P.W. GROSSER CONSULTING

June 18, 2007

REMEDIAL BURREAU A
RECEIVED
JUN 20 2007

Mark Dannenberg
Regional Project Manager
Eastern New York Remediation Section
United States Environmental Protection Agency
Region 2
290 Broadway
New York, NY 10007-1866

Re: CERCLA Administrative Order on Consent, Index No. CERCLA-02-2000-2036
Computer Circuits Superfund Site, Hauppauge, NY
Revised Feasibility Study Report Submission

Dear Mr. Dannenberg,

P.W. Grosser Consulting Engineer & Hydrogeologist, PC (PWGC) has prepared this letter, on behalf of 145 Marcus Blvd., Inc., to accompany the submission of the revised Feasibility Study (FS) Report for the Former Computer Circuits Site. The February 6, 2007 draft version of FS Report has been revised to address EPA's comments, as detailed in the EPA letter received by PWGC April 30, 2007, and as per the June 11, 2007 meeting at 290 Broadway Avenue, NY, NY. PWGC has also incorporated the analytical results from the recent groundwater sampling event into the report, as it pertains to the potential remedial action to be selected.

Based upon the revisions, and the comparative analysis of alternatives in Section 5.2, PWGC strongly believes that the continuation of the IRM along with the implementation of Alternative 2, Groundwater Monitoring, is the most appropriate alternative to be implemented as a remedial action. As per EPA's request, the FS Report has been revised, so that continuation of the IRM is a common element to all of the alternatives evaluated. As such, the IRM is planned to remain in operation to remediate the remaining soil source areas, and the FS Report was revised evaluate remedial alternatives to address VOCs in groundwater at the site. Based upon the seven criteria for evaluating the alternatives, the historic low levels of VOCs detected in the groundwater, and the recent analytical results showing even lower VOC concentrations in groundwater at the site, Alternative 2 is by far the most appropriate remedial alternative to deal with the low level of impact at the site.

PWGC believes that this revised FS Report will meet your expectations as per EPA's recent comment letter regarding the Draft FS Report and our June 11, 2007 meeting discussing the Draft FS and your comments.

Thank you for taking the time to meet with us last week. Please contact me if you have any further questions or comments.

Sincerely yours,
P.W. Grosser Consulting

Kris Almskog

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Project Manager

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Feasibility Study Report

FORMER COMPUTER CIRCUITS SITE

145 Marcus Boulevard
Hauppauge
Suffolk County, New York

VOLUME 1 of 1

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FEASIBILTY STUDY
REPORT

FORMER COMPUTER CIRCUITS SUPERFUND SITE

EPA Index No. CERCLA-02-2000-2036

145 Marcus Boulevard
HAUPPAUGE, NEW YORK

Submitted:
JUNE 18, 2007

Prepared For:
145 Marcus Boulevard, Inc.

Prepared By:
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Kris Almskog

Kris Almskog
Project Manager
P.W. Grosser Consulting, Inc.

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ACRONYMS

AOC	Administrative Order on Consent
ARARs	Applicable or Relevant and Appropriate Requirements
APACE	Algorex Power and Control, Electronics, Incorporated
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
COPC	Chemicals of Potential Concern
CLP	Contract Laboratory Program
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
GM	Groundwater Monitoring
GRA	General Response Actions
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
IRM	Interim Remedial Measure
ISCO	In-Situ Chemical Oxidation
MCL	Maximum Contaminant Levels
MNA	Monitoring Natural Attenuation
NCP	National Contingency Plan
NPL	National Priorities List
NYSDOH	New York State Department of Health
NYSDEC	New York State Department of Environmental Conservation
PCE	Tetrachloroethane
POTW	Public Owned Treatment Works
PRG	Preliminary Remediation Goals
PRSC	Post-Removal Site Control
PWGC	P.W. Grosser Consulting
QAPP	Quality Assurance Project Plan
RI/FS	Remedial Investigation/Feasibility Study
RAO	Remedial Action Objectives
RSCO	Recommended Soil Cleanup Objective
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SCDEC	Suffolk County Department of Environmental Control
SCDHS	Suffolk County Department of Health Services
SCWA	Suffolk County Water Authority
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination Systems
SVE	Soil Vapor Extraction
TBC	To Be Considered
TCE	Trichloroethylene
TCA	Trichloroethane
VOC	Volatile Organic Compound

1.0 INTRODUCTION

P.W. Grosser Consulting, Inc. (PWGC) was contracted by 145 Marcus Boulevard, Inc.to prepare and implement a Remedial Investigation/Feasibility Study (RI/FS) at the former Computer Circuits Site, located at 145 Marcus Blvd, Hauppauge, New York. The site was placed on the National Priorities List (NPL) effective May 10, 1999 and assigned EPA Index No. CERCLA-02-2000-2036.

The final version of the RI/FS Work Plan, entitled Revised Final Work Plan For Remedial Investigation/Feasibility Study, Former Computer Circuits Superfund Site which is supported by the Site-Specific Quality Assurance Project Plan (QAPP), Field Sampling Plan (FSP), Site Management Plan (SMP), and Health and Safety Plan (HASP) was submitted to the US Environmental Protection Agency (EPA) in August 2001 and was approved for implementation by letter dated October 5, 2001.

The field work portion of the RI was conducted by PWGC from December 17, 2001 to July 24, 2002, in accordance with the terms and conditions as set forth in the Administrative Order on Consent (AOC), executed on September 29, 2000.

1.1 Purpose and Organization of the Study

This FS Report documents the basis and the procedures used in identifying, developing, screening, and evaluating remedial alternatives that will address subsurface contamination at the site. The report provides the EPA and New York State Department of Environmental Conservation (NYSDEC) with sufficient data to select a feasible and cost-effective remedial alternative that will protect human health and the environment. The selected remedial alternative will be documented in a Proposed Plan (PRAP) and Record of Decision (ROD) for the site.

This report contains five sections. This section (Section 1) provides site background information, summarizes the RI, describes the nature and extent of contamination, physical setting, provides the results of the human health and ecological risk assessments and identifies the Applicable or Relevant and Appropriate Requirements. The RI Report (PWGC December 29, 2006) gives additional details on the results of the RI.

Section 2.0 summarizes the interim actions that were implemented at the site and which are discussed in greater detail in the Interim Remedial Measure (PWGC, 2005) prepared for the site.

Section 3.0, Identification and Screening of Technologies, presents the objectives for remedial action(s), summarizes applicable health and environmental protection criteria and standards and identifies general response actions. Potentially feasible technologies are presented for each general response action, along with the technical criteria and the site-specific requirements that were used in the technology screening process. The results of the remedial technology screening are also presented.

Section 4.0, Development of Alternatives, describes the remedial alternatives that were developed by combining the technologies that passed the screening. The specific areas where alternatives are developed and screened include the on-site groundwater contamination and soil source area contamination. Alternatives for each area were developed according to the three general categories required by the Superfund Amendments and Reauthorization Act (SARA): No action, containment, and treatment. The procedure for screening the remedial alternatives also is described in this chapter. Each alternative is descried and an evaluation based on effectiveness, implementability, and cost is presented. The feasible alternatives are retained for further detailed evaluation.

Section 5.0, Detailed Analysis of Alternatives, thoroughly describes alternatives developed in section 4.0 for the three specific areas of effectiveness, implementabilty and cost. Each alternative is evaluated in detail and then a comparative analysis is discussed. The detailed evaluation criteria include the following: (1) short-term effectiveness, (2) long-term effectiveness, (3) reduction of toxicity, mobility, and volume, (4) implementability, (5) cost, (6) compliance with Applicable or Relevant and Appropriate Requirements (ARARs), (7) overall protection of human health and the environment, (8) State acceptance, and (9) Community acceptance.

1.2 Site Location and Description

The former Computer Circuits site is a 2.5 - acre industrial site located within an industrial park in Hauppauge, New York **(Figure 1)**. It is bordered by Marcus Boulevard to the west and other industrial/commercial businesses to the north, south, and east. The site is occupied by a 21,600 square foot, one-story building, which is located near the center of the site **(Figure 2)**. Asphalt driveways and parking areas are present to the north and south of the building, and extend the length of the property. The paved areas and building area occupy approximately 50 percent of the total area of the site. The remainder of the site consists of a landscaped area (75 x 240 ft) at the front (west side) of the building, and a vacant, unpaved area approximately 180 ft x 150 ft to the rear (east) of the building. A thin wooded strip is present (10 -15 ft wide) at the rear of the vacant area along the east property line. The building interior layout is presented in **Figure 3**.

There are no underground or aboveground storage tanks at the site. The heating system is fueled by natural gas which is piped to the site via underground connections along the north side of the building. Sanitary wastes are discharged to an on-site septic system located at the front (west side) of the building. There is one storm drain (catch basin) present on the site which is located at the base of the loading dock ramp in the northeast corner of the building. The loading dock catch basin routes runoff to a drywell located approximately 15 feet north at the ramp entrance.

1.3 Site History

From 1969 to 1991, the property was owned by MCS Realty and leased to various companies. Computer Circuits was the first tenant and occupied the entire property from 1969 to 1977. From 1977 to 1980 the site was leased to a trade school. After that, NAV-TEC, an assembler of electronic components, occupied the site from 1980 to 1983, followed by a tax form preparation company TYMSHARE from 1983 to 1989. In July 1991, MCS Realty sold the property to 145 Marcus Boulevard Corporation. The site was most recently occupied by Algorex Power and Control Electronics, Incorporated (APACE), an electronics manufacturing and design company specializing in power and motion control products. APACE vacated the property in April, 2002 and the property remained vacant until the Fall 2005, at which time the south west corner of the building was occupied by Castle Financial Advisors.

Computer Circuits was a manufacturer of printed circuit boards for both military and commercial applications. Waste liquids from the circuit board manufacturing process (containing copper sulfate, nickel, sulfuric acid, hydrochloric acid, lead fluoroborate, fluorides, copper, gold cyanate, ammonia, lead, nitric acid, and tin) were discharged to five industrial leaching pools located southeast of the building. Photographic chemicals and trichloroethylene, associated with a dark room and the silk screening room located in the northern part of the facility, were discharged to a single industrial leaching pool on the north side of the building. **(Figure 2)**.

In January 1973, a pipe connection was discovered between the Computer Circuits industrial leaching pools on the south side of the building, and a catch basin on Marcus Boulevard by the

Suffolk County Department of Environmental Control (SCDEC). After the connection was removed in 1974, wastewater was observed flowing over the surface of the ground into the storm drain system. In 1975 Computer Circuits applied for and was issued a State Pollution Discharge Elimination (SPDES) Permit (No. 0075485) from the New York State Department of Environmental Conservation (NYSDEC). The permit, which was effective from April 1975 to April 1977, regulated the discharge of copper, iron, lead, nickel, silver and phenol to the industrial leach pool system.

On numerous occasions between 1976 and 1977, the SCDEC collected samples from the industrial leaching pools, and found that copper and lead were consistently detected at levels above the SPDES permit limits. An inspection conducted in 1976 revealed that the site was littered with trash, broken barrels, and spilled piles of chemicals and blue/green colored sludge.

In 1976, in response to requests by the SCDEC, Computer Circuits hired a contractor who excavated and filled the five industrial leaching pools located near the southeast corner of the building and installed two new leaching pools in this general area, which were also intended for industrial waste disposal. In 1977, SCDEC traced the building's plumbing to identify connections to two leaching pools located on the north side of the building. It was determined by SCDEC that one of the pools was part of a sanitary system that was connected to an unused bathroom. The second pool was connected to sinks which were located in a silk screen fabrication room and a photographic dark room. The silk screening process utilized trichloroethylene (TCE) to remove ink from the screens prior to rinsing with water in the sink. The industrial leaching pool was reported to be completely "clogged" and was capped inside the building sometime between 1977 and 1978 (SCDEC). Computer Circuits vacated the premises in 1978.

1.4 Summary of Previous Investigations

The following is a brief chronological summary of the sampling and analytical programs conducted at the former Computer Circuits site prior to the remedial investigation documented in the RI Reported submitted December 29, 2006.

Suffolk County Department of Health Services, Water Pollution Control Unit (formerly SCDEC), 1976 and 1977
SCDEC sampled the on-site industrial leaching pools and found exceedances for copper and lead.

Roux Associates, Inc., May 3, 1989
Roux Associates under contract to the former property owner (MCS Realty), conducted a soil and groundwater investigation at the site, as required by the NYSDEC under an Order on Consent (Number W10061885) between the NYSDEC and the former property owner, MCS Realty. A magnetometer survey was conducted. Ten soil borings were drilled at various locations throughout the site, including west of the building, near the industrial leaching pools at the southeast and northwest corners of the building. Three monitoring wells, MW1, MW2 and MW3 were installed and sampled. VOCs were not detected in the soil above NYSDEC guidance values. Groundwater analysis from the monitoring wells indicated VOCs, including trichloroethene (TCE), 1,2-dichloroethene (1,2-DCE) and 1,1,1-trichloroethane (1,1,1-TCA) present above NYSDEC standards and metals including cadmium, chromium, copper, lead, nickel and zinc present at or below NYSDEC standards. No significant anomalies were detected during the magnetometer survey.

PWGC, May 1994
PWGC as consultant for the new property owner, 145 Marcus Boulevard Corporation, investigated a sinkhole at the site, located southeast of the corner of the building. Construction debris and a barrel

containing a nickel solution were discovered in the sinkhole area. This material was excavated and stockpiled, and removed from the site in November 1995.

PWGC, September through November 1995

PWGC as consultant for the property owner conducted a soil quality investigation. Five soil borings were drilled, one near the main sanitary cesspool system west of the building, one at the industrial leach pool located on the north side of the building, and three around the former location of the industrial leaching pools south of the building. Groundwater samples were also collected from the three existing monitoring wells at this time. VOCs were not detected in the soil samples above NYSDEC guidance values. Metals including lead, silver, copper, nickel and zinc were detected in the soil samples above the NYSDEC guidance values. Groundwater samples indicated the presence of VOCs, including TCE, 1,2-DCE and 1,1,1-TCA and tetrachloroethene (PCE) above NYSDEC standards. Metals including zinc were detected slightly above the NYSDEC ambient water quality standards (AWQS). Additional stained soil was also removed from the sinkhole area and the remains of a leaching pool, believed to be one of the two industrial replacement pools, were discovered.

Parsons Engineering, February 1996

Parsons Engineering under contract to NYSDEC conducted a soil vapor survey at the site. The samples were analyzed, using a mobile laboratory, for TCE, 1,1,1-TCA, and 1,2-dichloroethane (1,2-DCA). Elevated levels (>10,000 ppb) of TCE were detected in soil vapor in the immediate vicinity of the industry pool on the north side of the building and adjacent to the discharge line which connects the pool where it exits the building. Elevated levels of TCE and 1,1,1-TCA were detected in a soil vapor probe located along the east side of the building just north of the exterior door.

Malcolm Pirnie, Inc., March through May 1996

Under contract to the USEPA, Malcolm Pirnie conducted a Hazard Ranking System sampling investigation of the site. Fourteen subsurface soil samples were collected from the industrial leaching pool areas, the sinkhole area, and background locations on the property. Metals including copper and nickel were detected above NYSDEC guidance values in the soil samples. VOCs were not detected above NYSDEC guidance values. In addition, three monitoring wells MW4, MW5 and MW6 were installed at the site. In May, groundwater samples were collected from the three new wells and two of the previously existing wells (MW2, MW3). VOCs including TCE, 1,1,1-TCA, PCE and 1,2-DCE were detected above NYSDEC standards including wells MW3 and MW4. Analysis for metals detected zinc above NYSDEC standards in MW2.

The results of the previous investigations performed at the site identified a concentration of metals (primarily nickel and copper) at the base depth (8-22 ft) of the primary industrial leaching pools which existed near the southeast corner of the building. The deposit of metals was limited to the immediate area occupied by the former pools and was clearly related to the discharge of industrial wastes to the on-site drainage system. The industrial leaching pool located on the north side of the building also contained a concentration of metals, primarily nickel and silver, in the upper 5 to 7 feet of soil. According to SCDHS files (HRS Report, USEPA, 1997), this pool was connected to a sink used by a photographic dark room and silk screening room located in the north end of the building. The files indicate that the discharge line to the pool had been capped prior to 1978.

Groundwater results obtained from the on-site monitoring wells located along the southern third of the property (MW3-MW6), identify VOCs, primarily TCE, PCE, and, in one well (MW3) 1,1,1 -TCA. The highest concentrations of PCE (280 μg L) and 1,1-TCA (170 μg L) were reported in MW3 during the 5/96 sampling round performed by Malcolm Pirnie. TCE was highest in this well during the 3/89 sampling round performed by Roux Associates. The highest concentrations of TCE reported at the site, were in the two monitoring wells located in the northern part of the site; MW1 and MW2. In both cases the highest concentrations of TCE were observed during the 3/89 sampling round performed by Roux Associates. Minor amounts of 1,1,1-TCA and PCE were also detected in these wells during previous sampling events.

1.4.1 Usability of Data Collected During Previous Investigations

The soil and groundwater data obtained from the 1989 field investigation performed by NYSDEC (Roux Associates) and the 1996 investigation performed by EPA (Malcolm Pirnie, Inc.) were both subjected to analysis according to the USEPA Contract Laboratory Program (CLP). This program describes a rigorous process intended to assure and document the quality of the data produced. External review of the laboratory deliverables to verify procedural adherence within established tolerances and final validation or qualification of the results is typically required within the context of the RI/FS process under CERCLA. Internal data validation was performed by EPA on the 1996 data set, and it is therefore appropriate to use this data in preparation of the RI/FS. Although full laboratory deliverables were provided for the 1989 data, there was no discussion of external or third party validation in the investigative report prepared by Roux Associates. To carry the data through the RI/FS process it would be necessary to have the data validated. It is appropriate, however, to use and recognize the data as an important record of historical groundwater quality at the site.

The field data collected by PWGC in 1994-1995 was provided in a results-only format. This data is not appropriate for use in the RI/FS, however, it is useful as a qualitative indicator of the spacial distribution of contaminants in soil and groundwater during the period of time in which the samples were collected.

1.5 Summary of Remedial Investigation

PWGC was contracted by 145 Marcus Blvd. Corporation to prepare and implement a Remedial Investigation. Field work was performed from December 17, 2001 through July 24, 2002 in accordance with the terms and conditions set forth in the Administrative Consent Order (AOC) executed on September 29, 2000. Remedial Investigation field activities included geophysical survey of the site, excavation of test pits and collection and analysis of soil, groundwater and air samples. The Final Remedial Investigation Report was submitted to the EPA on February 9, 2007 and subsequently approved.

1.5.1 Hydrogeologic Assessment and Physical Setting

1.5.1.1 Site Topography

The topographic relief at the site is generally flat with a gentle slope to the west toward Marcus Boulevard. At the very rear of the site, along the east property line the land surface drops steeply approximately eight feet to the neighboring property.

1.5.1.2 Surrounding Land Use

The site is located on Marcus Boulevard in an industrial/commercial area of Hauppauge, New York. It is bordered by Marcus Boulevard to the west and other industrial/commercial properties to the north, south, and east. A residential area is located north of the site at a distance of approximately 2,100 feet.

1.5.1.3 Regional Geology / Hydrology

The former Computer Circuits site is underlain by glacial deposits, specifically the Ronkonkoma Terminal Moraine, which consists of heterogeneous sand, gravel, and boulders with occasional silt and clay lenses. Glacial deposits are approximately 150 feet in thickness and underlain by more than 1000 feet of Cretaceous coastal plain sediments. The Smithtown Clay is seen one to two miles to the west of the site at a depth within the glacial sediments of up to 100 feet (Lubke, 1964).

The uppermost of the Cretaceous formations is the Magothy, which consists of more than 600 feet of highly stratified layers of sand, gravel, silt and clay, which dip gently to the southeast. The Magothy Formation is underlain by the Raritan Clay Member and the Lloyd Sand Member, respectively. These formations are underlain by an erosional bedrock surface composed of granite, diorite, gneiss and schist (Lubke, 1964).

The saturated highly permeable glacial sediments and the underlying Magothy Formation are regarded as the upper aquifer (Lubke, 1964). Long Island is made up of a series of sand and gravel aquifers. All of Long Island's water supply comes from underground water held in aquifers. Three major aquifers make up the Long Island aquifer system. In sequence from shallowest to deepest, the major Long Island aquifers are: the Upper Glacial, the Magothy and the Lloyd Aquifers. The Ronkonkoma Moraine area, is a recharge area in which groundwater flow has a downward component, which likely transports groundwater from the glacial deposits to the Magothy formation. The site is situated some distance north of a regional groundwater divide with groundwater flowing to the northeast, east and southeast (see Figure 11 of RI Report December 2006 - Regional Water Table Surface, March 1983 attached in Appendix A). Located north of the divide, groundwater in the vicinity of the site generally flows in an east-northeast direction toward the headwaters of the Nissequogue River.. The glacial water-table elevation may be slightly higher than the potentiometric surface of the Magothy beneath the site (see Figure 12 RI Report December 2006 - Regional Magothy Potentiometric Surface, March 1983); however, the water table elevation declines more rapidly to the north and east, so that the vertical component becomes upward. Estimated hydraulic conductivity for the glacial sediments in this area is 200 ft/day (McClymonds and Franke, 1972).

1.5.1.4 Site Geology / Hydrology

The Computer Circuits site overlies an interconnected aquifer system consisting of the upper glacial deposits and the underlying Magothy Formation. Depth to groundwater in the underlying glacial aquifer is approximately 100 feet below land surface (bls). The saturated thickness of the Upper Glacial Aquifer at the site is approximately 95-110 feet based on an estimated depth of 200 feet to the surface of the Magothy Aquifer. The lithologic description of the upper sediments from soil borings advanced during this and previous investigations at the site, identifies the materials as fine sand with small amounts of gravel to a depth of 60 to 70 feet below surface. The sand becomes coarser with depth grading into a medium sand from 70 to 100 feet followed by a medium to coarse sand from the water table to a depth of approximately 130 feet below surface. From 130 feet to 200 feet the material then returns to a fine to medium sand.

Groundwater elevation data obtained on two occasions; April 1, 2002 and June 2, 2002, were used to prepare contour maps of the water table surface (see Figures 13 and 14 of RI Report December 2006 attached in Appendix A). Although there are some localized variations, groundwater flow, as shown, is generally northeast to east at an average gradient of 0.001 ft/ft. Table 16 of the RI Report (December 2006) provides a summary of the monitoring well elevation data including total well depth, screened interval, casing elevation and the measured depth to water.

The horizontal hydraulic conductivity across the site, as determined from rising head tests performed in the site monitoring wells, ranged from 51 to 177 ft/day with a mean value of 130 ft/day (Table 3 of RI Report December 2006 attached in Appendix A). Using the average water table gradient of 0.001 and a porosity of 25 percent, the groundwater seepage velocity of the site ranges from 0.23 to 0.78 feet per day with a mean of 0.57 feet per day.

There are no surface water bodies near the site. Artificial recharge basins are located throughout the industrial park to accept storm water run-off from roadside catch basins. Since the depth to groundwater in the area is approximately 100 feet below surface, the water table surface does not intersect the bottom of these structures.

1.5.2 Supplemental Monitoring Well Sampling

A supplemental round of the monitoring well sampling was conducted in December 2006 and June 2007, of the 145 Marcus Blvd. monitoring well network. This recent round of sampling was conducted in order to obtain more recent and relevant groundwater quality information to assist in determining appropriate potential treatment technologies.

Monitoring wells MW-1, MW-2, MW-3, MW-4, & MW-6 were sampled in December 2006. The remainder of the monitoring wells, MW-5, MW-7, MW-8, MW-9, MW-10, & MW-11 were sampled in June 2007, following a renewal of the access agreement for 60 Plant Avenue. Locations of the monitoring wells are shown in Figure 8. Samples were collected in accordance with the Remedial Investigation/Feasibilty Study Work plan for the Former Computer Circuits Superfund Site, prepared by PWGC, dated August 2001. Samples were analyzed for VOCs by EPA method 8260 and for Metals. Results of the recent sampling round, along with the results from the 2002 RI sampling rounds have been summarized in the tables located in Appendix B.

In general, when compared to the 2002 groundwater sampling results, concentrations decreased in most of the monitoring wells during the recent sampling events. Compared to July 2002 analytical results, TCE concentrations have decrease or were non-detectable in each of the eleven wells sampled during this past sampling round. PCE concentrations increased at locations MW-3 and MW-9 in this sampling event when compared to the July 2002 sampling event. No other VOCs were detected in concentrations exceeding USEPA MCLs during this recent sampling event.

1.5.3 Identification of On-Site Source Areas

The results of the soil sampling program indicate a primary source of VOC (TCE) contamination within the existing industrial leaching pool, located on the north side of the building (**Figure 4**). A soil boring advanced through this structure to a depth of 207 feet indicated TCE throughout the soil column to the water table. TCE concentrations were highest near the base of the pool with a maximum concentration of 55,000 μg/kg at a depth 20-22 feet below surface. This presence of TCE in this pool is consistent with SCDEC correspondence which indicates that TCE, along with rinse water from the silk screening process, was discharged to a sink connected to the pool. Minor amounts (<60 μg/kg) of other chlorinated compounds including TCA, PCE and 1,2-DCE (total) were also detected in the upper part of the soil column. The concentration of TCE and it's location within a drainage structure indicates a probable past source of contamination to the groundwater.

TCE was also detected at a concentration of 12,000 µg/kg in a shallow soil sample (SB15, 0-2 ft) collected beneath the concrete floor of the former silk screening room within the north end of the building (**Figure 4**). Contamination in this area was limited to the first 10 feet, and was likely associated with a surface spill migrating through cracks or other perforations in the floor, or from leakage around fittings in the drain line to the north industrial leaching pool. It is unlikely that TCE present beneath the slab was a source of groundwater contamination due to the limited vertical extent represented in the soil column (<10 ft.) and the lack of transport water.

Soil sample results were compared to the recommended soil clean up objective (RSCO) presented in the NYSDEC Technical and Administrative Guidance Memorandum HWR94-4046, for Determination of Soil Cleanup Objectives and Cleanup Levels, January 24, 1994 (TAGM) and USEPA Supplemental Guidance for Developing Soil Screening Levels (SSLs) for Superfund Sites, March, 2001. It should be noted that the only two soil samples obtained from the site (SB15, 0-2 ft, SDB3, 20-22 ft) which contained TCE concentrations above NYSDEC RSCOs, were from the analysis of sample dilutions run by the laboratory. Dilutions are necessary when the initial results are found to exceed the calibration limit of the instrument. The initial (estimated) values for these samples were an order of magnitude lower, and were found to be consistent with the results obtained from the on-site laboratory. There were no other on-site soil samples from the remedial investigation or from any previous investigations which reported TCE above the RSCO value.

Metals including copper and nickel were detected above NYSDEC RSCOs in a limited number of samples near the location of the former industrial leaching pools along the south side of the building. The depth of the detections was closely associated with the base of the former pools, and restricted to the upper 10-22 ft of the soil column. Metals present in this area are likely residual contamination not removed during excavation of the industrial leaching pools in 1976 or excavation performed in the area in 1995. Although copper has been detected below standards in groundwater in this area of the site (MW5), it is unlikely that the area represents a significant source of copper contamination to the groundwater due to limited amount of mass present, the limited mobility in soil and the absence of a transport mechanism through the 80 foot soil column.

1.5.4 Identification of Off-Site Source Areas

As part of the RI investigation, PWGC conducted an area wide review to identify potential hazardous waste release sites within a 1 mile radius of the 145 Marcus Boulevard site. This was accomplished by conducting an on-line environmental database search using FirstSearch™ software from Datamap Technology Corporation, see Remedial Investigation Report (December 2006) for further Detail. The search results identified 519 sites within the specified search radius from the following 14 data bases:

- **NPL**: National Priority List
- **CERCLIS**: Comprehensive Environmental Response, Compensation and Liability Information System
- **ERNS**: Emergency Response Notification System
- **NPDES**: National Pollution Discharge Elimination System
- **FINDS**: The Facility Index System
- **NYSDEC-SPILLS**: New York State Department of Environmental Conservation Emergency Release and Petroleum Spill Sites
- **NYSDEC-LANDFILLS**: New York State Department of Environmental Conservation Active Facilities Registration
- **NYSDEC-PBS/CBS/MOSF**: New York State

- **TRIS**: Toxic Chemical Release Inventory System
- **ACEC**: Areas of Critical Environmental Concern
- **RCRIS**: Resource Conservation and Recovery Information System
- **NYSDEC-IHWDS**: New York State Department of Environmental Conservation Registry of Inactive Hazardous Waste Sites

Department of Environmental Conservation database of Petroleum Bulk Storage Facilities (PBS), Chemical Bulk Storage Facilities (CBS) and Major Oil Storage Facilities (MOSF)

- **NYSDOH-PWS**: New York State Department of Health database of Public Water Supply (PWS)
- **NYSDEC-LUST**: New York State Department of Environmental Conservation database of leaking underground storage tanks (LUST)

The number of sites was reduced significantly during an in-depth review process which focused on those sites with documented hazardous material releases which were of particular relevance to the 145 Marcus Blvd. Site in terms of location and chemicals released. Follow-up interviews and file reviews with property owners, the NYSDEC Department of Hazardous Waste and the Suffolk County Department of Health Services (SCDHS), narrowed the list to the following four sites and are shown on **Figure 5**:

- 100 Oser Avenue, Anorad Corporation
- 50 Cabot Court, Former F&H Manufacturing Corporation
- 22 Arkay Drive, Arkay Packaging Corporation
- 99 Marcus Boulevard, EMR Circuits, Inc.

1.5.4.1 Anorad Corporation

The 100 Oser Avenue site is listed on the NYSDEC Registry of inactive hazardous waste sites as a class 2 site NYSDEC Site No. 1-52-162 and is currently under investigation by this agency. The primary contaminant of concern at the site is PCE which was released to an on-site drainage system from 1973 to 1985. VOC concentrations in soil samples taken from the drainage pools were as high as 12,000 mg/kg for PCE and 70 mg/kg for TCE. PCE in groundwater has been reported up to 100,000 µg/L. The site is crossgradient with respect to groundwater flow at the former Computer Circuits site, located approximately 1,500 feet to the north. The former Computer Circuits site is not believed to be within the source water area (capture zone) of the Falcon Drive Wellfield, the wellfield is the nearest potential receptor of concern.

1.5.4.2 Former F & H Manufacturing

F & H Manufacturing Corporation, a metal fabrication (machine shop) operation which produced various metal products, occupied the 50 Cabot Court location from 1966 to 1989 and is located upgradient of the Computer Circuit site. At various times in 1987, 1989 and 1992, the SCDHS and consultants hired by F&H sampled the industrial drywells located in the northeast corner of the property. Chlorinated VOCs were detected in sediment samples from the primary pool on each occasion including PCE, TCE, 1,1,1-TCA, 1,1-Dichloroethane (1,1-DCA) and toluene. Samples collected during the 1992 event reported VOCs significantly above RSCOs with PCE concentrations of 4,200,000 µg/kg, 1,1,1-TCA at 810,000 µg/kg and TCE at 230,000 µg/kg.

An Order on Consent (IW 89-77C) was prepared by SCDHS, but the property owner failed to execute the order. In a 1994 memo, SCDHS suggested that a revised version of the consent order should be prepared and if the respondent fails to sign it the matter should be referred to NYSDEC as a Superfund site. DEC declined to list the site in 1998 after the property owner performed sampling in 1997 which suggested that groundwater, as obtained from four monitoring wells on the property, contained individual VOC compounds less than 500 μg/L. After a period of on-site groundwater monitoring, from the four on-site monitoring wells, SCDHS advised the property owner that additional monitoring would not be required.

The 50 Cabot Court site is located hydraulically upgradient of the Computer Circuits site at a distance of approximately 1,550 feet.

1.5.4.3 Arkay Packaging Corporation

Arkay Packaging Corporation, which makes printed packaging materials, has occupied the 22 Arkay Drive location, which is upgradient of the site, since at least 1982. The company uses, stores and generates hazardous materials in its printing operations and has been involved in a number of serious environmental violations including: a suit filed in 1999 by the NYS Attorney General for procedural violations with respect to hazardous materials, repeated discharges of hazardous materials to an on-site industrial leaching pool system and sanitary system and the release of VOCs from underground storage tanks (USTs).

The five USTs (one 3,000 gallon, four 500 gallon) were located mid-way along the east side of the building in an open (non-paved) area. According to correspondence with SCDHS, the tanks, which were used to store a variety of organic solvents, were abandoned in-place in 1983. Soil borings advanced in the vicinity of the tanks in December 1999 indicated VOCs in soil above RSCOs including xylenes at 93,000 μg/kg, toluene at 53,000 μg/kg, ethylbenzene at 13,000 μg/kg, and TCE at 1,000 μg/kg. PCE was present at a concentration of 1,100 μg/kg. Arkay excavated 300 to 400 cubic yards of contaminated soil during the tank removal and SCDHS sent a letter of no further action in January 2000.

The presence of VOC impacted soils in an area open to water infiltration from precipitation and irrigation, suggests the potential for contaminant transport to the groundwater, however this was never investigated.

The industrial waste discharge system located on the south side of the building was in violation of the State Pollution Discharge Elimination System (SPDES) permit in 1985 and in 1987. Exceedances in liquid effluent discharge were reported for a variety of metals and volatile organics including:

- copper
- chromium
- zinc
- lead
- 1,1 dichloroethane
- toluene
- ethylbenzene
- xylene
- 1,3,4 trimethylbenzene
- 1,2,4, trimethylbenzene
- octane
- decane
- undecane
- 1,1,1 trichloroethane
- m,p-diechlorobenzene
- 1,1,2 trichloroethylene
- methyl ethyl ketone
- p-ethyltoluene
- p-diethylbenzene
- nonane
- 1,1, diechloroethane
- methylene chloride

In 2001, sludge samples obtained from the leaching pools reported the following results:

toluene	24 µg/kg	1,2,4,5,-tetramethylbenzene	110 µg/kg
xylene	1,600 µg/kg	p-ethyltoluene	8,100 µg/kg
ethylbenzene	310 µg/kg	napthalene	8,800 µg/kg
isopropylbenzene	590 µg/kg	phenanthrene	1,100 µg/kg
n-propylbenzene	1,700 µg/kg	silver	10.6 mg/kg
1,3,5-trimethylbenzene	4,700 µg/kg	cadmium	7.35 mg/kg
1,2,4-trimethylbenzene	8,800 µg/kg	chromium	673 mg/kg
sec-Butylbenzene	410 µg/kg	copper	916 mg/kg
4-Isopropyltoluene	68,000 µg/kg	nickel	11.4 mg/kg
1,4-dichlorobenzene	580 µg/kg	lead	101 mg/kg

The Arkay Packaging site is positioned hydraulically upgradient of the Computer Circuits site at a distance of approximately 250 feet.

1.5.4.4 EMR Circuits, Inc.

According to the NYSDEC database, EMR circuits (99 Marcus Blvd), a manufacturer of printed circuit boards, illegally discharged heavy metals and chlorinated solvents to 2 underground leaching pools for nearly 2 years. Discharged chemicals included:

Tetracloroethylene
Tricloroethylene
Trichloroethane
Ethyltoluene
Xylene
Trimethylbenzene
Trichlorobenzene
Methylethyl-ketone
Copper
Nickel
Lead
Chromium

The pools were cleaned in 1984 under the direction of the Suffolk County Department of Health Services and the site was eventually listed on the NYSDEC registry of inactive hazardous waste sites. A phase II investigation was performed by the responsible party and submitted to the NYSDEC in January 1992. Additional sampling was requested by the NYSDEC and performed by the responsible party in June 1992. The NYSDEC determined that the site did not pose a significant threat to human health and the environment, and the site was delisted in 1993.

1.5.5 Surface Impacts

The release scenario at the site describes wastewater containing metals, such as copper, lead and nickel, overflowing the south industrial leaching pools, and running over the paved surface of the parking area to a storm drain located on Marcus Blvd. Some of this discharge was reported to have reached the open (non-paved) area at the rear of the building where it collected and pooled near the southeast corner. SCDEC inspection reports and correspondence also indicate that drums containing liquid wastes were stored at the rear of the building near the exterior door (HRS Report, EPA 1997).

Metals, including copper, nickel and zinc and SVOCs, including polycyclic aromatic hydrocarbons (PAHs), were identified in surface samples collected from this area during the RI investigation. It is likely that the metals are associated with the documented overflow of process water at the facility and the storage of waste water in the drums. However, since SVOCs were not associated with the historical manufacturing processes at the site, their presence is likely related to building maintenance activities such as sealing/resurfacing the parking areas or building roof, or possibly background anthropogenic sources.

1.5.6 Groundwater Impacts

The VOC plumes are depicted in individual parameter-specific maps to illustrate the variances in distribution between the different chlorinated compounds. Figures depicting the soil and groundwater sampling rounds from the December 29, 2006 Remedial Investigation Report are presented in **Appendix A** of this report (Figures 3, 4 and 16 thru 21).

The dissolved phase VOCs reported in the two sampling rounds display a preferential distribution of the primary contaminants with TCE highest in the middle and northern wells (on-site, downgradient transect) and PCE and 1,1,1-TCA highest in the southern wells (on-site, downgradient transect) . This distribution, combined with the results of the soil boring program, which did not identify PCE or 1,1,1-TCA in on-site soil samples above RSCO values, is consistent with the presence of a documented upgradient, off-site source of PCE , 1,1,1-TCA and at least some portion of the TCE reported in the on-site monitoring wells and in the downgradient transect.

The vertical profile samples (VP1-VP5) also identified PCE and 1,1-TCA at the highest concentration lower in the water column, suggesting that these plumes have been traveling some distance from the source.

The analysis of metals in the monitoring wells indicates aluminum, iron, manganese and sodium above EPA and/or NYSDEC standards. These chemicals were dispersed widely in both upgradient and downgradient monitoring wells, representing a general "background" conditions within the industrial park. Chromium and hexavalent chromium were detected above standards in MW8, which is the northern-most well on the downgradient transect, and in MW7, located upgradient from Computer Circuits, on the Arkay property. Since chromium was not detected at 145 Marcus Blvd. above guidance levels, an off-site (upgradient) source is suspected.

1.5.7 Summary of Baseline Human Health Risk Assessment

The objective of the human health risk assessment (HHRA) was to assess potential human health risks associated with the contaminants identified during the RI investigation. This objective was pursued through the evaluation of potential carcinogenic and non-carcinogenic hazards to human populations which are associated with the chemical contaminants present, and/or originating, on the property. Key sections of the HRRA report are summarized below.

1.5.7.1 Identified Chemicals of Potential Concern

The analytical data collected during the remedial investigation were evaluated in accordance with EPA guidance to identify the COPCs which will be carried through the quantitative risk assessment.

The first screening criteria for COPC development is a comparison of the maximum detected concentration to Region 9 Preliminary Remediation Goals (PRGs). PRGs are risk-based concentrations, derived from standardized equations combining exposure information assumptions with EPA toxicity data. They are considered to be protective for humans (including sensitive groups), over a lifetime. The PRGs used were based on combined (dermal, inhalation, ingestion) industrial exposures for surface/subsurface soils, and combined residential exposures (ingestion, inhalation) for groundwater including either a hazard index of 1/10 or a cancer risk of 1 x 10-6.

The second step in the development of COPCs is to screen out those constituents which are rarely or infrequently detected, and which may be artifacts in the data due to sampling, analytical or other problems. Additionally, chemicals considered to be essential human nutrients including aluminum, calcium, sodium, magnesium, potassium and iron, were also excluded as COPCs, unless present at high concentrations (i.e. above naturally occurring levels). As per EPA guidance, Class A (known human) carcinogens were not excluded due to infrequent detection.

The following compounds were selected as COPCs for surface soils:

- Benzo(a)pyrene
- N-Nitros-di-n-propylamine
- Arsenic

The following compounds were selected as COPCs for subsurface soils:

- Trichloroethene
- Benzo(a)pyrene
- Arsenic

The potential for subsurface soil contamination to result in vapor intrusion to the building was evaluated through the collection of indoor air samples from inside the Computer Circuits facility. Acetone, 1,1,1-Trichloroethane, 1,2-Dichloroethane, Chloromethane, Methylene Chloride, Trichloroethane, and Vinyl Chloride were selected as COPCs for indoor air, as shown in Table 2.5 of the HHRA.

The following compounds were selected as COPCs for groundwater:

- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- Chromium VI
- Manganese
- Iron
- Nickel

Chromium VI was the only detected Group A Carcinogen (USEPA 1998). In Table 2.2 and Table 2.3 of the HHRA, Manganese, Nickel, Iron and Chromium VI were eliminated as COPCs in the groundwater to indoor air pathway, for both vapor intrusion and showering, since the volatilization of metals under these conditions does not occur.

Tetrachloroethene and chromium VI are not site related contaminants. Tetrachloroethene, though detected in some of the on-site monitoring wells located within the southern third of the property, has been documented in upgradient monitoring wells, and is associated with an identified and documented upgradient source. In addition, residual tetrachloroethene indicative of a source of contamination to the groundwater was not present in on-site soils.

Chromium VI was not detected in groundwater at the site, and was only present in two off-site monitoring wells; one upgradient of the Former Computer Circuits site and one in the northernmost location of the downgradient transect. Residual chromium (non-specified) was also identified in high concentrations in the sanitary system of an off-site upgradient property. Remedial action objectives that address tetrachloroethene and chromium VI in groundwater are not warranted.

1.5.7.2 Summary of Baseline Human Health Risk Assessment

The objective of the exposure assessment was to quantify the type and magnitude of exposures by potential receptors to the COPCs that are present at or migrating from, the Former Computer Circuits Site.

The identification of exposure pathways describes the route that the COPC takes to travel from the source to the individual. An exposure pathway will link the sources, locations and types of sources with human receptors and activity patterns to determine the magnitude, frequency and duration of the exposure.

An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur. Exposure assessments for current exposure and future exposure scenarios evaluated for the Former Computer Circuits site are discussed as follows.

Current Exposure Scenario

The potentially exposed populations under current exposure conditions include on-site commercial workers, on-site excavation/construction workers, on-site landscape workers, and off-site residents located downgradient with respect to groundwater flow at the site. Estimates of the exposures are based on measurements of existing on-site and near-site conditions.

Current Off-Site Resident:

One environmental medium exposure-related pathway is evaluated for off-site resident exposure assessment:

- Adult exposure to indoor vapors through the transfer of VOCs from groundwater to indoor air;
- Child (1 to 6 years) exposure to indoor vapors through the transfer of VOCs from groundwater to indoor air.

The exposure from VOCs in groundwater to ambient air assumes that VOCs present in on-site and near-site groundwater migrate 2,000 feet to the nearest residence without attenuating, transfer to the vapor phase and enter the residence through pores and cracks in the foundation.

Current On-Site Commercial Worker:

Typical on-site commercial workers exposure to environmental media is evaluated in the current exposure scenario. For the on-site commercial worker, the evaluated exposure pathway is:

- Inhalation of subsurface soil vapors migrating through the foundation to indoor air.

On-Site Excavation/Construction Worker:

Seven environmental medium exposure-related pathways are evaluated in the excavation/construction worker exposure assessment:

- Incidental ingestion of surface soil;
- Direct dermal contact with surface soil;
- Inhalation of fugitive dust due to surface soil disturbances;
- Incidental ingestion of subsurface soil;
- Direct contact with subsurface soil;
- Inhalation of fugitive dust due to subsurface soil disturbances;
- Inhalation of subsurface soil vapor's to the ambient air.

Current On-Site Landscape Worker:

Three environmental media exposure-related pathways are evaluated in the landscape worker exposure assessment:

- Incidental ingestion of surface soil;
- Direct dermal contact with surface soil;
- Inhalation of fugitive dust from surface soil disturbances.

Future Exposure Scenarios

If no remedial work is performed to improve the current conditions at the Former Computer Circuits Site, future exposure to identified exposed populations could occur. The potentially exposed populations under the future exposure conditions have been determined to be on-site commercial workers, on-site excavation/construction and landscape workers, and off-site residents. An off-site resident is assumed to reside downgradient with respect to groundwater flow from the Former Computer Circuits Site. Estimates of the exposures are based on measurements of currently existing on-site conditions.

Future On-site Commercial Worker:

Typical on-site adult commercial workers exposure to environmental media is evaluated in the hypothetical future exposure scenario. For the on-site adult commercial worker, evaluated exposure pathways are:

- Ingestion of groundwater through the use of tap water originating from an off-site municipal supply well;
- Inhalation of subsurface soil vapors migrating through the foundation to indoor air.

Conservative assumptions involving potential future impact to the Falcon Drive well field for future use scenario include:

- Current well treatment operations at the wellhead to remove contaminants originating from a New York State Department of Environmental Conservation (NYSDEC) Class II inactive hazardous waste (State Superfund) site located at 100 Oser Avenue will cease prior to the arrival of impacts originating from the Former Computer Circuits Site;
- Periodic monitoring of the municipal water supply quality by the water purveyor as required by the Suffolk County Department of Health Services (SCDHS) is suspended;
- Attenuation does not occur during transport from the Former Computer Circuits site to the Falcon Drive well field approximately 3,900 feet away;
- Source water modeling performed by the SCDHS which indicates that the Former Computer Circuits Site is located outside of the supply well capture zone is incorrect;
- Dilution at the wellhead, conservatively estimated to be at a ratio of 100 to 1, does not occur;
- Blending of water from different sources does not occur within the distribution system;
- Impacts to the well field continue unabated at on-site concentrations for 25 years.

Future Off-Site Resident:

Typical off-site adult and child (ages 1 to 6 years) residents exposure to environmental media is evaluated in the hypothetical future exposure scenario. For the off-site adult and child residents, evaluated exposure pathways are:

- Adult ingestion of groundwater through the use of tap water;
- Child (1 to 6 years) ingestion of groundwater through the use of tap water;
- Adult absorption through direct dermal contact with groundwater through bathing/showering;
- Child (1 to 6 years) absorption through direct dermal contact with groundwater through bathing;
- Adult inhalation of groundwater vapors emanating from a showerhead;
- Adult inhalation of indoor vapors through the transfer of VOCs from groundwater to air;
- Child (1 to 6 years) inhalation of indoor vapors through the transfer of VOCs from groundwater to air.

The exposures through the use of tap water assume that a private well for potable use is installed hydraulically downgradient of the Former Computer Circuits site or that the municipal wells will be impacted by site-related contaminants. This scenario assumes the following conditions apply:

- Current well treatment operations at the wellhead to remove contaminants originating from a New York State Department of Environmental Conservation (NYSDEC) Class II inactive hazardous waste (State Superfund) site located at 100 Oser Avenue will cease prior to arrival of site-related contaminants;
- Periodic monitoring of the municipal water supply quality by the water purveyor as required by the Suffolk County Department of Health Services (SCDHS) will cease prior to arrival of site-related contaminants;
- Attenuation does not occur during transport from the Former Computer Circuits site to the Falcon Drive well field approximately 3,900 feet away;
- Source water modeling performed by the SCDHS indicates that the Former Computer Circuits Site is located outside of the supply well capture zone is incorrect;
- Dilution at the wellhead, conservatively estimated to be at a ratio of 100 to 1;
- blending within the distribution system;
- Impacts to the well field would continue unabated at on-site concentrations for 6 (child) to30

years (adult);

- A private well is installed for potable use hydraulically downgradient of the site in violation of Suffolk County Department of Health Services Private Water System Standards (July, 1992) section 406.4-11 which will not approve the application for such a well if community water service is available;
- Attenuation of contaminants does not occur during 2,000 - foot transport to the nearest "downgradient" residence.
- The exposure from VOCs in groundwater to ambient air assumes that VOCs present in on-site and near-site groundwater migrate 2,000 feet to the nearest residence without attenuating, transfer to the vapor phase and enter the residence through pores and cracks in the foundation.

Future Excavation / Construction Worker:

- Typical excavation/construction worker exposures to environmental media are evaluated for adults in the hypothetical future exposure scenario. There are seven environmental medium exposure-related pathways evaluated for excavation/construction worker:
- Inhalation of volatiles emitted from subsurface soils within an excavation trench;
- Incidental ingestion of surface soil;
- Direct dermal contact with surface soil;
- Inhalation of fugitive dust due to surface soil disturbances;
- Incidental ingestion of subsurface soil;
- Direct dermal contact with subsurface soil;
- Inhalation of fugitive dusts due to subsurface soil disturbances.

Future Landscape Worker:

Typical landscape worker exposures to environmental media are evaluated for adults in the hypothetical future exposure scenario. There are three environmental medium exposure-related pathways evaluated for the landscape worker:

- Incidental ingestion of surface soil
- Direct dermal contact with surface soil
- Inhalation of fugitive dust from surface soil disturbances

1.5.7.3 Risk Assessment

Potential cancer risks were indicated for the future off-site resident child and adult through the ingestion and dermal contact with tetrachloroethene in tap water, and for the future resident adult through the inhalation of chromium VI while showering. The health hazard index of 1.0 was exceeded for the ingestion and dermal contact with tetrachloroethene, trichloroethene and chromium VI in tap water by the future resident child and for the ingestion and dermal contact with tetrachloroethene, trichloroethene, and chromium VI, and inhalation of chromium VI (showering) by the future resident adult.

Tetrachloroethene and chromium VI are not site related contaminants. Tetrachloroethene, though detected in some of the on-site monitoring wells located within the southern third of the property, has been documented in upgradient monitoring wells, and is associated with an identified and documented upgradient source. In addition, residual tetrachloroethene indicative of a source of contamination to the groundwater was not present in on-site soils.

Chromium VI was not detected in groundwater at the site, and was only present in two off-site monitoring wells; one upgradient of the Former Computer Circuits site and one in the northernmost location of the downgradient transect. Residual chromium (non-specified) was also identified in high concentrations in the sanitary system of an off-site upgradient property. Remedial action objectives that address tetrachloroethene and chromium VI in groundwater are not warranted.

For future scenarios, adults and children residing downgradient from the Former Computer Circuits site, using contaminated groundwater for drinking and showering are at risk for cancer from exposure to trichloroethene and tetrachloroethene through ingestion of tap water, dermal exposure (adult only), and through inhalation while showering. It is highly unlikely that this risk will ever be realized because of the protections currently in place. Future child residents also have a hazard quotient greater than 1 from exposure to trichloroethene while showering (12).

It is extremely unlikely that trichloroethene detected in soil and groundwater at the site would reach the Falcon Drive well field at site-derived EPC levels. If it did reach the wellfield it would not be possible for it to be distributed to area residences and businesses due to standard monitoring requirements and existing treatment operations. This does not eliminate the possibility of a potable well being installed in the residential area at some point in the future, though this is a very unlikely scenario. It is unusual for a domestic potable well to be installed within a residential development when all homes are already tapped into the municipal supply system. On the rare occasions when this does occur, the well is usually used exclusively for lawn irrigation. In addition, the installation of a private well in a residential area with access to a municipal water supply is prohibited by the SCDHS (Private Water Systems Standards, SCHS 7/92). Furthermore, impact to a hypothetical future well would require that the well be perfectly positioned to intersect the path of the contaminants, and that no attenuation occurs during the 2,000 foot plus transport. Still, remedial action objectives that address trichloroethene in on-site soils would reduce the possibility of off-site migration, and are recommended.

1.5.8 Summary of Ecological Risk Assessment

The objective of the ecological risk assessment (ERA) was to identify and assess potential threats to the environment associated with the contaminants identified during the RI investigation. This objective was pursued through the evaluation of qualitative appraisal of the actual or potential impact on plants and animals which are associated with the chemical contaminants present, and/or originating, on the property.

1.5.8.1 Ecological Evaluations Conclusions

According to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act, whenever there is a release or substantial threat of a release of a hazardous substance into the environment, EPA is authorized to take action deemed appropriate to protect the environment in accordance with the NCP. The EPA is authorized to take action, but it may compel potentially responsible parties to take action only if it can support a finding of "imminent and substantial endangerment" (USEPA, 1998a). The preliminary screening performed at the former Computer Circuits Site indicates that there are no complete exposure pathways based on an absence of a suitable habitat to support ecological receptors and no further ecological risk assessment steps are necessary. As such, no imminent or substantial endangerment exists at this Site and no additional cleanup activities should be required to protect the environment.

1.6 Identification of Applicable or Relevant and Appropriate Requirements (ARARs)

CERCLA specifies that remedial actions for cleanup of hazardous substances must comply with federal or state environmental regulations and laws that are either applicable or relevant and appropriate to that substance or particular circumstance at a site.

This section provides details of the regulations that are applicable or relevant and appropriate to the Computer Circuit site. Both Federal and State environmental regulations and public health requirements are considered. When ARARs are not available, remediation goals may be based upon other Federal or State criteria, guidance, or local ordinances. This information is known as "To Be Considered" or TBC.

ARARs and TBCs fall into three broad categories, based on the manner in which they are applied at a site:

- Contaminant-specific: these ARARS and TBCs define acceptable exposure levels for a specific contaminant in an environmental medium and are used in establishing preliminary remediation goals (PRGs). They may be actual concentration-based cleanup levels, or they may provide the basis for calculating such levels. Examples of contaminant-specific ARARs are recommended remediation goals for soils or ambient air quality standards.
- Location-specific: these ARARs and TBCs set restrictions on remedial activities at a site due to its proximity to specific natural or man-made features. Examples include floodplains, wetlands, and historic structures.
- Action-specific: These ARARs and TBCs set controls or restrictions for particular treatment and disposal activities to the management of hazardous or radioactive substances. Examples are effluent discharge limits and waste manifesting requirements.

Identified ARARS and TBCs are detailed on **Tables 1-1 thru 1-3.**

2.0 SUMMARY OF INTERIM ACTIONS

This chapter summarizes the following interim actions within the study area: the Soil Vapor Extraction (SVE) Interim Remedial Measure, and the north industrial leaching pool removal action. This action will continue for remediation of the industrial leaching pool and TCE contaminated soils at the site..

2.1 Soil Vapor Extraction Interim Remedial Measure

Based on the presence of TCE in air samples collected from the building, and the HHRA, which identifies TCE as the only site-related contaminant with even a remote potential for risk/hazards to human receptors, an interim remedial measure (IRM) was recommended to reduce subsurface TCE concentrations. The IRM recommended for the site consisted of a dual extraction point soil vapor extraction (SVE) system which included a single vertical extraction well installed within the contaminated zone of the north industrial leaching pool, and a single horizontal extraction well installed beneath the concrete slab of the former silk screening room. Both extraction wells are remediating impacted soils through mass transfer from the sorbed to the vapor phase. The horizontal well installed beneath the building serves as an abatement function system to remove accumulated vapors beneath the slab and prevent them from migrating to the building's interior.

An Administrative Order on Consent (AOC) for Removal Action was executed for the IRM on October 1, 2004. Detailed information regarding the installation and operation of the SVE system including system design specifications, performance monitoring and indoor air testing can be found in the approved Interim Remedial Measure (PWGC, July 2005). The installation of the system was completed in December 12, 2005 and it has been in continuous operation since. It is anticipated that the operation of this SVE system will continue as a remedy under the existing AOC.

2.1.1 System Description

The Remedial Investigation identified two areas of the unsaturated zone with TCE concentrations above guidance levels; an area beneath the building's slab along the north side of the facility and an area that was formerly used as an industrial leaching pool (see Figure 4 and **Appendix A** for RI Figure 3). The area beneath the building has a dimension of approximately 20 by 25 feet with shallow TCE impact of only a few feet below the bottom of the floor slab. Contamination within the former industrial leaching pool extends roughly from the bottom of the pool to the water table, with the greatest concentrations of contaminants occurring between 25 and 45 feet and 65 and 85 feet below grade. The SVE system is being used to remediate TCE-impacted soil in two identified source areas located near the north side of the building. The system consists of two separate extraction wells connected to a single regenerative blower. The extraction point beneath the building is a horizontal well, 4 inches in diameter and 10 feet long, installed just beneath the floor slab. The second extraction point is a vertical SVE well installed adjacent to the former industrial leaching pool and screened across the two depths of heaviest contaminant concentrations. The wells are piped together via a common PVC header system with isolation valves so that vacuum/flow to each line can be adjusted independently. Soil gases removed through the wells are drawn back to the SVE system enclosure shed. Once inside the shed the extracted soil vapors pass through an air flow meter, a moisture separator and a particulate filter before entering the blower. As the vapor exits the blower, it passes through a series of two carbon drums before being discharged to the atmosphere via a 2-inch diameter exhaust stack. A vacuum relief valve and high level (liquid) shut-off switch are installed as an integral part of the moisture separator. An air-bleed valve is located upstream of the blower to serve as a flow and vacuum control device, as well as a dilution source for the effluent stream. A series of vacuum and pressure gauges and sample ports have been installed at various locations throughout the system, to assist in monitoring and evaluating the system's operating performance. SVE system as-builts are provided as **Figure 6**.

2.1.2 Design Criteria

The design was based upon theoretical equations, typical design parameters for Long Island sand formations and key assumptions involving the physical behavior of soil gases and system performance. Most design parameters were assumed based on similar type SVE systems on Long Island. This was considered appropriate since there are no unusual geologic conditions present at the site.

The contaminated soil zone has been described as medium grained (0.25 mm to 0.5 mm - USDA) uniform sand, based on soil borings taken at the site. Based on the observed uniformity of the soil (poorly graded, well sorted) it was assumed to be a relatively porous (i.e., a porosity around 0.30) material, and thus a good candidate for an SVE remedial system. The contaminant of concern as identified in the AOC is trichloroethylene (TCE). This contaminant is a volatile organic compound which is very susceptible to removal from the vadose zone using vacuum extraction technology. Due to the chemical properties of the contaminant, the porous nature of the soil and the considerable depth to groundwater (approximately 100'), SVE was selected to remediate the identified source areas at 145 Marcus Blvd.

The Remedial Investigation identified two areas of the unsaturated zone with TCE concentrations above guidance levels; an area beneath the building's slab along the north side of the facility and an area that was formerly used as an industrial leaching pool (see Figure 3). The area beneath the building has a dimension of approximately 20 by 25 feet with shallow TCE impact of only a few feet below the bottom of the floor slab. Contamination within the former industrial leaching pool extends roughly from the bottom of the pool to the water table, with the greatest concentrations of contaminants occurring between 25 and 45 feet and 65 and 85 feet below grade.

A design flow rate of 125 cfm was selected based on the extent and type of contamination, and the porosity of the soil. Fairly low well head vacuums (on the order of 7 to 8 inches of water column) were determined to be necessary to achieve a radius of influence of approximately 30 feet. A 2 hp regenerative blower with a performance of 125 cfm at 21 inches of water column was selected to meet the design criteria. The blower motor is single phase, 115 volt with an explosion proof cover.

2.1.3 Emission Rates

An estimate of the mass removal rate for each of the identified VOCs within the combined remediation areas was made for comparison to the maximum allowable emission rate potential (ERP), as specified in the NYSDEC Air Guide 1.

This was done by first calculating an average core area concentration based on an average of the highest concentration within the two target areas. The average soil concentration through the entire influence area covered by the SVE extraction wells was then estimated by applying an influence area to core area volume dilution ratio of 9 to 1. Soil gas concentrations were calculated from the average influence area soil concentration using an equation based on the Johnson-Ettinger model, as presented in ASTM E1739-95. Calculated soil gas values were then entered into the Air Guide 1 tables for comparison to annual and short-term concentration guidelines (ACG, SCG).

Discharge effluent samples from the IRM have been collected since system start-up, December 2005. Effluent data in comparison to the annual and short-term concentration guidelines is provided in **Table 2-1**. No VOCs have been detected in concentrations exceeding DAR-1 Annual Guideline Concentrations.

2.1.4 System Details

2.1.4.1 SVE Blower

The SVE Blower is an EG&G Rotron regenerative blower, model number EN505AX58ML. This blower is capable of delivering the required 125cfm at 21" H2O. The blower is equipped with a 2HP, single phase, 115 volt explosion proof motor. The blower is fitted with an air filter and condensate drum and vacuum relief valve to protect the blower from damage caused by water and/or particulates. A high level float switch was installed on the condensate drum to shut down the blower if water in the drum approaches a maximum level. Condensate liquids are transferred to a DOT-approved 55 gallon drum for off-site disposal in accordance with the waste characterization and disposal procedures as specified in the approved RI work plan. Since the depth to ground water at the site is 100 feet, and the surface area around the extraction wells is covered (paved, building slab), condensate is not expected to accumulate in quantities approaching the capacity of the condensate drum.

2.1.4.2 Granulated Activated Carbon Units

The system is designed to use Granulated Activated Carbon (GAC) units to remove VOCs from the discharge air. GAC emissions treatment is provided by two General Carbon 85 gallon Air Pollution barrels connected in series. The units contain 300 pounds of virgin vapor phase carbon each and are capable of handling a maximum air flow rate of 180 cfm. The system includes necessary piping and control valves to bypass carbon treatment of the effluent, if sampling shows that the VOC concentrations in the effluent air stream are within discharge limits, and if it can be demonstrated that there will be no impact to background and indoor TCE concentrations.

2.1.4.3 Piping

The system was constructed with standard schedule 40 PVC pipe for all influent lines under vacuum. Discharge lines are constructed with a combination of schedule 40 PVC and flexible hosing. The flexible hoses are used to connect the GAC units with quick-disconnect couplings. This configuration will allow for easy replacement of the GAC units should they require replacement.

2.1.4.4 Electrical

Electrical power for the system is provided from the existing building. Power is delivered to the shed via conduit to the final location of the system building. A circuit breaker panel is installed within the building to distribute power to the system components, lighting, and accessory outlets as needed. An electric service hour meter was installed to record blower operation time.

2.1.4.5 System Building

The system is housed within a pre-constructed 10 ftx10 ftx8 ft high structure. The structure is weather tight with a minimum door size of 6'-6" high and 3'-0" wide to allow sufficient room for the system equipment. The building was installed on a 4-inch thick concrete slab. The building complies with local requirements for an accessory structure and adequately shields sound so that operation of the system will meet local noise regulations.

2.1.5 SVE System Operation and Maintenance

The system Operation and Maintenance (O&M) has been performed and will continue until objectives are achieved as described in the AOC.

2.2 North Industrial Leaching Pool Removal Action

Sediments within the north industrial leaching pool were removed prior to advancing a soil boring for sample collection. This prevented burying potentially impacted sediments with drill cuttings and causing the vertical redistribution of contaminated materials through the soil column. Sediment removal operations were performed on January 23, 2002 by RGM/Earthcare of Deer Park, New York. Sediment removal was accomplished with a "Guzzler" vacuum truck. The Guzzler uses high vacuum to extract sediment, liquid and gravel through a 5 inch hose to a containment vessel on the truck. Sediments were removed to the extent practical without compromising the integrity of the leaching pool, as the potential for heavy truck traffic over the pool exists.

An approximate total of four cubic yards of sediment was removed from the structure. Following remediation, the base of the sediments ranged from 13 feet below grade around the perimeter of the structure to 15 feet below grade in the center. The excavated materials were then transferred from the Guzzler to a 15 yard "roll-off" container. Analysis of a composite soil sample, collected for waste characterization, indicated that the material could be disposed of as a non-hazardous material. The roll-off container was removed from the site by RGM/Earthcare and brought to their waste transfer facility where it was stored prior to final disposal in bulk with other similar non-hazardous wastes.

3.0 IDENTIFICATION AND SCREENING OF TECHNOLOGIES

This chapter discusses developing objectives for the remediation of subsurface contamination and identifies and screens the potential technologies for remediation. There are three steps for identifying and screening these technologies. First, the Preliminary Remediation Goals (PRGs) are developed based on contaminant characterization, contaminant transport, risk assessment, remedial action objectives (RAOs), and compliance with applicable or relevant and appropriate requirements (ARARs). Second, General response actions (GRAs) are developed based on the RAOs, PRGs, and site-specific requirements, such as the areas and volumes of media requiring remediation. Third, potential technologies are identified and screened to determine if they can be implemented at the site. Technologies that are retained after the initial screening outlined in this chapter are evaluated in further detail in Chapter 4.0 as potential candidates for developing into alternatives for remediation.

3.1 Remedial Action Objectives (RAOs)

Identification of subsurface contamination associated with the past operations at the Computer Circuits site is complicated by the presence of upgradient sources of documented groundwater contamination. The RI identified an on-site source of TCE and documented TCE groundwater impacts above EPA and NYSDEC standards. Concentrations of PCE, TCE, and 1,1,1-TCA detected in on-site monitoring wells are attributed to upgradient sources (Section 1.5.2) that contribute to this co-mingled plume. Metals identified at the site may be representative of natural background levels (aluminum, iron, manganese, and sodium) or in the case of chromium and hexavalent chromium a result of an upgradient source.

The HHRA prepared for the site, recommended a remedial action that addresses TCE in on-site soils. The HHRA also stated in addition to current and future cancer risks for the on-site commercial worker due to exposure to COPCs in indoor air may potentially be impacted from contaminated subsurface soils outside the USEPA target range.

Based on the findings of the HHRA, the following RAOs were identified:

A. Reduce the possibility of off-site migration of TCE in groundwater and in on-site soils to the extent technically reasonable and considering the upgradient contribution of contaminated groundwater
B. Control/mitigate contaminated soil and/or source material due to current and future on-site commercial workers.

3.2 Preliminary Remediation Goals (PRGs)

PRGs were developed for use in identifying and screening potential technologies, developing and screening alternatives, and detailed analysis of alternatives. The PRGs were established to meet the RAOs of this feasibility study and final remediation levels which will be established in the ROD. Final remediation levels may differ from the PRGs.

PRGs were identified for the COPCs in both soil and groundwater. Soil PRGs were developed using the NYSDEC TAGM #4046 Recommended Soil Cleanup Objectives (RSCOs). For Groundwater, the more stringent of the Federal MCLs and the NYSDEC Groundwater Quality Standards were identified as the PRGs. The PRGs are summarized on **Table 3-1**.

3.3 General Response Actions

General response actions (GRAs) are broad categories of remediation capable of addressing the RAOs. Some GRAs may be sufficiently broad to be able to satisfy all the RAOs and PRGs for the site by themselves. Other GRAs must be combined to achieve the site remedial objectives and cleanup goals. GRAs include no action, institutional actions, removal technologies, containment, treatment, and disposal.

No Action

The NCP and SARA require the evaluation of a No Further Action alternative. This alternative provides a comparative baseline against which other alternatives can be evaluated. Under this alternative, no remedial action would be taken. The no action alternative does not provide for monitoring, nor does it provide for access control actions to reduce the potential for exposure.

Institutional Action

Institutional actions include access restrictions and imposition of institutional controls on future land use, but no active remedial measures would be performed. Institutional actions could include groundwater monitoring, monitored natural attenuation (MNA), a deed notice and well use restrictions.

Removal Technologies

Potential removal technologies for groundwater include extraction by wells with subsequent treatment if necessary. Potential removal technologies for on-site soils which may be a source of groundwater contamination include removal and disposal if necessary.

Containment

Containment technologies involve little or no treatment, but provide protection to human health and the environment by limiting contaminant mobility. Containment technologies for groundwater consist of isolation through technologies such as engineered grout barriers. Containment is used to isolate a contaminant plume from normal groundwater flow to prevent it from reaching potential receptors. Hydraulic containment options include strategically pumping groundwater at high rates to manipulate the contaminant plume location. Containment technologies for soils consist of isolation through installation of a barrier, such as an asphalt cap or slab.

Treatment

Treatment response actions include options for both in-situ and ex-situ treatment. These options reduce toxicity, volume, and mobility of the site contaminants. Treatment technologies include physical and chemical separation, bioremediation, immobilization, and chemical and thermal treatment processes.

Disposal

Disposal technologies can be implemented on-site and off-site. Disposal actions reduce the mobility of contaminants through isolation and deposition and may be used separately of in conjunction with treatment technologies.

3.4 Identification and Screening of Technology Types and Process Options

This section introduces the technologies potentially capable of achieving the site RAOs. This evaluation focuses on the technical feasibility of each technology type or process option in meeting remedial objectives. Technologies or process options that are not technically feasible are eliminated from further consideration. The remaining technologies are those that are expected to achieve the RAOs for the site, either alone or in combination.

Due to the past operational status and planned future operation of the IRM system, each of the technologies listed below should be considered a supplemental technologies to the IRM system. As previously detailed, the IRM system has been and is currently removing VOCs from the soils, therefore reducing the potential for impact to the groundwater, as seen in the reduced VOC concentrations noted during the December 2006 and June 2007 groundwater sampling round. Section 4, will further detail the role of the existing IRM in each of the potential remedial alternatives.

3.4.1 No Action

Description: The No Further Actions (NFA) alternative is developed, as required by the NCP and SARA, and evaluated to establish a baseline for comparison with other remedial alternatives. The no action response provides no remediation, institutional controls or monitoring activities at the site.

Conclusion: NFA does not reduce the toxicity, mobility, or volume of the contamination at the site. Since the IRM has already been implemented at the site to address soil contamination and limit the potential for future groundwater impact, NFA would imply that the IRM system be shut down. Since this system is operating under an existing AOC, shut down of the IRM under the NFA technology is not practical. However, NFA will be retained for further consideration as required by the NCP and SARA.

3.4.2 Groundwater Monitoring

Description: Groundwater Monitoring (GM) includes periodic monitoring and reporting of groundwater quality for the COPCs identified at the site. Decreasing or increasing trends would be identified. Groundwater Monitoring provides no remediation or institutional controls at the site.

Conclusion: Groundwater Monitoring does not reduce the toxicity, mobility, or volume of the contamination at the site. It does provide useful information with respect to groundwater quality which can be used to determine if impacts to human health are likely. GM will be retained for further consideration in combination with other technologies.

3.4.3 Monitored Natural Attenuation (MNA)

Description: Monitoring natural attenuation (MNA) for groundwater contamination includes periodic monitoring to track reduction of contaminants by natural processes. Natural processes, such as dilution, volatilization, biodegradation, adsorption, and chemical reactions with subsurface materials, reduce contaminant concentrations to acceptable levels. Natural attenuation is not a technology; it is a risk control and management strategy which relies on modeling, evaluating contaminant degradation rates, identifying exposure pathways, and field measurements to verify the modeling. The objective is to confirm that natural processes of degrading contaminants will reduce concentrations below regulatory standards before potential exposure pathways are impacted.

Conclusion: MNA of contaminants may possibly reduce contaminant levels. However, due to upgradient groundwater contamination in the vicinity of the former Computer Circuits Site, makes charchterization and definition of the plume infeasible. As such MNA would not be effective and will not be retainer for further consideration.

3.4.4 Remedial Technologies

3.4.4.1 Groundwater Extraction

Description: Groundwater extraction is achieved by installation of extraction well(s) and using submersible or suction pumps to transport groundwater from the aquifer to the surface. Different well sizes and densities are designed dependent on site specific hydrogeologic conditions.

Conclusion: The technology associated with groundwater extraction systems is well established and relatively easy to implement. Groundwater extraction can provide short and long term effectiveness in controlling the movement of contaminated groundwater. Therefore, this technology was retained for further consideration.

3.4.5 Containment Technologies

3.4.5.1 Asphalt Capping

Description: An asphalt cap consists of the installation of a low permeable bituminous layer over the areas of surface/subsurface contamination; effectively sealing subsurface soils from above grade conditions. Storm water collection systems are typically engineered to control surface water runoff from the cap.

Conclusion: An asphalt cap can be designed to provide long-term isolation of the sources of soil contamination and prevent leaching into groundwater. However, the cap would not remediate existing contamination in the soil and would not reduce the level of contamination in the groundwater. Therefore, installation of an asphalt cap is not retained for further consideration.

3.4.5.2 Pressure Grouting

Description: Grout curtains are subsurface vertical layers created in unconsolidated deposits by pressure injection; cement, grout, or other fluids are injected into the unconsolidated deposits to reduce horizontal groundwater flow. Grout curtains that extend to an impermeable layer or bedrock are generally the most effective.

Conclusion: Extensive testing is required to determine the most effective grouting material for individual site conditions. Due to the relatively deep groundwater depth, and the general permeable sub-surface geologic conditions, it is not anticipated that this technology will adequately reduce horizontal groundwater flow. Pressure grouting was not retained for further consideration.

3.4.6 Treatment Technologies

3.4.6.1 In-Situ Treatment

<u>Bioremediation</u>

Description: Bioremediation is a technology for treating contaminated groundwater and soil by stimulating microbial degradation of the contaminants. The technology involves optimizing environmental conditions to enhance naturally occurring biological activity by adding nutrients, oxygen, or other substrates necessary for microbial growth. Under aerobic conditions, microorganisms use dissolved oxygen in the groundwater as a respiratory substrate (electron acceptor). With sufficient oxygen, microorganisms will completely oxidize many organic chemicals to carbon dioxide and water. Under anaerobic conditions, subsurface microbes use other electron acceptors, such as nitrate, iron, sulfate, and carbon dioxide, to biodegrade organic compounds.

Conclusion: Bioremediation requires manipulating conditions of the subsurface to favor microbiological reactions that biodegrade contaminants. Consistently and uniformly distributing organic carbon sources and inorganic nutrients and controlling the movement of the plume are challenging and difficult to document. Preferential flow and occlusions can result in untreated areas of the vadose zone or aquifer. Even under enhanced conditions, the in-situ bioremediation of chlorinated organics is expected to be slow. Partially dechlorinated intermediates, such as vinyl chloride, may accumulate and persist in the aquifer. The depth of the water table also adds to the difficulties in effective bioremediation. Bioremediation was not retained for further consideration.

Soil Vacuum Extraction
Description: The in-situ soil vacuum extraction process is used to remove VOCs from contaminated soil, thereby reducing the potential source from entering the groundwater or indoor air. Vaporized contaminants are recovered by soil vapor extraction wells, which are screened within the vadose zone. The vapors are discharged to the atmosphere or treated by an emission control system, such as activated carbon filters. The technology uses readily available components.

Conclusion: Soil vacuum extraction is technically implementable and is effective in removing VOCs from soil. It is currently being effectively utilized as the IRM. The site subsurface conditions are well suited for this type of technology. Soil vacuum extraction will continue to be performed under the existing AOC.

Air Sparging/Vacuum Extraction
Description: The in-situ air sparging/vacuum extraction process is used to remove VOCs from contaminated soil and groundwater. Air is forced under pressure through the groundwater and soil, by air sparging injection wells, to strip VOCs from the groundwater and soils. Vaporized contaminants are then recovered by soil vapor extraction wells, which are screened within the vadose zone. The vapors are discharged to the atmosphere or treated by an emission control system, such as activated carbon filters. The technology uses readily available components.

Conclusion: Air sparging/vacuum extraction is technically implementable and is effective in removing VOCs from groundwater and soil. The site hydrogeologic conditions are well suited for this type of technology. Air sparging/vacuum extraction is retained for further consideration.

In-Situ Chemical Oxidation
Description: In-situ Chemical Oxidation (ISCO) involves injecting chemical oxidants into the vadose zone and/or groundwater to oxidize organic contaminants. The common oxidants are hydrogen peroxide-based Fenton's reagent, and potassium, sodium and calcium permanganate. Ozone can also oxidize organic contaminants in-situ, but it has been used less frequently. Complete mineralization to carbon dioxide and water is the desired endpoint of an ISCO process.

Conclusion: ISCO is technically implementable and is effective in removing VOCs from groundwater and soil. The site hydrogeologic conditions are well suited for this type of technology. However, due to the lack of adequate characterization and definition of the entire co-mingled plume observed in the vicinity of the former computer circuits site, from potential historic on-site sources and off-site sources over the past 30 years, and the fact that contaminants from off-site upgradient contributing sources are still be migrating under the site, ISCO would only effectively treat only VOCs in groundwater on a short term basis following the chemical injection. Any contaminated groundwater, from potential up-gradient sources, flowing into the treated areas in the future, would not receive the benefits of the ISCO treatment and therefore ISCO is not an appropriate treatment technology. The unknown stability of the co-mingled contaminant plume makes it in-effective to treat a portion of the total co-mingled plume, especially when upgradient sources may still be coming onto the site. ISCO will not be retained for further consideration.

3.4.6.2 Ex-Situ Treatment

Air Stripping

Description: Air stripping is a mass transfer process in which VOCs in groundwater are transferred to a vapor phase. A packed column or tower with an air blower and counter-current flow of air to water is commonly used. The vapors are discharged to the atmosphere or treated by an emission control system, such as activated carbon filters.

Conclusion: Air stripping is an established technology that is widely used and readily available. Removal efficiencies are high for VOCs. Air Stripping is retained for further consideration as a groundwater treatment technology.

Carbon Adsorption

Description: Activated carbon selectively adsorbs constituents based on a surface attraction phenomenon in which organic molecules and some metals are attracted to the internal pores of the carbon granules. Activated carbon can be used for adsorbing organics in liquid or vapor phases. Adsorption efficiency is chemical specific, depending upon molecular weight, pH, resonance time and other factors. Once the micropore surfaces are saturated the carbon must be replaced. Activated carbon is an effective and reliable means of removing low solubility organics.

Conclusion: Granular activated carbon is a well established technology for organic compound removal in both the liquid and vapor phase. The treatment is currently being utilized at the site for the SVE system vapor treatment. Based upon the low levels of the VOC concentrations in groundwater that would be treated, air stripping is a more efficient technology compared to carbon adsorption and therefore Carbon adsorption is not retained for further consideration in treating groundwater. Carbon adsorption is retained for further consideration in treatment of effluent air streams as a results of the air stripping or soil vapor extraction technologies.

3.4.7 Disposal Options

3.4.7.1 Off-Site Publicly Owned Treatment Works (POTW)

Description: Groundwater generated from an extraction system would possibly need to be discharged to a POTW. Depending on discharge limits this may be able to occur before any on-site treatment is done to the waste stream.

Conclusion: The site is not currently serviced by a sanitary sewer system. On-site sanitary wastes are discharged to an on-site septic system located at the front (west side) of the building. All generated wastewater would need to be transported to the nearest POTW by truck. There is no public sewer connection in this area. As such, this disposal is an in-feasible option and is not being retained for further consideration.

3.4.7.2 Off-Site Disposal of Excavated Waste at a Permitted Facility

Description: Waste generated from treatment residues would be transported to a permitted off-site facility for storage, treatment, and/or disposal.

Conclusion: The off-site disposal of treatment residues is retained for further consideration.

4.0 DEVELOPMENT AND SCREENING OF ALTERNATIVES

This section assembles remedial alternatives by combining the remedial technologies which were retained for further evaluation from Section 3.4. These alternatives will be screened based on effectiveness, implementability and cost to select the most reasonable alternatives to be carried forward to the detailed analysis of alternatives in Section 5.0. Based upon technological feasibility, not all of the technologies and process options were carried through and incorporated into an alternative.

4.1 Remedial Alternative Development

Alternatives were developed that were designed to satisfy the HHRA recommendation of addressing TCE in on-site soils.

The existing IRM, Soil Vapor Extraction (SVE), will continue to be operated for remediation of the industrial leaching pool and TCE contaminated soils at the site and in accordance with the existing AOC.

The development of groundwater treatment and soil remediation alternatives was based on the screening of technology types and process options presented in the previous section of the report. These were assembled into the following alternatives for groundwater and/or soil at the site:

Alternative 1 – No Action
Alternative 2 – Groundwater Monitoring
Alternative 3 – Groundwater Extraction with Ex-situ Treatment & Groundwater Monitoring
Alternative 4 –Air Sparging/Soil Vapor Extraction & Groundwater Monitoring

4.2 Evaluation Criteria for Screening of Alternatives

The evaluation of the four (4) alternatives is performed in accordance with the U.S. Environmental Protection Agency's Guidance For Conducting Remedial Investigation and Feasibility Studies Under CERCLA (EPA, 1993), and considers effectiveness, implementability and cost. Following an evaluation for effectiveness, implementability and cost, the alternatives will be further comparatively analyzed, using each of the criteria is provided below, in the following section.

Effectiveness- The effectiveness of an alternative refers to its ability to meet the objective within the scope of the remedial action with respect to the following components:

> Overall Protection of Public Health and the Environment - How well each alternative protects public health and the environment from exposure by reducing, controlling or eliminating risks. This would include protection for site employees and the surrounding community and workers during implementation.
>
> Compliance with ARARs and Other Criteria, Advisories and Guidance - Discusses the ability of each alternative to meet applicable or relevant and appropriate Federal and/or State requirements.
>
> Long-Term Effectiveness and Permanence - Assesses the extent and effectiveness of the

controls that may be required to manage the risk posed by treatment residuals and/or untreated wastes at the site. This includes an evaluation of the magnitude of risk which will remain at the conclusion of remedial activities and the adequacy and reliability of post removal site controls required to ensure continuing effectiveness.

Reduction of Toxicity, Mobility, or Volume Through Treatment - The ability of the treatment technology to reduce the principal threats posed by the release. Based on EPA's policy of preference for treatment technologies which will significantly reduce toxicity, mobility, or volume of the hazardous substance.

Short-Term Effectiveness - Considers the effects of the alternative on human health and the environment during the construction and implementation phase with respect to the following factors: protection of the community and site workers, potential adverse environmental impacts and the time needed to achieve the remedial action objective.

Implementability- addresses the technical and administrative feasibility of implementing an alternative and the availability of services and materials required during the time needed to complete the remedial action. The following factors are considered when evaluating alternatives under this criterion.

Technical Feasibility - assesses technical difficulties associated with the alternative such as assembling, staffing, operation and reliability. The maturity of the technology, prior use and potential problems should also be considered.

Administrative Feasibility - evaluates those activities needed to implement the alternative such as permits and waivers, adherence to environmental laws and regulatory and community acceptance.

Availability of Services and Materials - determines if off-site treatment, storage and disposal capacity, equipment, personnel, services, materials and other resources are available to implement the alternative within the projected time schedule.

Cost- Each alternative will be evaluated to determine its projected direct and indirect capital costs, post-removal site control (PRSC) costs and the present worth cost as detailed below.

Capital Costs - The initial costs associated with the design and construction of the system. Direct capital costs include, construction, equipment and materials, land acquisition, buildings and services, transport and disposal and analytical services. Indirect capital costs include engineering and design expenses, legal fees and licenses and start-up and shake-down costs.

PRSC Costs - Costs associated with the operation of the system. Includes operation and maintenance, monitoring, support, auxiliary materials and energy and disposal of generated wastes.

Capital Costs and PRSC Costs are based on present worth values.

4.2.1 Continued Implementation of IRM

Operation of the existing IRM as a removal action to reduce TCE concentrations in on-site soils and indoor air will continue to be performed. The IRM being preformed at the site consists of a dual extraction point soil vapor extraction (SVE) system including a single vertical extraction well installed within the contaminated zone of the north industrial leaching pool, and a single horizontal extraction well installed beneath the concrete slab of the former silk screening room. Both extraction wells will remediate impacted soils through mass transfer from the sorbed to the vapor phase. The horizontal well installed beneath the building would also serve an abatement function system to remove accumulated vapors beneath the slab and prevent them from migrating to the building's interior. System operation would continue until federal, state and local ARARs are achieved (estimated to be 3 years). For additional details, see **Figure 6**.

Effectiveness

Continuing IRM would not pose short-term risks to the public or the environment. Air emissions would be monitored and treated, as necessary. Reductions in contaminant concentration will be by active treatment in-situ and through dispersive processes and natural biodegradation for the existing downgradient plume. Soil contamination would be addressed via active treatment in this alternative; however, groundwater would remain a risk for future hypothetical exposures (ingestion, dermal) to commercial workers in the industrial park or to off-site residents if contaminants were to reach the supply wells or a hypothetical private well within the residential area. There are no known private wells within the residential area., so this scenario would be for future potential.

Implementability

Monitoring the existing IRM system, sampling and analysis pose no technical difficulties. There are no administrative difficulties associated with continuing IRM.

Cost

The cost will include the operation and maintenance and sampling costs of the SVE system, and analysis and reporting. Operation and maintenance costs will consist of periodic maintenance of the SVE system, energy needed to run the system and semi-annual project status reports. The capital and PRSC future worth costs are summarized below.

The capital and PRSC future worth costs are summarized below. A detailed breakdown of costs is provided in **Table 4-1**.

Capital Cost	$ 0
PRSC Cost	$ 202,520
Total Cost	$ 202,520

4.2.2 Alternative 1 – No Action

The No Action (NA) alternative provides a comparative baseline against other alternatives to be evaluated. Under this alternative, a remedial action will not occur and the groundwater would be left "as is", without implementation of any control, removal, treatment, mitigating actions or monitoring. For the purpose of evaluating the alternatives, the NA alternative assumes that the IRM system be shut down and the existing AOC terminated.

Effectiveness

This alternative will not provide a reduction of contaminant toxicity, mobility, or volume through treatment. Also, achieving federal, state and local ARARs could not be verified without the aid of monitoring. The only downgradient receptor is the Falcon Drive wellfield and influent groundwater quality is strictly monitored and the effluent is treated prior to distribution to the public.

This alternative would provide for short term protection of human health and the environment.

Implementability
There are no difficulties with the implementation of this alternative since no remedial action would be taken. Administrative feasibility of this alternative is low since substantive requirements of federal, state, and local regulatory agencies could not be verified.

Cost
No cost would be associated with this alternative. A detailed breakdown of costs is provided in **Table 4-1**.

Capital Cost	$	0
PRSC Cost	$	0
Total Cost	$	0

4.2.3 Alternative 2 – Groundwater Monitoring

The Groundwater Monitoring alternative provides for implementation of a groundwater monitoring plan to effectively monitor groundwater contamination at the site. The monitoring program would utilize the existing onsite groundwater monitoring well network at the site.

Groundwater Monitoring would consist of monitoring and sampling the existing six on-site monitoring well (MW-1, MW-2, MW-3, MW-4, MW-5, & MW-6). Initially, each of designated monitoring wells would be monitored and sampled on a quarterly basis. Samples would be analyzed for chlorinated VOCs by EPA method 8010 (halogenated volatile organics). Following the receipt of the results from the 4th quarterly sampling event, the frequency and number of monitoring wells to be sampled in the future may be adjusted, based upon EPA approval. It is anticipated that after several rounds of groundwater monitoring, the annual frequency of sampling events may be decrease to once per year. If individual monitoring wells exhibit contaminant concentration below MCLs for two consecutive quarters, they will be removed from future sampling events. Given the multi-year sampling, access and location of off-site wells could be a problem and is therefore not considered as part of groundwater monitoring. Monitoring of on-site wells will adequately measure the levels of contaminants in the plume.

For the purpose of a comparison evaluation of the alternatives, it is assumed that groundwater monitoring, as well as each of the other alternatives will continue for a duration of five years. It is understood that the exact duration of any of the alternatives will be based upon meeting specific groundwater MCLs. For additional details, see **Figure 8**.

Effectiveness
This alternative would not pose short-term risks to the public or the environment. Reductions in groundwater contaminant concentration will be through dispersive processes and natural biodegradation during plume migration.

Implementability
The groundwater monitoring associated with this alternative would utilize the existing monitoring well network at the site. There are no administrative difficulties in implementation of this alternative.

Cost
The cost of this alternative will include the development of a groundwater monitoring plan, groundwater sampling, and analysis and reporting. Costs assume that semi-annual monitoring will continue for 5 years. The capital and PRSC future worth costs are summarized below. A detailed breakdown of costs is provided in **Table 4-1**.

Capital Cost	$ 0
PRSC Cost	$ 144,300
Total Cost	$ 144,300

4.2.4 Alternative 3 – Groundwater Extraction with Ex-situ Treatment & Groundwater Monitoring

Groundwater extraction with ex-situ treatment (GWET) & Groundwater Monitoring would prevent further off-site migration of the VOCs in groundwater plume by hydraulic control. The Groundwater Monitoring portion of the alternative provides for implementation of a groundwater monitoring plan to effectively monitor groundwater contamination at the site. The monitoring program would utilize the existing onsite groundwater monitoring well network at the site. The alternative assumes one moderate flow recovery well along the eastern property line in near MW-2. Groundwater would be treated by air stripping prior to discharge to a designed infiltration system, on-site. System operation would continue until federal, state and local ARARs are achieved (estimated to be 5 years).

Groundwater Monitoring would consist of monitoring and sampling the existing six on-site monitoring well (MW-1, MW-2, MW-3, MW-4, MW-5, & MW-6). Initially, each of designated monitoring wells would be monitored and sampled on a quarterly basis. Samples would be analyzed for VOCs by EPA method 8260. Following the receipt of the results from the 4th quarterly sampling event, the frequency and number of monitoring wells to be sampled in the future may be adjusted, based upon EPA approval. It is anticipated that after several years of groundwater monitoring, the annual frequency of sampling events may be decrease to once per year. If individual monitoring wells exhibit contaminant concentration below MCLs for two consecutive quarters, they will be removed from future sampling events.

For the purpose of a comparison evaluation of the alternatives, it is assumed that GWET & GM, as well as each of the other alternatives will continue for a duration of five years. It is understood that the exact duration of any of the alternatives will be based upon meeting specific groundwater MCLs. Actual shut down of the GWET would correspond to obtaining contaminant concentration below MCLs for two consecutive quarters in MW-2. This would be followed by two years of post remedial monitoring, of MW-2, to assure that target levels have been maintained. The system will remain capable of being restarted during that time. For additional details, see **Figure 9**.

Effectiveness
This alternative would not pose short-term risks to the public or the environment. The water discharged to the infiltration system would be within the MCLs for COPCs. Air emissions would be

monitored and treated, as necessary. Reductions in groundwater contaminant concentration will be by active treatment on-site and through dispersive processes and natural biodegradation for the existing downgradient plume.

Implementability
This alternative would require the installation of a recovery well, air stripping equipment, discharge piping and an infiltration system. The implementation of this alternative is not expected to present any technical or administrative difficulties. All of the components for the remedy are well demonstrated technologies. Equipment is readily available and relatively easy to install and operate.

Cost
The cost of this alternative will include the installation of the recovery well and controls, air stripping tower and ancillary equipment, the installation of discharge line piping and infiltration system (injection wells), and the cost of this alternative will include the development of a groundwater monitoring plan, groundwater sampling, and analysis and reporting. Monitoring costs will include monthly analysis of the influent/effluent and quarterly groundwater sampling from six on-site wells for a 5 years. Operation and maintenance costs will consist of periodic maintenance of the recovery well, injection wells, air stripping tower and ancillary equipment, energy needed to run the system and quarterly project status reports. After the system is shut down, a 2 year post closure monitoring program consisting of annual monitoring of MW-2 will also be performed.

The capital and PRSC future worth costs are summarized below. A detailed breakdown of costs is provided in **Table 4-1**.

Capital Cost	$ 150,800
PRSC Cost	$ 389,350
Total Cost	$ 540,150

4.2.5 Alternative 4 – Air Sparging/Vacuum Extraction& Groundwater Monitoring

This alternative would treat groundwater by removing VOCs in-situ and extracting the volatilized VOCs through the placement of soil vapor extraction (SVE) wells in the vadose zone around the air sparging well. The alternative assumes the installation of six air sparging wells along the eastern property line and three soil vapor extraction wells. The Groundwater Monitoring portion of the alternative provides for implementation of a groundwater monitoring plan to effectively monitor groundwater contamination at the site. The monitoring program would utilize the existing onsite groundwater monitoring well network at the site. System operation would continue until federal, state and local ARARs are achieved (estimated to be 5 years).

Groundwater Monitoring would consist of monitoring and sampling the existing six on-site monitoring well (MW-1, MW-2, MW-3, MW-4, MW-5, & MW-6). Initially, each of designated monitoring wells would be monitored and sampled on a quarterly basis. Samples would be analyzed for VOCs by EPA method 8260. Following the receipt of the results from the 4th quarterly sampling event, the frequency and number of monitoring wells to be sampled in the future may be adjusted, based upon EPA approval. It is anticipated that after several years of groundwater monitoring, the annual frequency of sampling events may be decrease to once per year. If individual monitoring wells exhibit contaminant concentration below MCLs for two consecutive quarters, they will be removed from future sampling events.

For the purpose of a comparison evaluation of the alternatives, it is assumed that AS/SVE & GM, as well as each of the other alternatives will continue for a duration of five years. It is understood that the exact duration of any of the alternatives will be based upon meeting specific groundwater MCLs. Actual shut down of the AS/SVE system would correspond to obtaining contaminant concentration below MCLs for two consecutive quarters in MW-2. This would be followed by two years of post remedial monitoring, of MW-2, to assure that target levels have been maintained. The system will remain capable of being restarted during that time. For additional details, see **Figure 10**.

Effectiveness
This alternative would not pose short-term risks to the public or the environment. Air emissions would be monitored and treated, as necessary. Reductions in contaminant concentrations will be by active treatment in-situ and through dispersive processes and natural biodegradation for the existing downgradient plume.

Implementability
This alternative would require the installation of air sparging wells, soil vapor extraction wells and associated equipment and the AS/SVE system. The implementation of this alternative is not expected to present any technical or administrative difficulties. All of the components for this alternative are well demonstrated technologies. Equipment is readily available and relatively easy to install and operate.

Cost
The cost of this alternative will include the installation of air sparging wells, soil vapor extraction wells, associated controls, the AS/SVE system, and the development of a groundwater monitoring plan, groundwater sampling, and analysis and reporting. System monitoring costs will include monthly analysis of the influent/effluent air stream, and quarterly groundwater sampling from six on-site wells for a 5 years. Operation and maintenance costs will consist of periodic maintenance of the blowers, gauges, valves and ancillary equipment, energy needed to run the system and quarterly project status reports. After the system is shut down, a 2 year post closure monitoring program consisting of annual monitoring of MW-2 will also be performed.

The capital and PRSC future worth costs are summarized below. A detailed breakdown of costs is provided in **Table 4-1**.

Capital Cost	$ 122,000
PRSC Cost	$ 382,270
Total Cost	$ 504,270

4.3 Alternative Screening- Selection for Detailed Analysis

The four alternatives screened, address impacted only groundwater because the continuing IRM is remediating the only on-site potential soil source area. The screening process for detailed analysis selection evaluates the alternative based upon the criteria of effectiveness, Implementability and costs for each alternative.

Each of the four above listed alternatives has been evaluated for effectiveness in treatment of VOCs in groundwater. Alternative 1 (NA) is not an effective treatment. Alternative 2 (GM), 3 (GWET & GM), & 4 (AS/SVE & GM) are have each been determined to be effective technologies reducing low level VOCs concentrations in groundwater, especially in combination with the continuing IRM system. Because Alternatives 3 (GWET & GM), & 4 (AS/SVE & GM) are active treatment technologies, they have the most potential to be the fastest treatment technologies, assuming a continuing up-gradient source of impacted groundwater is eliminated.

Each of the four above listed alternatives has been evaluated for implementabilty in treatment of VOCs in groundwater. Each of the four alternatives is implementable with current technology and equipment and materials are readily available. Alternative 1 (NA) is the most implementable because no further section is required. Alternative 2 (GM) is the second most implementable alternative, because the on-site monitoring well network is currently in place and access is available. Alternatives 3 (GWET & GM), & 4 (AS/SVE & GM) are implementable, but require further construction activities to install and both require significant operation and maintenance activities to insure proper operation.

Each of the four above listed alternatives has been evaluated for cost. The cost to implement each of the four alternatives, as well as the continuation of the IRM has been estimated in Tables 4-1, based upon an estimated life span of five years.

- The total cost to implement the continued IRM operation is $202,520, this alternative is intended to operate in addition to any of the chosen alternative.
- Alternative 1 (NA) requires no action and therefore requires no additional cost beyond the continued IRM cost.
- The total cost associated with the implementation of Alternative 2 (GM) and continued IRM is $202,520 + $144,300= $346,820.
- The total cost associated with the implementation of Alternative 3 (GWET & GM) and continued IRM is $540,150 + $144,300= $684,450.
- The total cost associated with the implementation of Alternative 4 (AS/SVE & GM) and continued IRM is $504,270 + $144,300= $648,570.

Alternative 1 (NA) is the least expensive alternative, Alternative 2 (GM) is closest to the average prices alternative, while Alternative 3 (GWET & GM) & 4 (AS/SVE & GM) are extremely costly alternatives for treating the low level VOCs in groundwater.

Based upon this screening of the potential alternatives, none of the four alternatives in conjunction with the continuing IRM, as a source control measure, with the exception of Alternative 1 (NA) which is being retained as a baseline alternative, should be held from further analysis based upon the criteria of effectiveness, Implementability and costs. Each of the four alternatives are being retained, in conjunction with the continue IRM, for further analysis in Section 5.0.

5.0 DETAILED ANALYSIS OF ALTERNATIVES

This section presents the detailed analysis of the alternatives developed in section 4.0. The primary objective is to perform a detailed evaluation of the most feasible alternatives and to present a comparison analysis among the appropriate remedial alternatives. Each alternative is evaluated with respect to the seven criteria listed below:

The two **threshold criteria** are:
- Overall Protection of Human Health and the Environment; and
- Compliance with ARARs.

The five **primary balancing criteria** upon which the analysis is based are:
- Long-Term Effectiveness and Permanence;
- Reduction of Toxicity, Mobility or Volume through Treatment;
- Short-Term Effectiveness;
- Implementability; and
- Cost.

The two **modifying criteria** will be evaluated following comments on the Proposed Plan and will be described in the ROD for the site. The modifying criteria are not addressed in this FS, and consist of:
- Regulatory Acceptance; and
- Community Acceptance.

5.1 *Individual Analysis of Alternatives*

As previously detailed, the goal of the selected RAOs is to:

A. Reduce the possibility of off-site migration of TCE in groundwater and in on-site soils to the extent technically reasonable and considering the upgradient contribution of contaminated groundwater
B. Control/mitigate contaminated soil and/or source material due to current and future on-site commercial workers.

As such, applicable technologies for RAOs A & B, were screened and potential Alternatives were defined and individually evaluated in section 4. RAOs C & D each deal with potentially contaminated source soil areas, which is currently being remediated by continuing operation of the IRM system and requires no further treatment technologies to meet ARARs.

In this section, the four alternatives and continuation of the IRM system are compared to each of seven criteria below and subsequently compared to one another through a comparison analysis in an effort to determine to the most feasible remedial alternative to be selected in conjunction with the continued operation of the IRM system.

5.1.1 Protection of Public Health and the Environment

Overall protection of public health and the environment assess how well each alternative protects public health and the environment from exposure by reducing, controlling or eliminating risks. This would include protection for site employees and the surrounding community and workers during implementation.

Continuation of the IRM will provide a reduction of TCE in soil contaminants through active remediation of potential soil source areas. Continuation of the IRM actively reduces risks associated with the TCE in soil and groundwater, exposure to the public, and to the environment. Due to lack of additional construction activities required to implement this technology, the risk from exposure due to implementation of this technology is minimal.

Alternatives 1 (NA) will not provide action to monitor TCE concentrations in soils and/or groundwater, and therefore can not effectively demonstrate the potential reduction of TCE in soils and/or groundwater. Although TCE concentrations could be reduced within the MCL in groundwater through dispersive processes and natural biodegradation during plume migration,, this could not be verified without the aid of monitoring. This Alternative does not actively reduce risk associated with the TCE in soil and groundwater to the public and the environment. However, due to the lack of construction and/or sampling activities required, there is no risk from exposure due to remedial actions.

Alternatives 2 (GM), in conjunction with the continuing IRM, will provide a reduction of TCE in soil and/or groundwater contaminants through active treatment. Based upon the analytical results of the most recent round of groundwater samples collected from the monitoring well network, and the relatively low VOC concentrations detected throughout the on-site and off-site monitoring wells, TCE concentrations, originating from the site, could be reduced within the MCL before ever reaching the Falcon Drive wellfield through dispersive processes and natural biodegradation during plume migration. This alternative does actively reduce risk associated with the TCE in soil and groundwater to the public and the environment. Due to the lack of additional construction activities required to implement, the risk from exposure due to implementation of this alternative is minimal.

Alternatives 3 (GWET & GM), in conjunction with the continuing IRM, will provide a reduction of TCE in soil and/or groundwater contaminants through active treatment. This alternative does actively reduce risk associated with the TCE in groundwater leaving the site to the public and the environment. Based upon the aggressive active treatment involved in GWET and the most recent round of groundwater samples collected from the monitoring well network, TCE concentrations, originating from the site, could be reduced within the MCL before ever reaching the Falcon Drive wellfield. This alternative does actively reduce risk associated with the TCE in soil and groundwater to the public and the environment. Due to the requirement for aggressive construction activities required to implement, the risk from exposure due to implementation of this alternative elevated.

Alternatives 4 (AS/SVE & GM), in conjunction with the continuing IRM, will provide a reduction of TCE in soil and/or groundwater contaminants through active treatment. This alternative does actively reduce risk associated with the TCE in groundwater leaving the site to the public and the environment. Based upon the aggressive active treatment involved in AS/SVE and the most recent round of groundwater samples collected from the monitoring well network, TCE concentrations, originating from the site, could be reduced within the MCL before ever reaching the Falcon Drive wellfield. This alternative does actively reduce risk associated with the TCE in soil and groundwater to the public and the environment. Due to the requirement for aggressive construction activities required to implement, the risk from exposure due to implementation of this alternative elevated.

5.1.2 Compliance with ARARs

Each of the four Alternatives and continuation of the IRM has the potential to meet some and/or all of the applicable or relevant and appropriate Federal and/or State requirements as detailed below

Continuation of the IRM would continue to reduce contaminant concentrations to within ARARs in the both potential on-site soil source areas and/or groundwater by in-situ vapor removal and through dispersive processes and natural biodegradation for the existing downgradient plume. ARARs association with the process air emissions and waste streams (GAC) are currently being achieved following the IRM.

Alternatives 1 (NA), could reduce contaminant concentrations within ARARs in the groundwater through dispersive processes and natural biodegradation during plume migration, however verification of achieving ARARs in both potential on-site soil source areas and/or groundwater impacted with TCE can not be verified without the aid of monitoring.

Alternatives 2 (GM) in conjunction with the continuing IRM could reduce contaminant concentrations within ARARs in both potential on-site soil source areas and/or groundwater through active vapor recovery and through dispersive processes and natural biodegradation during plume migration. Meeting ARARs in association with the waste streams associated with the operation of the IRM system and future monitoring well sampling events is easily achievable.

Alternatives 3 (GWET & GM) in conjunction with the continuing IRM would actively reduce contaminant concentrations within ARARs in both potential on-site soil source areas and/or groundwater through active vapor recovery and through active groundwater removal and treatment, in addition to dispersive processes and natural biodegradation during plume migration. Meeting ARARs in association with the waste streams associated with the operation of the IRM system and potential system installation wastes, and effluent water and air stream is easily achievable.

Alternatives 4 (AS/SVE & GM) in conjunction with the continuing IRM would actively reduce contaminant concentrations within ARARs in both potential on-site soil source areas and/or groundwater through active vapor recovery and through active in-situ groundwater VOC vaporization, in addition to dispersive processes and natural biodegradation during plume migration. Meeting ARARs in association with the waste streams associated with the operation of the IRM system and potential system installation wastes, and air stream is easily achievable.

5.1.3 Long-Term Effectiveness

Long-term effectiveness and permanence assesses the extent and effectiveness of the controls that may be required to manage the risk posed by treatment residuals and/or untreated wastes at the site. This includes an evaluation of the magnitude of risk which will remain at the conclusion of remedial activities and the adequacy and reliability of post removal site controls required to ensure continuing effectiveness.

Continuation of the IRM provides an active and aggressive treatment for the TCE soil source areas and therefore provides long-term effectiveness and permanence by reducing TCE concentrations in on-site soils, and reducing the potential of TCE from migrating into groundwater. Due to the active treatment of the soils through the IRM system and the minimal waste stream being generated, the risk associated with the remaining treatment residuals and/or untreated wastes at the site are minimal, following the conclusion of the IRM operation. The only potential post removal site control measure potentially warranted following completion of the IRM system may be the installation of an active sub-slab depressurization system, to ensure minimal potential for vapor intrusion.

Alternative 1 (NA) does not provide for treatment of TCE soil source areas and/or groundwater and therefore provides no long-term effectiveness and permanence. Due to the lack of action the and lack of monitoring contaminant concentrations, the risk associated with the remaining treatment residuals and/or untreated wastes at the site remain stable. This alternative does not provide any measures for potential post removal site control measures.

Alternative 2 (GM) in conjunction with continuation of the IRM provides an active and aggressive treatment for the TCE soil source areas and therefore provides long-term effectiveness and permanence by reducing TCE concentrations in on-site soils, and reducing the potential of TCE from migrating into groundwater and also provides for groundwater monitoring of contaminant concentrations. Due to the active treatment of the soils through the IRM system and the minimal waste stream being generated from GM activities, the risk associated with the remaining treatment residuals and/or untreated wastes at the site are minimal, following the conclusion of GM and the IRM operation. Potential post removal site control measure potentially warranted following completion of the GM program and the IRM system may be the installation of an active sub-slab depressurization system, to ensure minimal potential for vapor intrusion.

Alternative 3 (GWET & GM) in conjunction with continuation of the IRM provides an active and aggressive treatment for the TCE soil source areas and therefore provides long-term effectiveness and permanence by reducing TCE concentrations in on-site soils, reducing the potential of TCE from migrating into groundwater, actively reducing VOC contamination in groundwater leaving site, and also provides for groundwater monitoring of contaminant concentrations. Due to the active treatment of the soils through the IRM system and the minimal waste stream being generated from GWET, and GM activities, the risk associated with the remaining treatment residuals and/or untreated wastes at the site are minimal, following the conclusion of GWET, GM and the IRM operation. Potential post removal site control measure potentially warranted following completion of the GM program and the IRM system may be the installation of an active sub-slab depressurization system, to ensure minimal potential for vapor intrusion.

Alternative 4 (AS/SVE & GM) in conjunction with continuation of the IRM provides an active and aggressive treatment for the TCE soil source areas and therefore provides long-term effectiveness and permanence by reducing TCE concentrations in on-site soils, reducing the potential of TCE from migrating into groundwater, actively reducing VOC contamination in groundwater leaving site, and also provides for groundwater monitoring of contaminant concentrations. Due to the active treatment of the soils through the IRM system and the minimal waste stream being generated from AS/SVE, and GM activities, the risk associated with the remaining treatment residuals and/or untreated wastes at the site are minimal, following the conclusion of GWET, GM and the IRM operation. Potential post removal site control measure potentially warranted following completion of the GM program and the IRM system may be the installation of an active sub-slab depressurization system, to ensure minimal potential for vapor intrusion.

5.1.4 Reduction of Toxicity, Mobility, or Volume

Reduction of toxicity, mobility, or volume through treatment evaluates the ability of the treatment technology to reduce the principal threats posed by the release.

Continuation of the IRM system will actively reduce the toxicity and volume of contamination in the soil source areas over the long term due to vapor extraction. This technology would further continue to reduce the potential of VOCs from impacting groundwater. This technology actively reduces the principal threat, the TCE contamination in the soil column in the vicinity of the north industrial leaching pool, while reducing the potential for the impacted soils to impact groundwater.

Alternatives 1 (NA) may have the potential to reduce the toxicity and volume of contamination over the long term due natural dispersion processes. However, without the aid of monitoring, soil and groundwater conditions could not be verified. This alternative would allow the TCE impacted soils, in the vicinity of the north industrial leaching pool, to remain in their current condition and allow the soils to potential further impact the groundwater leaving the site. This alternative provides minimal to no ability to reduce the toxicity, mobility, or volume of the principal threats posed by the release.

Alternatives 2 (GM) in conjunction with the continuation of the IRM system will actively reduce the toxicity and volume of contamination in the soil source areas over the long term due to vapor extraction and through dispersive processes and natural biodegradation during plume migration. This alternative would further continue to reduce the potential of VOCs in the soil source areas from potentially impacting groundwater. This alternative provides a moderate ability to reduce the toxicity, mobility, or volume of the principal threats posed by the release.

Alternatives 3 (GWET & GM) in conjunction with the continuation of the IRM system will actively reduce the toxicity and volume of contamination in the soil source areas over the long term due to groundwater extraction and treatment, vapor extraction, and through dispersive processes and natural biodegradation during plume migration. This alternative would further continue to reduce the potential of VOCs in the soil source areas from potentially impacting groundwater. This alternative provides a significant ability to reduce the toxicity, mobility, or volume of the principal threats posed by the release.

Alternatives 4 (AS/SVE & GM) in conjunction with the continuation of the IRM system will actively reduce the toxicity and volume of contamination in the soil source areas over the long term due to air sparging of groundwater, vapor extraction, and through dispersive processes and natural biodegradation during plume migration. This alternative would further continue to reduce the potential of VOCs in the soil source areas from potentially impacting groundwater. This alternative provides a significant ability to reduce the toxicity, mobility, or volume of the principal threats posed by the release.

5.1.5 Short-Term Effectiveness

Short-term effectiveness considers the effects of the alternative on human health and the environment during the construction and implementation phase with respect to the following factors: protection of the community and site workers, potential adverse environmental impacts and the time needed to achieve the remedial action objective.

With the exception of the no action alternative, each of the alternatives will pose a short-term impact to remediation workers by potentially exposing them to contaminants during implementation of the sampling and monitoring program. These impacts are routinely mitigated through the use of personal protective equipment, site control measures and adherence to health and safety procedures.

Continuation of the IRM system poses minimal to no short-term impact to the community and/or to site workers, and minimal potential adverse environmental impacts from potential untreated effluent air discharges, due to continuing remedial activities. The time needed to achieve the RAOs is estimated at five years, for comparison of the alternatives.

Alternatives 1 (NA) poses no short-term impact to the community and/or site workers, and no potential adverse environmental impacts due to remedial activities. However, the Alternative 1 (NA) assumes that the IRM system would be shut off, therefore posing potential significant impact to the community and/or to site workers from potential elevated VOCs in indoor air and the potential for environmental impacts from VOCs in soil source areas to contribute to groundwater impact. The time needed to achieve the RAOs under the NA alternative is unknown.

Alternatives 2 (GM) in conjunction with the continued IRM poses no short-term impact to the community, but does pose a potential short-term impact to remediation workers by potentially exposing them to contaminants during the sampling and monitoring program. These impacts are routinely mitigated through the use of personal protective equipment and adherence to health and safety procedures. This alternative poses minimal potential adverse environmental impacts from potential untreated effluent air discharges, due to continuing remedial activities. The time needed to achieve the RAOs is estimated at five years, for comparison of the alternatives.

Alternatives 3 (GWET & GM) in conjunction with the continued IRM poses a short-term impact to the community and site workers by potentially exposing them to potentially contaminated dust, soils and groundwater during drilling, excavation for system piping, sampling and monitoring program, and to physical hazards from use of the drilling and heavy equipment. These impacts are routinely mitigated through the use of personal protective equipment and adherence to health and safety procedures. This alternative poses minimal potential adverse environmental impacts from potential untreated effluent air discharges, and potential spills from drilling equipment and support vehicles. The time needed to achieve the RAOs is estimated at five years, for comparison of the alternatives.

Alternatives 4 (AS/SVE & GM) in conjunction with the continued IRM poses a short-term impact to the community and site workers by potentially exposing them to potentially contaminated dust, soils and groundwater during drilling, excavation for system piping, sampling and monitoring program, and to physical hazards from use of the drilling and heavy equipment. These impacts are routinely mitigated through the use of personal protective equipment and adherence to health and safety procedures. This alternative poses minimal potential adverse environmental impacts from potential untreated effluent air discharges, and potential spills from drilling equipment and support vehicles. The time needed to achieve the RAOs is estimated at five years, for comparison of the alternatives

5.1.6 Implementability

Implementability addresses the technical and administrative feasibility of implementing an alternative and the availability of services and materials required during the time needed to complete the remedial action.

Each of the four alternatives has the potential to be implemented with little or no difficulty, although some of the alternatives would require higher levels of administrative regulation of federal, state, and local regulatory agencies to verified achievement of ARARs.

Continuation of the IRM - is the easiest to implement, with the exception of Alternative 1 (NA), since the IRM is already in full operation and performing as anticipated. Continued operation of the IRM requires minimal technical and administrative effort to implement. Monitoring the system, sampling, analysis, and routine maintenance pose no significant technical difficulties. There are no significant administrative difficulties in implementation of this alternative.

Alternatives 1 (NA) requires no technical and administrative effort to implement since it does not involve any action to be taken. There are no difficulties with the implementation of this alternative since no remedial action would be taken. Administrative feasibility of this alternative is low since substantive requirements of federal, state, and local regulatory agencies could not be verified.

Alternatives 2 (GM) in conjunction with the continuing IRM operation would require minimal technical and administrative effort to implement since no additional construction and/or accessibility issues are required to implement. The implementation of this alternative is not expected to present any significant technical or administrative difficulties.

Alternatives 3 (GWET & GM) in conjunction with the continuing IRM operation would require moderate technical and administrative effort to implement, due to the aggressiveness of construction, for the installation of extraction and injection wells, associated piping, installation of a treatment shed and stripping tower. In addition, the O&M, (eg. cleaning stripping tower packing medium, maintaining injection well screens, repair of submersible pumps, etc.) of a GWET system requires a significant amount of effort to ensure continuing operation. However, the implementation of this alternative is not expected to present any significant technical or administrative difficulties..

Alternatives 4 (AS/SVE & GM) in conjunction with the continuing IRM operation would require moderate technical and administrative effort to implement, due to the aggressiveness of construction, for the installation of AS and SVE wells, associated piping, installation of a treatment shed and equipment. In addition, the O&M, (eg. regulation of pressure and vacuum to well heads, maintenance of the blower motors, replacement of flow meters, etc.) of a AS/SVE system requires a significant amount of effort to ensure continuing operation. However, the implementation of this alternative is not expected to present any significant technical or administrative difficulties.

5.1.7 Cost

Capital costs are considered the initial costs associated with the design and construction of the system. Direct capital costs include, construction, equipment and materials, land acquisition, buildings and services, transport and disposal and analytical services. Indirect capital costs include engineering and design expenses, legal fees and licenses and start-up and shake-down costs. Post-removal site control (PRSC) costs are associated with the operation of the system. Includes operation and maintenance, monitoring, support, auxiliary materials and energy and disposal of generated wastes. Total cost is the sum of both the capital and PRSC costs.

A comparison of the costs associated with the continuation of the IRM along with the potential four alternatives are summarized in the table below.

	Continue IRM	**Alternative 1** No Action	**Alternative 2** GW Monitoring	**Alternative 3** GW Extraction & GW Monitoring	**Alternative 4** Air Sparging/SVE & GW Monitoring
Capital Costs Subtotal	$ -	$ -	$ -	$ 150,800	$ 122,000
PSRC Costs Subtotal	$ 202,520	$ -	$ 144,300	$ 389,350	$ 382,270
TOTAL	**$ 202,520**	**$ -**	**$ 144,300**	**$ 540,150**	**$ 504,270**

A more detailed summary table and cost breakdown values are include in Table 4-1.

5.2 *Comparative Analysis of Alternatives*

In this section, the alternatives that have been described and individually assessed against the criteria, will undergo a comparative analysis to evaluate the relative performance of each alternative in relation to each specific evaluation criterion. The purpose of this comparative analysis is to identify the advantages and disadvantages of each alternative relative to one another. Each of the alternatives will be evaluated to the relative performance of the other alternatives in relation to each specific evaluation criterion in the following sections. As previously detailed, each alternative, with the exception of Alternative 1 (NA), will include the continuation of the IRM as part of the alternative going forward.

Summary tables, comparing each of the alternatives to the each specific evaluation criterion, are shown below. The alternatives were rated as most applicable, moderately applicable, or least applicable for each of the criterion, excluding cost.

Protection of Public Health and the Environment		
Most Applicable	Moderately Applicable	Least Applicable
Alt. 2 (GM)	Alt. 3 (GWET & GM), Alt. 4 (AS/SVE & GM)	Alt.1 (NA)
-Monitors groundwater. -No additional risk to workers, site employees, or community for implementation.	-Actively treats contaminated groundwater, -Increased risk to workers, site employees, and community during system installation.	-No action
Common elements to each alternative		
Continuation of the IRM actively treats VOCs in on-site source soils, reduces potential for further groundwater impact.		

Compliance with ARARs		
Most Applicable	Moderately Applicable	Least Applicable
Alt. 2 (GM), Alt. 3 (GWET & GM), Alt. 4 (AS/SVE & GM)		Alt.1 (NA)
-Continued treatment and monitoring of groundwater to insure compliance with ARARs. -Small potential for active treatment system air and/or water effluent not meeting ARARs.		-No action
Common elements to each alternative		
Continuation of the IRM actively treats VOCs in on-site source soils, reduces potential for further groundwater impact.		

Long-Term Effectiveness		
Most Applicable	Moderately Applicable	Least Applicable
Alt 2 (GM) Alt. 3 (GWET & GM), Alt. 4 (AS/SVE & GM)		Alt.1 (NA)
- Continued monitoring of groundwater monitoring, with each alternative, ensures effectiveness. -GM produces relatively no waste stream compared to construction and operation of additional treatment systems,		-No action
Common elements to each alternative		
Continuation of the IRM actively treats VOCs in on-site source soils, reduces potential for further groundwater impact. Installation of a sub-slab depressurization system following the completion of the IRM may be warranted.		

Reduction of Toxicity, Mobility, or Volume		
Most Applicable	Moderately Applicable	Least Applicable
Alt. 3 (GWET & GM), Alt. 4 (AS/SVE & GM)	Alt 2 (GM)	Alt.1 (NA)
-Actively treats groundwater to reduce toxicity, mobility and/or volume of the plume. -GWET and AS/SVE actively remediate groundwater reducing potential risks air and/or water effluent not meeting ARARs	-Monitors reduction of toxicity, mobility, and/or volume of plume	-No action
Common elements to each alternative		
Continuation of the IRM actively treats VOCs in on-site source soils, reduces potential for further groundwater impact.		

Short-Term Effectiveness		
Most Applicable	Moderately Applicable	Least Applicable
Alt. 2 (GM)	Alt. 3 (GWET & GM), Alt. 4 (AS/SVE & GM)	Alt.1 (NA)
-Relatively low levels of risk to site workers, and environment.	-Requires aggressive construction practices, -potentials for spills to the environment	-Shut off of IRM would cause vapor intrusion risk to site workers.
Common elements to each alternative		
Continuation of the IRM actively treats VOCs in on-site source soils, reduces potential for further groundwater impact.		

Implementability		
Most Applicable	Moderately Applicable	Least Applicable
Alt. 1 (NA) **Alt. 2 (GM)**	Alt. 3 (GWET & GM), Alt. 4 (AS/SVE & GM)	
-No action = easy implementation -GM wells already in place, access provided, -no technical or administrative issues associated	-Requires aggressive construction practices, -Moderate O&M activities required to keep systems operating properly	
Common elements to each alternative		
Continuation of the IRM actively treats VOCs in on-site source soils, reduces potential for further groundwater impact. No significant technical or administrative issues associated with continued use.		

Cost to Implement				
	Alternative 1 No Action	**Alternative 2** GW Monitoring	**Alternative 3** GW Extraction & GW Monitoring	**Alternative 4** Air Sparging/SVE & GW Monitoring
TOTAL	**$ 0**	**$ 144,300**	**$ 540,150**	**$ 504,270**
Additional common IRM cost to each alternative $ 202,520				

Based upon the comparison rating of the four alternatives to the seven criteria, including total cost, above, Alternative 1 (No Action) does not adequately address the many of the criterion. However, No Action is easiest alternative to implement, it requires no further action, and is the most inexpensive of the other alternatives, cost to implement is $0.

Alternative 2, 3, & 4, when compared to the criterion, have been designated as either most applicable or moderately applicable based upon the specific criterion. Because Alternatives 3 & 4 are aggressive treatment technologies, they were rated most applicable for reducing toxicity, mobility, or volume, however these alternatives are also more difficult to implement, and pose a moderate threat to the public and environment during the aggressive construction activities. Alternatives 3 & 4 will cost $540,150 and $504,270 respectively, above and beyond the $202,520 cost to continue the IRM.

Alternative 2 was rated most applicable in each of the criterion, except reduction of toxicity, mobility, or volume in which it rated moderately applicable because it is not an active treatment technology. This alternative is relatively easy to implement, adequately tracks long-term effectiveness, monitors compliance with ARARs, and protects public health and the environmental. The cost to implement this alternative is $144,300 above and beyond the $202,520 cost to continue the IRM.

6.0 REFERENCES

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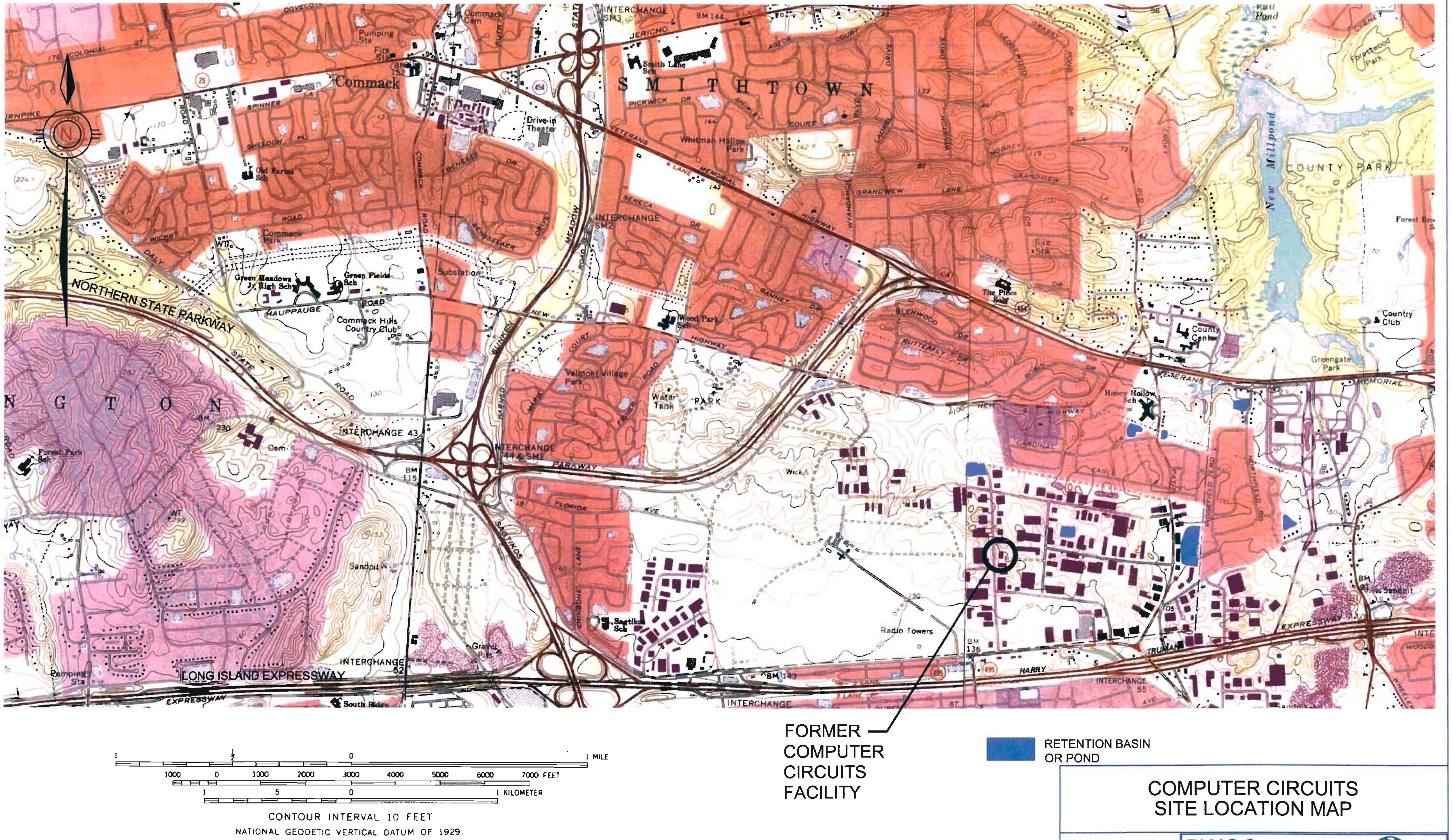
FIGURES



(FROM USGS TOPOGRAPHIC QUADRANGLES, GREENLAWN, NY
AND CENTRAL ISLP, NY, 1967 PHOTOREVISED 1979)

FIGURE OBTAINED FROM
FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY DEC '99

COMPUTER CIRCUITS
SITE LOCATION MAP

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Project: TED0001	Designed By: CS	Figure No: 1
CADD Operator: LLG	Approved By: PWG	Date: 6/5/07

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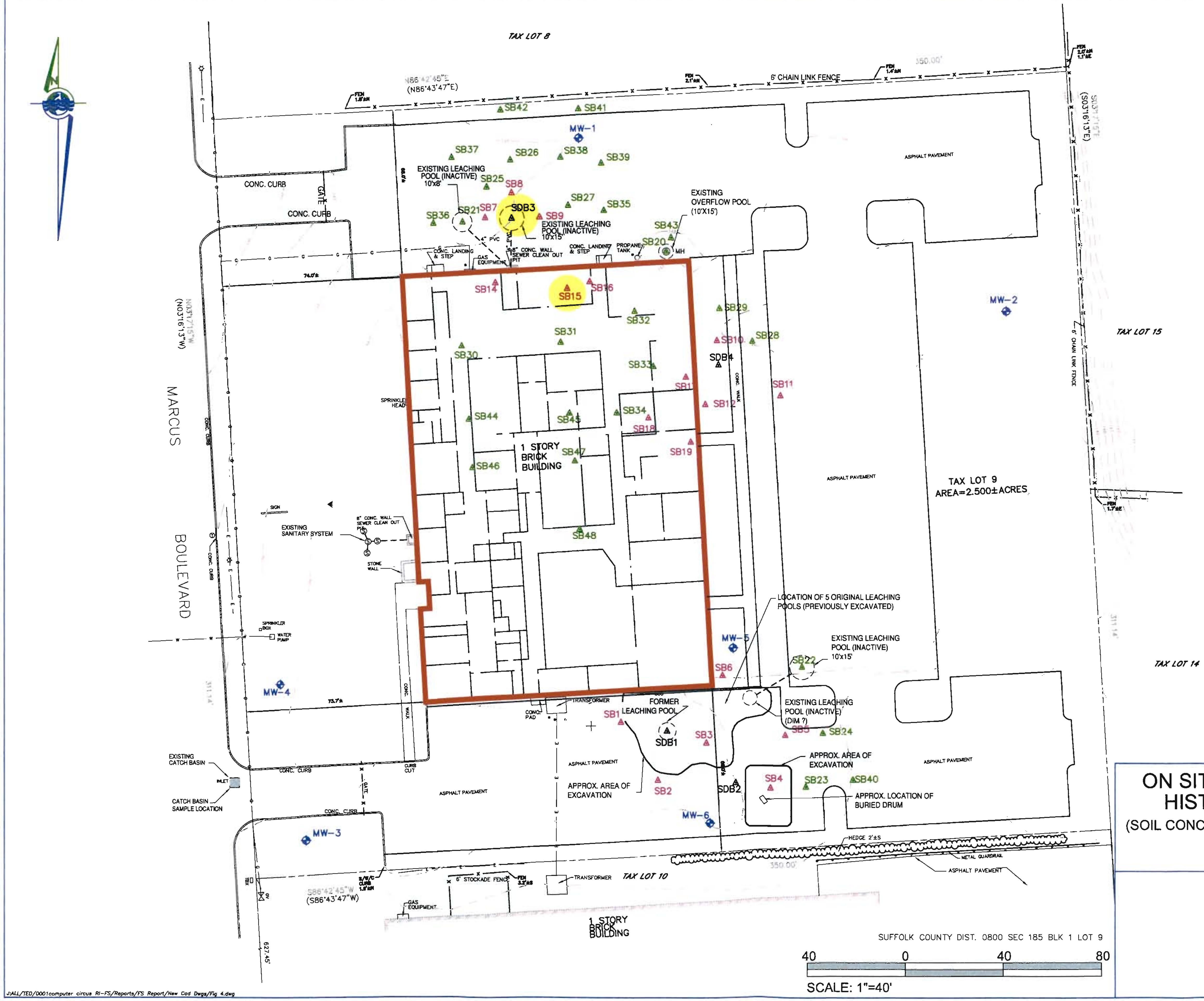

LEGEND

SDB4 ▲	STEP-OUT BORING LOCATION
SB11 ▲	INITIAL SOIL BORING LOCATION
⊕	MONITORING WELL LOCATION
SB	SOIL BORING
SDB ▲	DEEP SOIL BORING
TC	TOP OF CURB
BC	BOTTOM OF CURB
TWL	TOP OF WALL
BWL	BOTTOM OF WALL
☼	LIGHT POLE
◀	GROUND LIGHT
MH ○	MANHOLE
Ⓢ	SEWER MANHOLE
Ⓣ	TELEPHONE MANHOLE
IS ◌	INLET STRUCTURE
●	BOLLARD
GV ⋈	GAS VALVE
—G—	APPROX. LOC. OF GAS LINE
—W—	APPROX. LOC. OF WATER LINE
—E—	APPROX. LOC. OF ELECTRIC LINE
SCO	SANITARY CLEAN OUT
TBX	TELEPHONE BOX
TR.	TOP OF RIM ELEV.
TW.	TOP OF WELL
●	AREAS OF CONCENTRATIONS OF TCE IN SOIL SAMPLES GREATER THEN NYSDEC RSCO's

REFER TO RI REPORT FOR ASSITIONAL DETAILS REGARDING HISTORIC SAMPLING LOCATION.

ON SITE TCE SOURCE AREAS WITH HISTORIC SAMPLE LOCATIONS

(SOIL CONCENTRATIONS GREATER THEN NYSDEC RSCO)

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Project: TED0001	Designed By: CS/KF/KEA	Figure No: 4
CADD Operator: DLM/KF/LLG	Approved By: PWG	Date: 6/5/07

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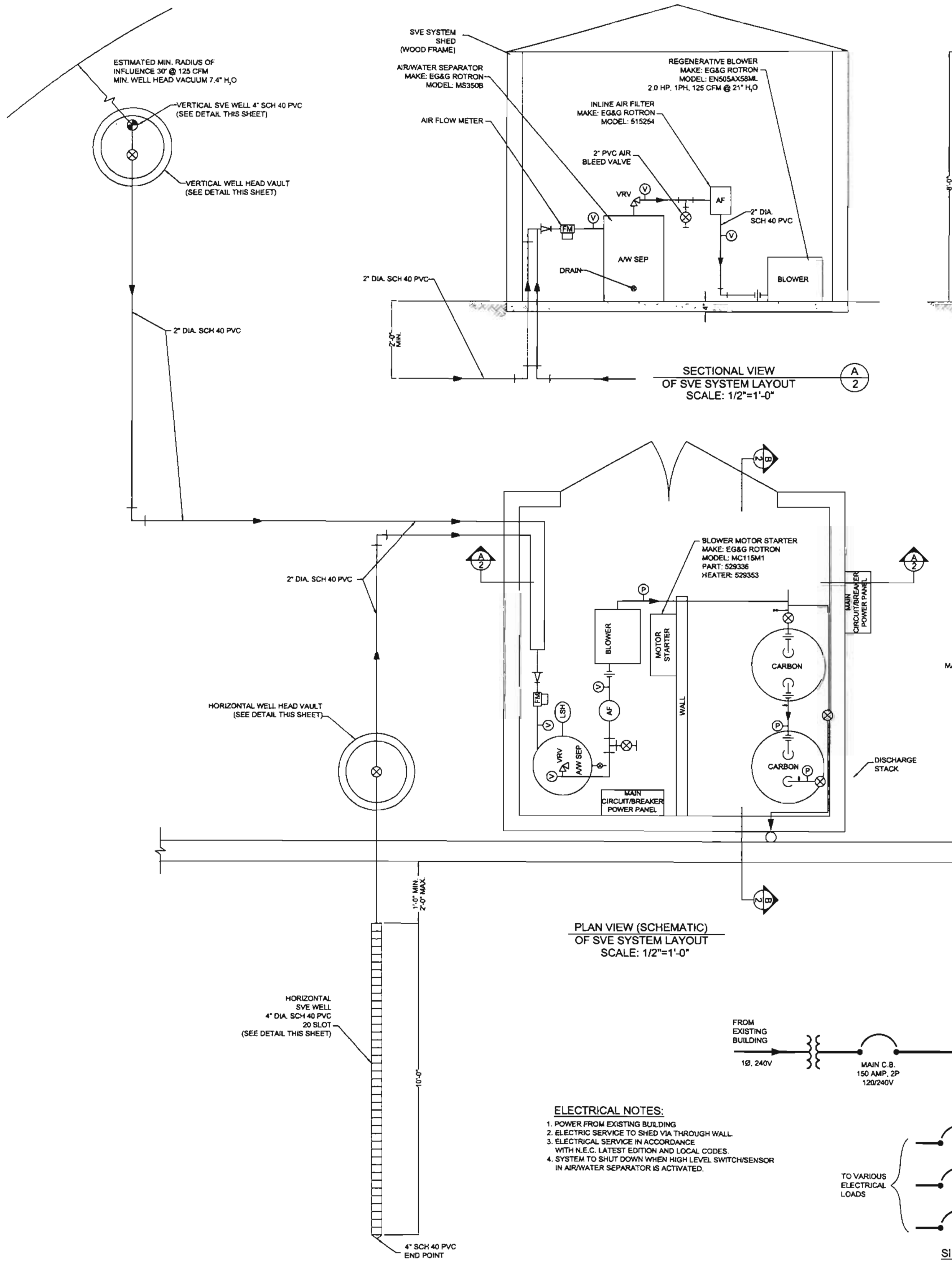
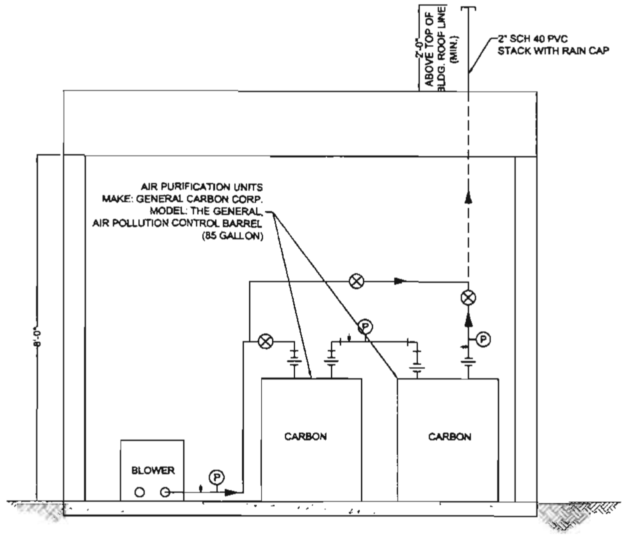
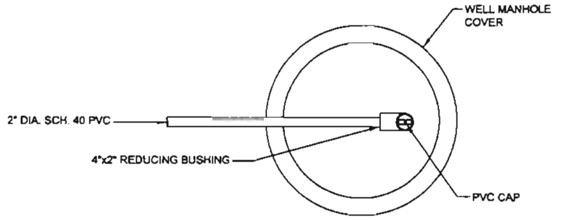


SECTIONAL VIEW
OF SVE SYSTEM LAYOUT
SCALE: 1/2"=1'-0"
A/2

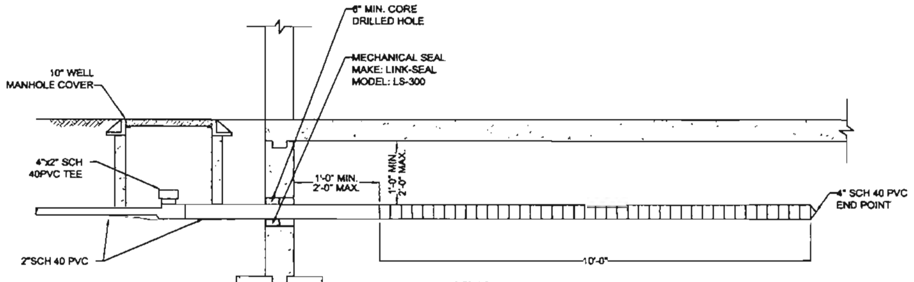
PLAN VIEW (SCHEMATIC)
OF SVE SYSTEM LAYOUT
SCALE: 1/2"=1'-0"



SECTIONAL VIEW
OF SVE SYSTEM LAYOUT
SCALE: 1/2"=1'-0"
B/2

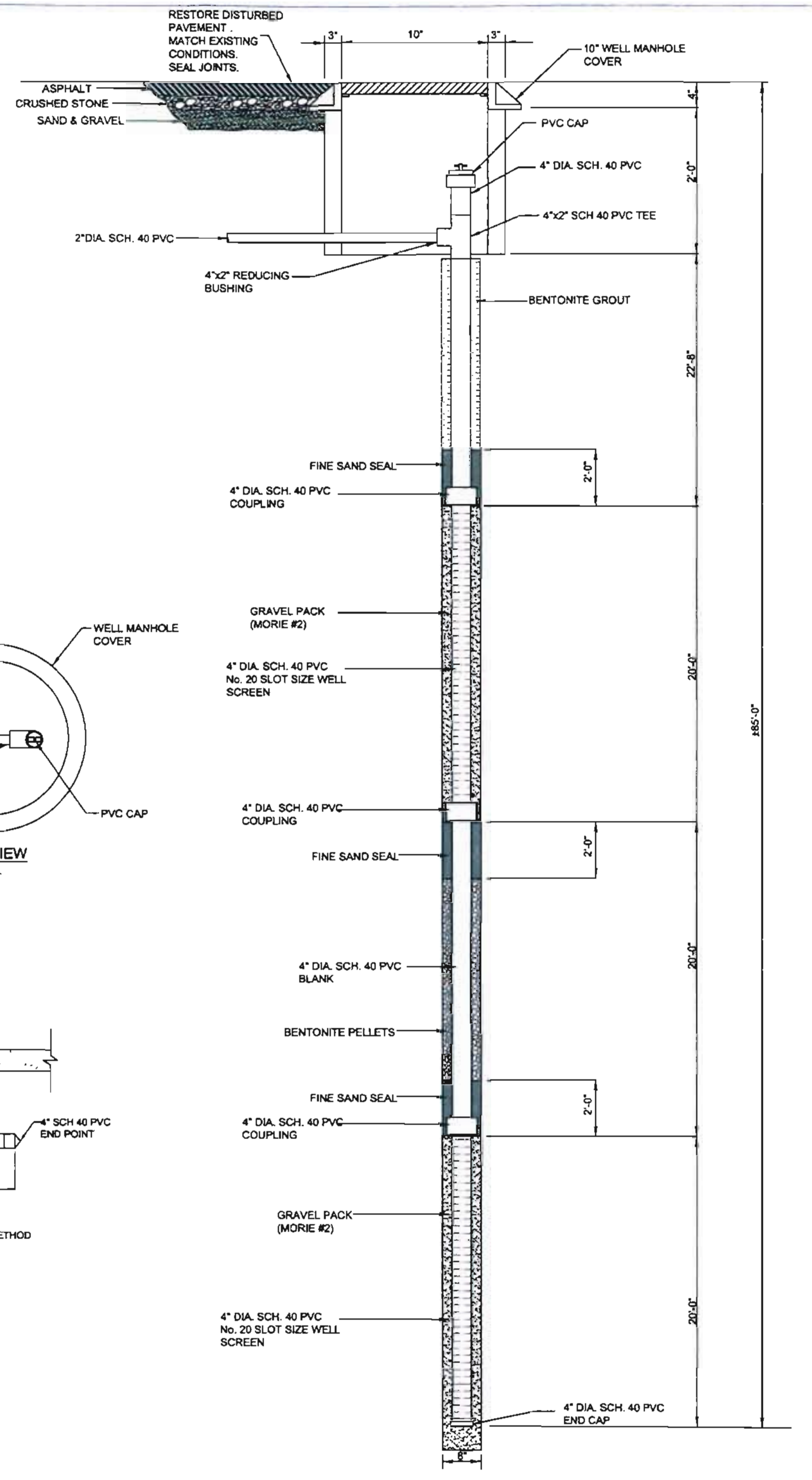


PLAN VIEW
N.T.S.



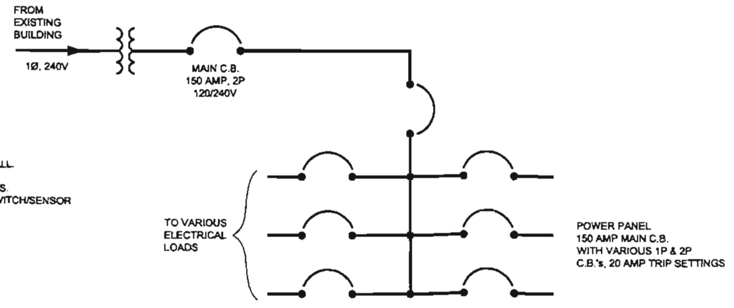
NOTES:
1. HORIZONTAL SVE WELL INSTALLED USING DIRECTIONAL DRILLING METHOD
2. CORE BORE THROUGH FOUNDATION WALL
3. ANNULUS IN WALL AROUND WELL SEALED USING MECHANICAL SEAL

HORIZONTAL SVE WELL DETAIL
SCALE: 1/2"=1'-0"



VERTICAL SOIL VAPOR EXTRACTION WELL
CONSTRUCTION DETAIL
N.T.S.

ELECTRICAL NOTES:
1. POWER FROM EXISTING BUILDING
2. ELECTRIC SERVICE TO SHED VIA THROUGH WALL.
3. ELECTRICAL SERVICE IN ACCORDANCE WITH N.E.C. LATEST EDITION AND LOCAL CODES.
4. SYSTEM TO SHUT DOWN WHEN HIGH LEVEL SWITCH/SENSOR IN AIR/WATER SEPARATOR IS ACTIVATED.



SINGLE LINE RISER DIAGRAM
N.T.S.

LEGEND

⊳⊣	4"x2" SCH 40 PVC REDUCER
FM	2" DIA. AIR FLOW METER
Ⓥ	VACUUM GAUGE
Ⓟ	PRESSURE GAUGE
VRV	VACUUM RELIEF VALVE
⊗	2" DIA. SCH 40 PVC BALL VALVE
-	BRASS SAMPLE TAP
AF	AIR FILTER
⊣|⊢	UNION OR QUICK CONNECT
◐	SVE WELL
➤	FLOW DIRECTION
$	WALL SWITCH/RECEPTACLE
LSH	HIGH LEVEL SWITCH/SENSOR

REVISIONS	DATE	INITIAL	COMMENTS

SVE SYSTEM AS BUILTS
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Project: TED0001	Approved By: CS	Figure No: 6
Designed By: PKB	Date: 6/5/07	
Drawn By: TC/LLG	Scale: AS NOTED	

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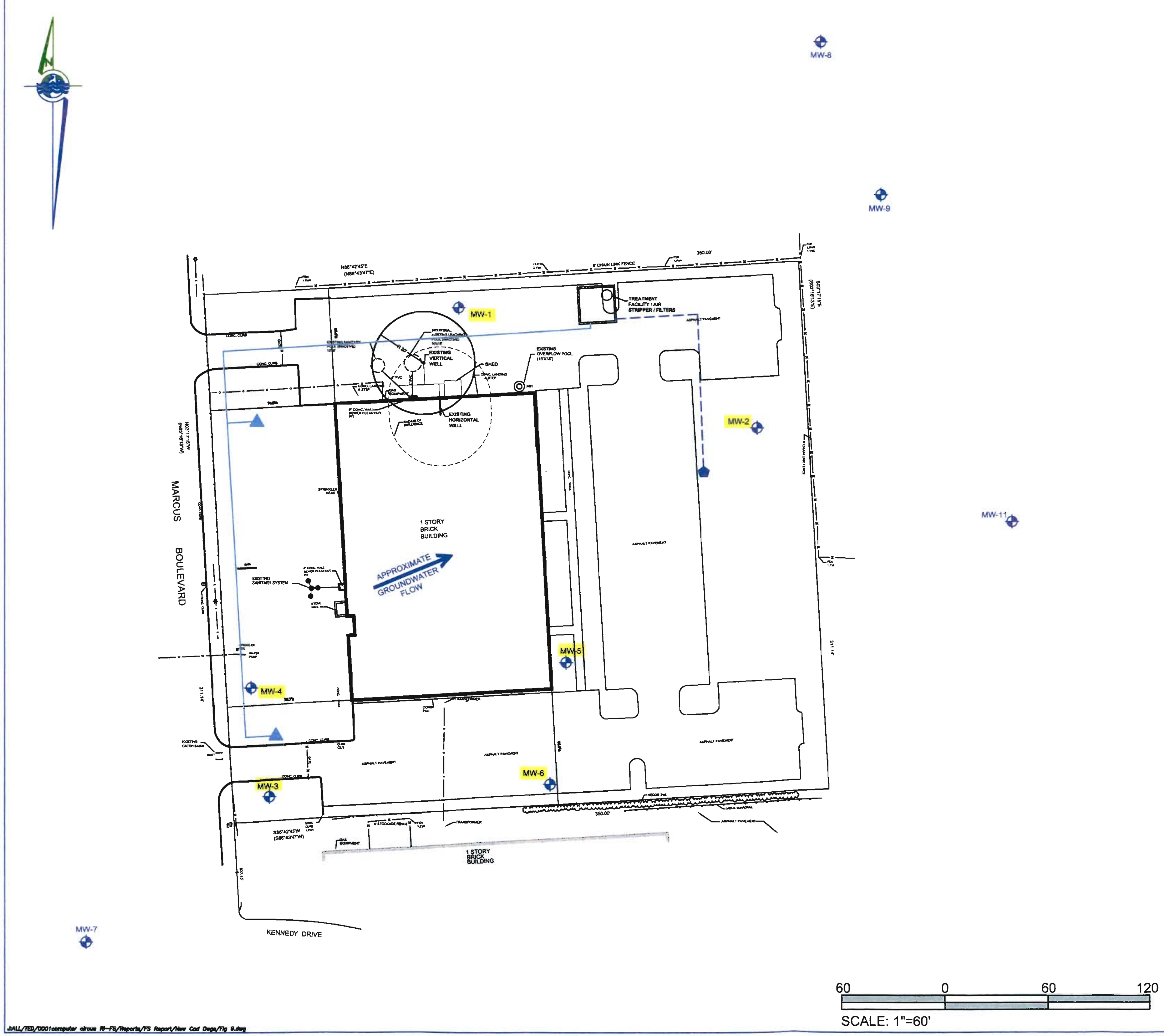

LEGEND

MH○	MANHOLE
Ⓢ	SEWER MANHOLE
IS ◌	INLET STRUCTURE
	BOLLARD
GV ⋈	GAS VALVE
—G—	APPROX. LOC. OF GAS LINE
—W—	APPROX. LOC. OF WATER LINE
—E—	APPROX. LOC. OF ELECTRIC LINE
SCO	SANITARY CLEAN OUT
TBX	TELEPHONE BOX
⊕ MW-11	EXISTING MONITORING WELL
▲	PROPOSED RE-INJECTION / INFILTRATION WELLS
—	PROPOSED RE-INJECTION WELL PIPEING
⬟	EXTRACTION WELL LOCATION
- - -	EXTRACTION WELL PIPING
🟨	MONITORING WELLS TO BE SAMPLED

REVISIONS	DATE	INITIAL	COMMENTS

ALTERNATIVE 3 GROUNDWATER EXTRACTION & GROUNDWATER MONITORING W/ EX-SITU TREATMENT

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Project: TED0001	Designed By: KEA	Figure No: 9
CADD Operator: TC/LLG	Approved By: PWG	Date: 6/5/07

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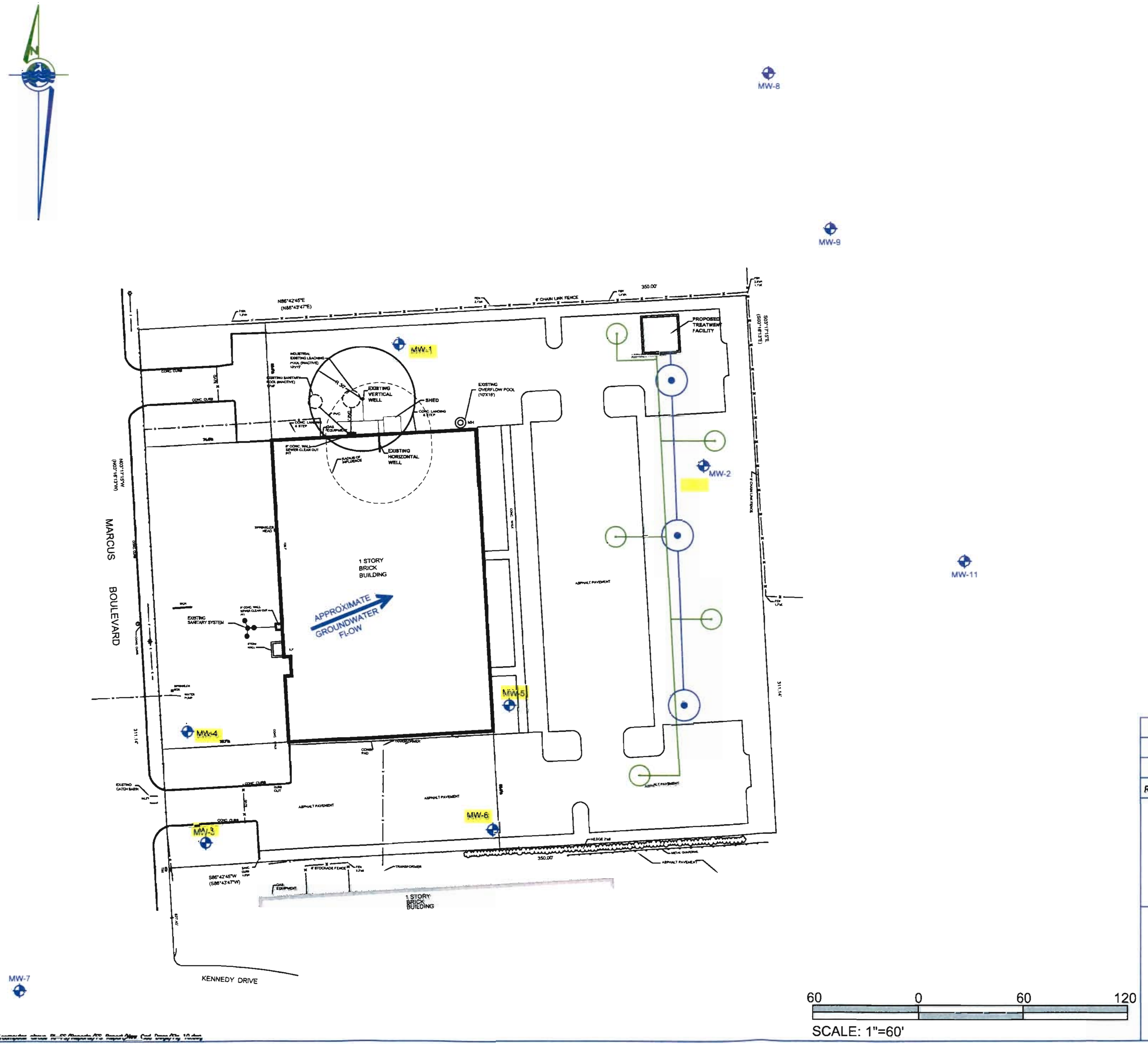

LEGEND

MH ○	MANHOLE
Ⓢ	SEWER MANHOLE
IS ◌	INLET STRUCTURE
	BOLLARD
GV ⊠	GAS VALVE
—G—	APPROX. LOC. OF GAS LINE
—W—	APPROX. LOC. OF WATER LINE
—E—	APPROX. LOC. OF ELECTRIC LINE
SCO	SANITARY CLEAN OUT
TBX	TELEPHONE BOX
⊕ MW-11	EXISTING MONITORING WELL
🟨	MONITORING WELLS TO BE SAMPLED
⊙	PROPOSED AS WELL LOCATIONS
◉	PROPOSED SVE WELL LOCATIONS
—	PROPOSED SVE PIPING
—	PROPOSED AS PIPING

REVISIONS	DATE	INITIAL	COMMENTS

ALTERNATIVE 4
AS / SVE &
GROUNDWATER MONTIORING

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Project: TED0001	Designed By: KEA	Figure No: 10
CADD Operator: TC/LLG	Approved By: PWG	Date: 6/5/07

TABLES

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
RCRA			
Discharge of Storm Water Runoff 40 CFR 122.26	Storm water runoff from industrial activities must be monitored and controlled prior to entering public storm drains.	Applicable	Storm water runoff from site remediation and installation of a groundwater treatment system may result in runoff entering into public storm drains. Therefore, this regulation may apply
Discharge of Treatment System Effluent 40 CFR 125.100 40 CFR 125.104	Best Management Practices Develop and implement a BMP program to prevent the release of toxic or hazardous pollutants to waters of the U.S. The BMP program must: • Establish specific procedures for the control of toxic and hazardous pollutant spills and runoff; and • Include a prediction of direction, rate of flow, and total quantity of toxic and hazardous pollutants where experience indicates a reasonable potential for equipment failure.	Applicable	The purpose of the BMP program is relevant and appropriate to prevent releases from spills or runoff during the implementation of remediation actions. Therefore, these regulations may apply.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
Empty Containers 40 CFR 261.7	Containers that have held hazardous wastes are "empty" and exempt from further RCRA regulations if one or more of the following are met: • No more than 2.5 cm (1 inch) of residue remains on bottom of inner liner. • Less than 3% by weight of total capacity remains (less than 110 gallon container) • Less than 0.3% by weight of total capacity remains (greater than 110 gallon container) Containers that held acutely hazardous ("P" listed) wastes are "empty" and exempt from further RCRA regulation if: *They or their inner liners have been triple rinsed with an adequate solvent and the inner liner has been removed from container.*	Applicable	During site remediation containers may be used to treat/store hazardous waste. This regulation may be applicable to the determination of whether these containers meet the RCRA definition of "empty".
Generators Who Transport Hazardous Waste for Off-Site Treatment, Storage, or Disposal 40 CFR 262.20 - 262.23	Any generator who transports hazardous waste for off-site treatment, storage or disposal must originate and follow-up the manifest for off-site shipments.	Applicable	If any waste is characterized as hazardous, these regulations may apply.
Treatment, Storage, or Disposal Facility Standards 40 CFR 264, Subpart B	General Standards • Waste Analysis - Operators of a facility must obtain a detailed chemical and physical analysis of a representative sample of each hazardous waste to be treated, stored, or disposed at the facility prior to treatment, storage, or disposal • Security - Operators of a facility must prevent the unknowing or unauthorized entry of persons or livestock into the active portions of the facility, maintain a 24-hour surveillance system, or surround the facility with a controlled access barrier and maintain	Applicable	The groundwater treatment facility will not be a TSD but these procedures will be followed as appropriate to maximize safety and operational reliability.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
	appropriate warning signs at facility approaches • Inspections - Operators of a facility must develop a schedule and regularly inspect monitoring equipment, safety and emergency equipment, security devices and operating and structural equipment that are important to preventing, detecting or responding to environmental or human health hazards, promptly or immediately remedy defects, and maintain an inspection log. • Training - Operators must train personnel within 6 months of their assumption of duties at a facility in hazardous waste management procedures.		
Treatment, Storage, or Disposal Facility Preparedness and Prevention 40 CFR 264.3, Subpart C	TSD operators must design, construct, maintain and operate facilities to minimize the possibility of a fire, explosion or any unplanned sudden or non-sudden release of hazardous waste to air, soil, or surface water which might threaten human health or the environment.	Applicable	During operation of a groundwater treatment system, these regulations may apply.
Treatment, Storage, or Disposal Facility Preparedness and Prevention 40 CFR 264.32	All facilities must be equipped with an internal communication or alarm system, a telephone, or a two-way radio for calling outside emergency assistance, fire control, spill control, and decontamination equipment and water at an adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers or water spray systems.	Applicable	The installation of a groundwater treatment system will comply with these regulations. Therefore, this regulation may apply.
40 CFR 264.33	All fire and spill-control and decontamination equipment must be tested and maintained as necessary to assure proper emergency operation.	Applicable	If any fire, spill-control and decontamination equipment must be tested and maintained, this regulation may apply.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
40 CFR 264.34	All personnel must have immediate access to emergency communication or alarm systems whenever hazardous waste is being handled at the facility.	Applicable	If any hazardous waste is being handled at the facility, this regulation may apply.
40 CFR 264.35	Aisle space must be sufficient to allow unobstructed movement of personnel, fire and spill control, and decontamination equipment.	Applicable	If any aisle space is obstructed, this regulation may apply.
40 CFR 264.37	Operators must attempt to make arrangements, appropriate to the waste handled, for emergency response by local and state fire, police and medical personnel.	Applicable	If any waste is characterized as hazardous, this regulation may apply.
Treatment, Storage, or Disposal Facility Contingency Plan and Emergency Procedures 40 CFR 264 Subpart D, 40 CFR 264.51	Each facility operator must have a contingency plan designed to minimize hazards to human health or the environment due to fires, explosions, or any unplanned releases of hazardous waste constituents to the air, soil, or surface/groundwater.	Applicable	During the installation of a groundwater treatment system and remediation, these regulations will be followed.
Container Storage 40 CFR 264.171-178 Subpart I	Containers of RCRA hazardous waste must be: • Maintained in good condition • Compatible with hazardous waste to be stored • Closed during storage (except to add or remove waste) • Storage areas inspected weekly for leaking and deteriorated containers and containment systems. Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide a containment system with a capacity of 10 percent of the volume of containers of free liquids. Remove spilled or leaked waste in a timely manner to	Applicable	If any waste is characterized as hazardous, these regulations may apply.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
	prevent overflow of the containment system. Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.		
Tank Systems 40 CFR 264, Subpart J	Design, operating standards, and inspection for tank units within which hazardous waste is stored or treated.	Applicable	If any waste is characterized as hazardous and is stored / treated, these regulations may apply.
FEDERAL, AIR			
Clean Air Act (CAA) 42 USC 7401	Establishes limits on parameter emissions to the atmosphere	Relevant and Appropriate	The existing treatment system may result in affecting the ambient air quality such as air strippers and oxidizers. Although, it is not directly related to groundwater extraction or discharge activities, this regulation may apply.
CAA-NAAQS (National Ambient Air Quality Standards) 40 CFR Part 50	Establishes primary and secondary NAAQs under section 109 of the Clean Air Act	Applicable	The groundwater treatment alternatives may emit pollutants in the air. Although, not directly related to groundwater extraction or discharge activities, this regulation may apply.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
Standards of Performance for New Stationary Sources 40 CFR part 60	Establishes performance standards for air pollution sources	Applicable	If treatment system options generate air emissions, this regulation may apply.
SAFE DRINKING WATER ACT (SDWA)			
Safe Drinking Water Act (42 USC 300(f))	This act establishes standards (MCLs) for many chemical concentrations in drinking water.	Relevant and Appropriate	The major concern is the groundwater which exceeds current MCLs.
Drinking Water Regulations and Health Advisories, EPA Office of Drinking Water	Federal health advisories established for certain chemicals to protect the drinking water.	Relevant and Appropriate	These guidelines will be used when establishing cleanup goals.
Safe Drinking Water Act, Underground Injection 40 CFR 144-146	The SDWA protects the sources of drinking water and public health.	Relevant and Appropriate	The alternatives for discharge involve underground injections, which may impact drinking water sources. Therefore, these regulations may apply.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
FEDERAL GROUNDWATER OR SURFACE WATER			
Water Pollution Control Act (33 USC 1251) Federal Clean Water Act Ambient Water Quality Criteria	The objective of the act is to restore and maintain the chemical, physical and biological integrity of the nation's waters.	Applicable	Discharges to surface water and groundwater may occur during construction of a groundwater remediation system. Therefore, this regulation may apply.
Effluent Limitations Section 301	Technology-based discharge limitations for point sources of conventional, and toxic pollutants	Applicable	Groundwater discharges to POTW or surface water bodies may occur. Therefore, this regulation may apply.
Water Quality Standards and Implementation Plans Section 303	Protection of intended uses of receiving waters	Applicable	Groundwater discharges to POTW or surface water bodies may occur. Therefore, this regulation may apply.
National Pollution Discharge Elimination System (NPDES) 40 CFR 122	Regulates the discharge of water into public surface waters. Among other things, major requirements are: • Use of best available technology economically achievable (BATEA) is required to control toxic and nonconventional pollutants. Use of best available technology (BAT) on conventional pollutants is required. Technology-based limitations may be determined on a case-by-case basis.	Applicable	Discharge to groundwate may occur. Therefore, this regulation may apply.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
Superfund Amendments and Reauthorization Act (SARA)			
Superfund Amendments and Reauthorization Act (SARA)	Superfund Amendments and Reauthorization Act (SARA)	Relevant and Appropriate	Superfund Amendments and Reauthorization Act (SARA), this regulation may apply.
Toxic Substances Control Act (TSCA)			
Toxic Substances Control Act (TSCA), 15 USC 2601	If the disposal of chemical substances and mixtures presents an unreasonable risk of injury to health or the environment, this regulation will apply.	Applicable	Remediation will be conducted to avoid an unreasonable risk of injury to health or the environment. Therfore, this regulation may apply.
NYSDEC Air Pollution Control Regulations (6 NYCRR Part 200 et. seq.)	The regulations set forth here are promulgated to ensure air quality protection.	Applicable	If remedial actions impact air quality, then this regulations may apply.
6 NYCRR Part 211	This regulation requires control of fugitive emissions from excavation and transport.	Applicable	If a groundwater treatment system is installed, then this regulation will apply.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
State Pollution Discharge Elimination System Permit Program (Part 750) (SPDES)	• Applicable Federally approved State water quality standards must be complied with. These standards may be in addition to or more stringent than other Federal standards. • The discharge must conform to applicable water quality requirements when the discharge affects a state other than the certifying state. • The discharge must be consistent with the requirements of a Water Quality Management Plan approved by EPA. • Discharge limitations must be established for all toxic pollutants that are or may be discharged at levels greater than that which can be achieved by technology-based standards. • Discharge must be monitored to assure compliance. Discharger will monitor: - The mass of each pollutant; - The volume of effluent; and - Frequency of discharge and other measurements as appropriate.	Relevant and Appropriate	The state water quality standards are more stringent than the federal standards. Therefore, groundwater treatment would follow the State standards.
NYSDEC Water Quality Regulations for Surface Waters and Groundwater (6 NYCRR Parts 700-705)	Standards are established for chemical concentrations and physical properties of groundwater.	Relevant and Appropriate	Cleanup level goals are based on the State specific standards.

TABLE 1-1
FORMER COMPUTER CIRCUITS SUPERFUND SITE

ACTION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
NYSDEC Division of Water Technical and Operational Guidance Series (2.1.2). Underground Injection Recirculation for Groundwater Remediation	Provides guidance on the applicability of SPDES permits and groundwater effluent standards to the use of Underground Injection Recirculation as a remedial measure.	Applicable	If a remediation system utilizing Recharge / Recirculation is selected, then this reulation will apply.
NYSDOH State Sanitary Code Public Water Systems Subpart 5-1 (1/6/93)	The MCLs must not be exceeded in the treatment processes, in the water quality to be discharged, or in the character of the watershed or aquifer which may affect the water quality; or the combination of the previous information.	Relevant and Appropriate	The operation of a groundwater remediation system would achieve cleanup objectives based upon the most recent MCLs.
NYSDEC Hazardous Waste Management Regulations 6 NYCRR 370-374, Parts 370-1.1 Solid Waste Management facilities	All solid waste other than hazardous waste must be transferred, processed, recovered, stored, reclaimed and disposed of in a manner consistent with the part. Disposal includes material discharged, deposited, injected, dumped, spilled, leaked, or placed into or onto any land or water.	Applicable	Installation of a groundwater treatment plant would require compliance with this regulation.

TABLE 1-2
FORMER COMPUTER CIRCUITS SUPERFUND SITE

LOCATION-SPECIFIC ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
FEDERAL			
Safe Drinking Water Act 40 CFR 149	Sole source drinking water aquifer designation	Relevant and Appropriate	The site is located over a sole source aquifer.
NEW YORK STATE			
Use and Protection of Waters (6 NYCRR Part 608)	Establishes standards for use and protection of waters.	Applicable	If removal activities impact waters, then this regulation may apply.

TABLE 1-3
FORMER COMPUTER CIRCUITS SUPERFUND SITE

CHEMICAL ARARS

Standard, Requirement, or Criterion	Requirement	Type of ARAR	Comments
FEDERAL			
Safe Drinking Water Act (SDWA) Pub. L. 95-523	Sets limits to the maximum contaminant levels (MCLs) and maximum contaminant level goals (MCLGs).	Relevant and Appropriate	These standards are applicable for primary MCLs.
National Primary Drinking Water Standards 40 CFR Part 141&143	Applicable to the use of public water systems. Establishes maximum contaminant levels, monitoring requirements, and treatment techniques.	Applicable	If used as a public water system, these regulations may apply.
NEW YORK STATE			
NYSDEC Classification and Quality Standards 6 NYCRR Parts 609, 700-704	Determines the classification system for surface water and groundwater. Establishes quality standards.	Applicable	These standards are applicable to groundwater treatment and groundwater discharge into groundwater.
New York State Pollution Discharge Elimination System (SPDES) 6 NYCRR Parts 750-758	Sets forth the requirements and provisions of discharge permits to effluent limits.	Applicable	These standards are applicable for discharge into groundwater.
SCDHS Sanitary Code, Drinking Water Supplies	Establishes water quality standards for potable water.	Relevant and Appropriate	These standards are applicable to the development of cleanup levels.
NYSDEC Regulations for Remedial Program Soil Cleanup Objectives 6 NYCRR Subpart 375-376	Applicable to the cleanup of contaminated soils. Cleanup goals recommended based on protection of public health for industrial sites, groundwater protection, background levels, and laboratory qualification levels.	Relevant and Appropriate	These standards are applicable to the development of cleanup levels.

TABLE 1-3
FORMER COMPUTER CIRCUITS SUPERFUND SITE

CHEMICAL ARARS

Standard, Requirement, or Criterion	**Requirement**	**Type of ARAR**	**Comments**
FEDERAL			
Safe Drinking Water Act (SDWA) Pub. L. 95-523	Sets limits to the maximum contaminant levels (MCLs) and maximum contaminant level goals (MCLGs).	Relevant and Appropriate	These standards are applicable for primary MCLs.
National Primary Drinking Water Standards 40 CFR Part 141&143	Applicable to the use of public water systems. Establishes maximum contaminant levels, monitoring requirements, and treatment techniques.	Applicable	If used as a public water system, these regulations may apply.
NEW YORK STATE			
NYSDEC Classification and Quality Standards 6 NYCRR Parts 609, 700-704	Determines the classification system for surface water and groundwater. Establishes quality standards.	Applicable	These standards are applicable to groundwater treatment and groundwater discharge into groundwater.
New York State Pollution Discharge Elimination System (SPDES) 6 NYCRR Parts 750-758	Sets forth the requirements and provisions of discharge permits to effluent limits.	Applicable	These standards are applicable for discharge into groundwater.
SCDHS Sanitary Code, Drinking Water Supplies	Establishes water quality standards for potable water.	Relevant and Appropriate	These standards are applicable to the development of cleanup levels.
NYSDEC Regulations for Remedial Program Soil Cleanup Objectives 6 NYCRR Subpart 375-376	Applicable to the cleanup of contaminated soils. Cleanup goals recommended based on protection of public health for industrial sites, groundwater protection, background levels, and laboratory qualification levels.	Relevant and Appropriate	These standards are applicable to the development of cleanup levels.

TABLE 2-1

FORMER COMPUTER CIRCUITS SITE
Haupague, New York

HISTORICAL SVE SYSTEM EFFLUENT AIR MONITORING RESULTS
Volitile Organic Compounds Analysis

SITE ID: DATE: UNITS: ug/m^3	CAS Number	NYSDEC DAR-1 SGC Values*	NYSDEC DAR-1 AGC Values**	Effluent 12/20/2005		Effluent 3/21/2006		Effluent 6/20/2006		Effluent 1/5/2007		Effluent 4/20/2007	
				Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
Methyl tert-butyl ether	01634-04-4	NA	3,000	1	U	NA	NA	100	U	NA	NA	100	U
Chloromethane	00074-87-3	22,000	90	1	U	3		100	U	100	U	100	U
Bromomethane	00074-83-9	3,900	5	1	U	1	U	100	U	100	U	100	U
Vinyl chloride	00075-01-4	180,000	1	1	U	1	U	100	U	100	U	100	U
Chloroethane	00075-00-3	NA	10,000	1	U	1	U	100	U	100	U	100	U
Methylene chloride	00075-09-2	14,000	2.1	1	U	4		100	U	100	U	12	J
Acetone	00067-64-1	180,000	28,000	1	U	18		100	U	100	U	100	
Carbon disulfide	00075-15-0	6,200	700	1	U	1	U	100	U	100	U	100	U
1,1-Dichloroethane	00075-34-3	NA	6.3 E-01	1	U	1		100	U	100	U	**180**	
1,2-Dichloroethane	00107-06-2	NA	3.8 E-02	1	U	1	U	100	U	100	U	100	U
1,2-Dichloroethene (total)	00540-59-0	NA	1,900	1	U	5		100	U	100	U	26	J
2-Butanone	00078-93-3	59,000	5,000	1	U	1	U	100	U	100	U	100	U
trans-1,2-Dichloroethene	00156-60-5	NA	1,900	1	U	1	U	100	U	NA	NA	NA	NA
Chloroform	00067-66-3	150	4.3 E-02	1	U	1		100	U	100	U	**46**	J
1,1-Dichloroethene	00075-35-4	NA	70	1	U	4		100	U	100	U	43	J
1,1,1-Trichloroethane (TCA)	00071-55-6	68,000	1,000	1	U	1	U	100	U	198		590	
Carbon Tetrachloride	00056-23-5	1,900	6.7 E-02	1	U	1	U	100	U	100	U	100	U
Bromodichloromethane	00075-27-4	NA	2.0 E-02	1	U	1	U	100	U	100	U	100	U
1,2-Dichloropropane	00078-87-5	51,000	4.0	1	U	1	U	100	U	100	U	100	U
cis-1,3-Dichloropropene	10061-01-5	NA	NA	1	U	1	U	100	U	100	U	100	U
Trichloroethene (TCE)	00079-01-6	54,000	5.0 E-01	**4**		1	U	100	U	100	U	**1200**	
Benzene	00071-43-2	1,300	1.3 E-01	1	U	1	U	100	U	100	U	100	U
Dibromochloromethane	00124-48-1	NA	1.0 E-01	1	U	1	U	100	U	100	U	100	U
trans-1,3-Dichloropropene	10061-02-6	NA	NA	1	U	1	U	100	U	100	U	100	U
1,1,2-Trichloroethane	00079-00-5	NA	1.4	1	U	1	U	100	U	100	U	100	U
Bromoform	00075-25-2	NA	9.1 E-01	1	U	1	U	100	U	100	U	100	U
4-Methyl-2-pentanone	00108-10-1	31,000	3,000	1	U	1	U	100	U	100	U	100	U
2-Hexanone	00591-78-6	4,000	48	1	U	1	U	100	U	100	U	100	U
Tetrachloroethene	00127-18-4	1,000	1	1	U	1	U	100	U	100	U	100	U
1,1,2,2-Tetrachloroethane	00079-34-5	NA	1.7 E-02	1	U	1	U	100	U	100	U	100	U
Toluene	00108-88-3	37,000	400	7.2		1	U	100	U	100	U	100	U
Chlorobenzene	00108-90-7	NA	110	1	U	1	U	100	U	100	U	100	U
Ethylbenzene	00100-41-4	54,000	1,000	1	U	1	U	100	U	100	U	100	U
Styrene	00100-42-5	17,000	1,000	1	U	1	U	100	U	100	U	100	U
Xylene (total)	01330-20-7	4,300	100	2.7		1	U	100	U	100	U	100	U

NOTES:

* - NYSDEC DAR-1 (Air Guide-1) Short-term (one hour) Guideline Concentrations, December 22, 2003.

** - NYSDEC DAR-1 (Air Guide-1) Annual Guideline Concentrations, December 22, 2003.

NA = Not available.

Bold - indicates concentration exceeds DAR-1 Annual Guideline Concentrations

Shading - indicates concentration exceeds DAR-1 Short-term Guideline Concentrations .

U = Indicates compound was analyzed for but not detected.

J = Indicates an estimated value.

TABLE 3-1

PRELIMINARY REMEDIATION GOALS

FORMER COMPUTER CURCUIT SUPERFUND SITE
Queens, New York

SOILS

Parameter	NYSDEC RSCO (1) mg/kg	Preliminary Remediation Goals (2) mg/kg
Benzo(a)pyrene	0.061 or MDL	0.21
Arsenic	7.5 or SB	1.6
N-Nitros-di-n-propylamine	N/A	0.25
Trichloroethene (TCE)	0.7	0.11

GROUNDWATER

Parameter	Federal MCL (3) ug/L	NYSDEC Groundwater Standards (4) ug/L
Tetrachloroethene (PCE)	5	5
Trichloroethene (TCE)	5	5
Chromium VI	100	50

Notes:

(1) NYSDEC Recommended Soil Cleanup Objectives (RSCO), Technical and Administrative Guidance Memorandum (TAGM) #4046, 12/00

(2) Industrial Soil Preliminary Remediation Goals contained in Region IX PRG Table, USEPA, October 2004

(3) USEPA Maximum Contaminant Levels (MCLs), National Primary Drinking Water Standards, June 2003

(4) NYS, Division of Water, Technical & Operations, *Ambient Water Quality,* June 1998

N/A - Not available

TABLE 4-1 Feasibility Study Cost Estimates
Summary
Former Computer Circuits Superfund Site
145 Marcus Boulevard
Hauppauge, NY

	Continue IRM (5 Years)	Alternative 1[(1)] No Action (0 Year)	Alternative 2[(2)] Groundwater Monitoring (5 Years)	Alternative 3[(3)] GW Extraction with Ex-Situ Treatment and GW Monitoring (5 Years)	Alternative 4[(4)] Air Sparging/Vacuum Extraction & GW Monitoring (5 Years)
Capital Costs					
Direct Capital Costs					
Equipment and Materials	$ -	$ -	$ -	$ 40,330	$ 38,130
Construction	$ -	$ -	$ -	$ 91,370	$ 61,470
Construction Waste Disposal	$ -	$ -	$ -	$ 3,600	$ 6,900
Indirect Capital Costs					
Design/engineering	$ -	$ -	$ -	$ 12,000	$ 12,000
Start-up costs	$ -	$ -	$ -	$ 3,500	$ 3,500
Capital Costs Subtotal*	$ -	$ -	$ -	$ 150,800	$ 122,000
Post-Removal Site Control (PSRC) Costs					
Operation & Maintenance	$ 13,500	$ -	$ -	$ 43,200	$ 13,500
Sample Collection	$ 2,700	$ -	$ 60,000	$ 62,700	$ 62,700
Laboratory Analytical	$ 16,800	$ -	$ 24,300	$ 38,700	$ 41,100
Project Management	$ 60,000	$ -	$ 30,000	$ 90,000	$ 90,000
Reporting	$ 69,800	$ -	$ 30,000	$ 99,800	$ 99,800
Energy Consumption	$ 24,720	$ -	$ -	$ 35,950	$ 56,170
Annual System Repairs	$ 15,000	$ -	$ -	$ 15,000	$ 15,000
O&M Waste Disposal	$ -	$ -	$ -	$ 4,000	$ 4,000
PSRC Costs Subtotal*	$ 202,520	$ -	$ 144,300	$ 389,350	$ 382,270
TOTAL	$ 202,520	$ -	$ 144,300	$ 540,150	$ 504,270

Notes

* Capital and PRSC costs are based on present worth costs.

(1) No Action assumes no further work and therefore no associated costs

(2) Assumes GW monitoring of existing on-site monitoring wells for a period of 5 years sampling quarterly for VOCs; 9 samples per event. Reporting of data and analysis to be performed and submitted to proper agencies.

(3) Assumes GW monitoring of existing on-site monitoring wells (Alternative 2) and GW extraction (Air Stripping). Assumes one (1) extraction well and two (2) recharge wells.

(4) Assumes GW monitoring of existing on-site monitoring wells (Alternative 2), and Air Sparging/SVE. Assumes six (6) AS wells and three (3) SVE well to be installed.

Feasibility Study Cost Estimates
TABLE 4-1 PSRC Costs Back up
Former Computer Circuits Superfund Site
145 Marcus Boulevard
Hauppauge, NY

	Description	Reference	Quantity	Unit	Unit cost	Unit	Total Cost					
1	*Alternative 1- No Action*						$ -					
a	Project Management	Allowance	1	Year	$ -	Year	$ -					
2	*Alternative 2- Groundwater (GW) Monitoring 5 years*						$ 144,300.00					
a	Sample Technician	Allowance	20	Qtr.	$ 3,000.00	Qtr.	$ 60,000.00					
b	Groundwater Laboratory Analysis (EPA 8260)	EcoTest	20	Qtr.	$ 1,215.00	Qtr.	$ 24,300.00					
c	Preparation of Quarterly Report	Allowance	20	Qtr.	$ 1,500.00	Qtr.	$ 30,000.00					
d	Project Management quarterly	Allowance	20	Qtr.	$ 1,500.00	Qtr.	$ 30,000.00					
3	*Alternative 3- GW Extraction & Treatment (Air Stripping) & GW Monitoring*						$ 389,350.00					
a	GW Monitoring- 5 yrs						$ 144,300.00					
b	Technician - System Inspection & Maintenance incl. travel (weekly)	Allowance	60	Mo.	$ 720.00	Mo.	$ 43,200.00					
c	Technician - system sample collection (monthly)	Allowance	60	Mo.	$ 45.00	Mo.	$ 2,700.00					
d	Influent water sample analysis	EcoTest	60	ea.	$ 120.00	ea.	$ 7,200.00					
e	Effluent water sample analysis	EcoTest	60	ea.	$ 120.00	ea.	$ 7,200.00					
f	Technician - groundwater sample (quarterly)	covered GW monitoring			$ -		$ -					
g	Groundwater Laboratory Analysis (EPA 8260)	covered GW monitoring					$ -					
h	Prepare monthly status report	Allowance	60	ea.	$ 330.00	ea.	$ 19,800.00					
i	Prepare quarterly status report	Allowance	20	ea.	$ 2,500.00	ea.	$ 50,000.00					
j	Project Management (monthly)	Allowance	60	ea.	$ 1,000.00	ea.	$ 60,000.00					
k	Annual Repairs (includes pumps, etc)	Allowance	5	ea.	$ 3,000.00	ea.	$ 15,000.00					
l	O&M Waste Disposal (carbon drum)	Allowance	5	ea.	$ 800.00	ea.	$ 4,000.00					
m	Energy Costs	Allowance					$ 35,950.00					
	Electrical Load	Qty.	H.P.	Load	A.C. Input	Phase Conv.			KW = KVA	Hours of	KW-Hr	X $.17/KW-Hr
				FLA X	Volts X	Factor	= VA / 1000	= KVA	0.82 PF	Operation		= COST
	Submersible Pump	1	1.5	10	230	1	2300	2.3	1.886	35040	66085	$ 11,234.52
	Air Stripper Blower	1	2	12	230	1	2760	2.76	2.2632	35040	79303	$ 13,481.43
	Lighting & Controls	1	--	20	230	1	4600	4.6	3.772	17520	66085	$ 11,234.52
										Total Energy Cost		$ 35,950.48
4	*Alternative 4- AS/SVE System & GW Monitoring*						$ 382,270.00					
a	GW Monitoring- 5 yrs						$ 144,300.00					
c	Technician - Field Inspection incl. travel (monthly)	Allowance	60	Mo.	$ 225.00	Mo.	$ 13,500.00					
d	Technician - system sample collection (monthly)	Allowance	60	Mo.	$ 45.00	Mo.	$ 2,700.00					
e	Influent air sample analysis	EcoTest	60	ea.	$ 140.00	ea.	$ 8,400.00					
f	Effluent air sample analysis	EcoTest	60	ea.	$ 140.00	ea.	$ 8,400.00					
g	Technician - groundwater sample (quarterly)	Covered in GW Monitoring	20	Qtr.	$ -	Qtr.	$ -					
h	Groundwater Laboratory Analysis (EPA 8260)	Covered in GW Monitoring	20	Qtr.	$ -	Qtr.	$ -					
i	Groundwater Laboratory Analysis (Metals)	Covered in GW Monitoring	20	Qtr.	$ -	Qtr.	$ -					
j	Prepare monthly status report	Allowance	60	ea.	$ 330.00	ea.	$ 19,800.00					
k	Prepare quarterly status report	Allowance	20	ea.	$ 2,500.00	ea.	$ 50,000.00					
l	Project Management (monthly)	Allowance	60	ea.	$ 1,000.00	ea.	$ 60,000.00					
m	O&M Waste Disposal (carbon drum)	Allowance	5	ea.	$ 800.00	ea.	$ 4,000.00					
n	Annual Repairs (includes, pumps, blower, etc)	Allowance	5	ea.	$ 3,000.00	ea.	$ 15,000.00					
o	Energy Costs						$ 56,170.00					
	Electrical Load	Qty.	H.P.	Load	A.C. Input	Phase Conv.			KW = KVA	Hours of	KW-Hr	X $.17/KW-Hr
				Amps X	Volts X	Factor	= VA / 1000	= KVA	0.82 PF	Operation		= COST
	Air Sparge Compressor	1	5	28	230	1	6440	6.44	5.2808	35040	185039	$ 31,456.67
	Soil Vapor Extraction Blower	1	2	12	230	1	2760	2.76	2.2632	35040	79303	$ 13,481.43
	Lighting & Controls	1	--	20	230	1	4600	4.6	3.772	17520	66085	$ 11,234.52
										Total Energy Cost		$ 56,172.62
	Continued IRM (Existing SVE System) - Continue for 5 years						$ 202,520.00					
a	Technician - Field Inspection incl. travel (monthly)	Allowance	60	Mo.	$ 225.00	Mo.	$ 13,500.00					
b	Technician - system sample collection (monthly)	Allowance	60	Mo.	$ 45.00	Mo.	$ 2,700.00					
c	Influent air sample analysis	EcoTest	60	ea.	$ 140.00	ea.	$ 8,400.00					
d	Effluent air sample analysis	EcoTest	60	ea.	$ 140.00	ea.	$ 8,400.00					
g	Prepare monthly status report	Allowance	60	ea.	$ 330.00	ea.	$ 19,800.00					
h	Prepare quarterly status report	Allowance	20	ea.	$ 2,500.00	ea.	$ 50,000.00					
i	Project Management (monthly)	Allowance	60	ea.	$ 1,000.00	ea.	$ 60,000.00					
j	Annual Repairs (includes, pumps, blower, etc)	Allowance	5	ea.	$ 3,000.00	ea.	$ 15,000.00					
k	Energy Costs						$ 24,720.00					

Feasibility Study Cost Estimates
TABLE 4-1 PSRC Costs Back up
Former Computer Circuits Superfund Site
145 Marcus Boulevard
Hauppauge, NY

	Electrical Load	Qty.	H.P.	Load Amps X	A.C. Input Volts X	Phase Conv. Factor	= VA / 1000	= KVA	KW = KVA 0.82 PF	Hours of Operation	KW-Hr	X	$.17/KW-Hr = COST
	Soil Vapor Extraction Blower	1	2	12	230	1	2760	2.76	2.2632	35040	79303	$	13,481.43
	Lighting & Controls	1	--	20	230	1	4600	4.6	3.772	17520	66085	$	11,234.52

TABLE 4-1 Feasibility Study Cost Estimates

Alternative 3- Groundwater Extraction and Ex-Situ Treatment (Air Stripping) Direct Capital Costs Summary

Former Computer Circuits Superfund Site
145 Marcus Boulevard
Hauppