STD	1432645	7.03	1088024	10.77	592618	13.59
	UPPER LIMIT	2865290	7.53	2176048	11.27	1185236	14.09
	LOWER LIMIT	716323	6.53	544012	10.27	296309	13.09
	EPA SAMPLE NO.						
01	VBLK6O	1300162	7.03	896219	10.77	424237	13.59
02	V6OLCS	1379084	7.02	1046514	10.77	556573	13.59
03	GP-246.5	1876130	7.03	1347889	10.77	689713	13.59
04	GP-266.5	2010633	7.02	1436204	10.77	727322	13.59
05	GP-286.5	2060159	7.03	1467485	10.77	748447	13.59
06							
07							
08							
09							
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11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 = Fluorobenzene

IS2 (CBZ) = Chlorobenzene-d5

Mitkem Corporation

New York State Department of Environmental Conservation
Sample Identification and Analytical Requirements Summary

Project Name: **SOH**

SDG: **A0951**

Customer Sample ID	Laboratory Sample ID	Analytical Requirements				
		VOA GC/MS Method #	SVOA GC/MS Method #	Pest/PCB Method #	Metals	Other
GP-28AIR	A0951-01	TO-14				
GP-12AIR	A0951-02	TO-14				
GP-6AIR	A0951-03	TO-14				
GP-19AIR	A0951-04	TO-14				
GP-21AIR	A0951-05	TO-14				
GP-22AIR	A0951-06	TO-14				
GP-10AIR	A0951-07	TO-14				
GP2AIR	A0951-08	TO-14				
GP-24AIR	A0951-09	TO-14				
GP-4AIR	A0951-10	TO-14				
GP-1AIR	A0951-11	TO-14				
GP-3AIR	A0951-12	T0-14				
GP-136	A0951-13	8260				
GP-207.5	A0951-14	8260				
GP-213	A0951-15	8260				
GP-246.5	A0951-16	8260				

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Volatile (VOA) Analyses

Project Name: **SOH** SDG: **A0951**

Laboratory Sample ID	Matrix	Date Collected	Date Received by Lab	Date Extracted	Date Analyzed
A0951-01A	AIR	6/18/02	6/20/02	NA	7/2/02
A0951-02A	AIR	6/17/02	6/20/02		7/1/02
A0951-03A	AIR	6/17/02	6/20/02		7/1/02
A0951-04A	AIR	6/18/02	6/20/02		7/2/02
A0951-05A	AIR	6/18/02	6/20/02		7/2/02
A0951-06A	AIR	6/18/02	6/20/02		7/2/02
A0951-07A	AIR	6/17/02	6/20/02		7/1/02
A0951-08A	AIR	6/17/02	6/20/02		7/1/02
A0951-09A	AIR	6/18/02	6/20/02		7/2/02
A0951-10A	AIR	6/17/02	6/20/02		7/1/02
A0951-11A	AIR	6/17/02	6/20/02		7/1/02
A0951-12A	AIR	6/17/02	6/20/02		7/1/02
A0951-13A	SL	6/17/02	6/20/02		6/27/02
A0951-14A	SL	6/18/02	6/20/02		
A0951-15A	SL	6/18/02	6/20/02	NA	
A0951-16A	SL	6/18/02	6/20/02		

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Volatile (VOA) Analyses

Project Name: **SOH** SDG: **A0951**

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Low/Medium Level	Dil/Conc Factor
A0951-01A	AIR	TO-14	NA	Low	1
A0951-02A	AIR	TO-14			
A0951-03A	AIR	TO-14			
A0951-04A	AIR	TO-14			
A0951-05A	AIR	TO-14			
A0951-06A	AIR	TO-14			
A0951-07A	AIR	TO-14			
A0951-08A	AIR	TO-14			
A0951-09A	AIR	TO-14			
A0951-10A	AIR	TO-14			
A0951-11A	AIR	TO-14			
A0951-12A	AIR	T0-14	NA		
A0951-13A	SL	8260			
A0951-14A	SL	8260			
A0951-15A	SL	8260	NA	Low	1
A0951-16A	SL	8260	Methanol	Medium	50

Analytical Data Package for Dvirka & Bartilucci

Client Project: SOH, 784222

SDG# A0951

Mitkem Project ID: A0951

July 17, 2002

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to Shaw Environmental & Infrastructure's SOH project. Under this deliverable, analysis results are presented for thirteen air and seven soil samples that were received on June 20, 2002. Analyses were performed per specifications in the project's contract and the chain of custody forms. Following the SDG narrative is a copy of the Mitkem workorder for cross-referencing client sample ID with laboratory sample ID.

The analyses were performed according to NYSDEC ASP and USEPA protocols (October 1995 update) and reported per NYSDEC ASP requirement for Category B deliverable.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required. Manual integrations are coded to provide the data reviewer justification for such action. The codes are labeled on the ion chromatogram signal (GC/MS signal) and chromatogram for GC based analysis as follows:

- M1 peak tailing or fronting.
- M2 peak co-elution.
- M3 rising or falling baseline.
- M4 retention time shift.
- M5 miscellaneous – under this category, the justification is explained.

The enclosed report includes the originals of all data with the exception of logbook pages and certain initial calibrations. Photocopies of logbook pages are included, with the originals maintained on file at the laboratory. The originals of initial calibrations that are

Sample analysis: some compounds were detected above the instrument calibration range and "E" flagged on Form Is. Normally, these samples would be analyzed at dilution. In this case, the samples were not re-analyzed at dilution, as it is not possible to do so. No other unusual observation was made for the analyses.

3. Volatile Analysis (Soils):

Surrogate recovery: recoveries were within QC limits.

Lab control sample: spike recoveries were within the QC limits.

Sample analysis: samples GP-246.5, GP-266.5 and GP-286.5 were analyzed at mediume level. In addition to the medium level analysis, sample GP-286.5 was analyzed at 6x dilution. No other unusual observation was made for the analysis.

The pages in this report have been numbered consecutively, starting from this narrative and ending with a page saying only "Last Page of Data Report".

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Agnes R Ng

Agnes Ng
CLP Project Manager
07/17/02

Mitkem Corporation ***21/Jun/02 16:08*** **WorkOrder: A0951**

Client ID:	SHAW_LATHAM	**Case:**		**Report Level:**	ASP-B
Project:	SOH	**SDG:**		**EDD:**	XL
Location:	784222	**PO:**	784222	**HC Due:**	07/11/02
Comments:	N/A			**Fax Due:**	

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Test Code Comments	Hold	MS	SEL	Storage
A0951-01A	GP-28AIR	06/18/02 19:20	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-02A	GP-12AIR	06/17/02 17:45	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-03A	GP-6AIR	06/17/02 14:25	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-04A	GP-19AIR	06/18/02 13:20	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-05A	GP-21AIR	06/18/02 14:30	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-06A	GP-22AIR	06/18/02 15:22	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-07A	GP-10AIR	06/17/02 16:35	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-08A	GP-2AIR	06/17/02 11:52	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-09A	GP-24AIR	06/18/02 16:55	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-10A	GP-4AIR	06/17/02 12:58	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA

Client Rep: Benjamin F Dodge

Mitkem Corporation *21/Jun/02 16:08* **WorkOrder: A0951**

Client ID: SHAW_LATHAM
Project: SOH
Location: 784222
Comments: N/A

Case:
SDG:
PO: 784222

Report Level: ASP-B
EDD: XL
HC Due: 07/11/02
Fax Due:

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Test Code Comments	Hold	MS	SEL	Storage
A0951-11A	GP-1AIR	06/17/02 11:22	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-12A	GP-3AIR	06/17/02 12:30	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA
A0951-13A	GP-136	06/17/02 18:40	06/20/02	Soil	PMoist		☐	☐	☐	VOA
					SW8260B_LOW_S		☐	☐	☐	VOA
A0951-14A	GP-207.5	06/18/02 14:15	06/20/02	Soil	PMoist		☐	☐	☐	VOA
					SW8260B_LOW_S		☐	☐	☐	VOA
A0951-15A	GP-213	06/18/02 14:35	06/20/02	Soil	PMoist		☐	☐	☐	VOA
					SW8260B_LOW_S		☐	☐	☐	VOA
A0951-16A	GP-246.5	06/18/02 17:06	06/20/02	Soil	PMoist		☐	☐	☐	VOA
					SW8260B_LOW_S		☐	☐	☐	VOA
A0951-17A	GP-266.5	06/18/02 18:22	06/20/02	Soil	PMoist		☐	☐	☐	VOA
					SW8260B_LOW_S		☐	☐	☐	VOA

0004

Client Rep: Benjamin F Dodge

Mitkem Corporation

21/Jun/02 16:08

WorkOrder: A0951

Client ID: SHAW_LATHAM
Project: SOH
Location: 784222
Comments: N/A

Case:
SDG:
PO: 784222

Report Level: ASP-B
EDD: XL
HC Due: 07/11/02
Fax Due:

Sample ID	Client Sample ID	Collection Date	Date Received	Matrix	Test Code	Test Code Comments	Hold	MS	SEL	Storage
A0951-18A	GP-36.5	06/18/02 12:43	06/20/02	Soil	PMoist		☐	☐	☐	VOA
					SW8260B_LOW_S		☐	☐	☐	VOA
A0951-19A	GP-286.5	06/18/02 19:35	06/20/02	Soil	PMoist		☐	☐	☐	VOA
					SW8260B_LOW_S		☐	☐	☐	VOA
A0951-20A	GP-20AIR	06/18/02 13:55	06/20/02	Air	TO-14	8260	☐	☐	☐	VOA

00005

Client Rep: Benjamin F Dodge

Sample Transmittal Documentation

MITKEM CORPORATION

175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

REPORT TO		INVOICE TO		
COMPANY Shaw E&I	PHONE 518-783-1996	COMPANY Same	PHONE	LAB PROJECT #: A0951
NAME Drew Graham	FAX 518-783-8397	NAME	FAX	
ADDRESS 13 British American Blvd.		ADDRESS		TURNAROUND T
CITY/ST/ZIP Latham, NY 12110		CITY/ST/ZIP		Norma

CLIENT PROJECT NAME: SOH
CLIENT PROJECT #: 784222
CLIENT P.O.#:

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	EPA 8260	COMMENTS
GP-28 Air	6/18/02 / 19:20		X			X	A0951-01	1	X	
GP-12 Air	6/17/02 / 17:45		X			X	A0951-02	1	X	
GP-6 Air	6/17/02 / 14:25		X			X	A0951-03	1	X	
GP-19 Air	6/18/02 / 13:20		X			X	A0951-04	1	X	
GP-21 Air	6/18/02 / 14:30		X			X	A0951-05	1	X	
GP-22 Air	6/18/02 / 15:22		X			X	A0951-06	1	X	
GP-10 Air	6/17/02 / 16:35		X			X	A0951-07	1	X	
GP-2 Air	6/17/02 / 11:52		X			X	A0951-08	1	X	
GP-24 Air	6/18/02 / 16:55		X			X	A0951-09	1	X	
GP-4 Air	6/18/02 / 12:58		X			X	A0951-010	1	X	
GP-1 Air	6/17/02 / 11:22		X			X	A0951-011	1	X	
GP-3 Air	6/17/02 / 12:30		X			X	A0951-012	1	X	

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	[signature]	6/19/02 / 11:15	[signature]	6/20/02 / 1000
2		/		/
3		/		/

ADDITIONAL REMARKS:

COOLER TE
Ambient

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY SHAW E & I	PHONE 518-783-1996	COMPANY Same	PHONE	LAB PROJECT #: A0951
NAME Drew Graham	FAX 518-783-8397	NAME	FAX	
ADDRESS 13 British American Blvd.		ADDRESS		TURNAROUND TI[ME] Normal
CITY/ST/ZIP Latham, NY 12110		CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
SOH	784222	

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	EPA 8260												COMMENTS
GP-13 6'	6/17/02 / 18:40		X		X		A0951-013	1	X												
GP-20 7.5'	6/18/02 / 14:15		X		X		A0951-014	1	X												
GP-21 3'	6/18/02 / 14:35		X		X		A0951-015	1	X												
GP-24 6.5'	6/18/02 / 17:06		X		X		A0951-016	1	X												
GP-26 6.5'	6/18/02 / 18:22		X		X		A0951-017	1	X												
GP-3 6.5'	6/17/02 / 12:43		X		X		A0951-018	1	X												
GP-28 6.5'	6/18/02 / 19:35		X		X		A0951-019	1	X												
GP-20 Air	6/18/02 / 13:55		X		X		A0951-020	1	X												
	/																				
	/																				
	/																				
	/																				

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1	[signature]	6/19/02 / 11:15	Sara Kozakowski	6-20-02 / 1000
2		/		/
3		/		/

ADDITIONAL REMARKS:

COOLER TE[MP]: Ambient 5

MITKEM CORPORATION

Sample Condition Form

Page 1 of 1

Received By: SK | Reviewed By: | Date: 6-20-02 | MITKEM Project: A0951

Client Project: SOH   Client: Shaw

Condition:

1)Custody Seal(s) Present / Absent
Coolers / Bottles
Intact / Broken

Custody Seal Numbers

3)Chain -of- Custody Present / Absent

4)Airbill(s) Present / Absent

Airbill Number(s) 2764727571
2764727475

5)Cooler Temperature Ambient / 5°c

Coolant Condition ice

6)Sample Bottles Intact/Broken/Leaking

7)Date Received 6-20-02

8)Time Received 1000

Lab Sample ID	Preservation (pH) HNO3	H2SO4	HCl	NaO	VOA Matrix
A0951 -01					A
A0951 -02					A
A0951 -03					A
A0951 -04					A
A0951 -05					A
A0951 -06					A
A0951 -07					A
A0951 -08					A
A0951 -09					A
A0951 -010					A
A0951 -011					A
A0951 -012					A
A0951 -013					US
A0951 -014					US
A0951 -015					US
A0951 -016					US
A0951 -017					US
A0951 -018					US
A0951 -019					US
A0951 -020					A

NA SK

VOA Matrix Key: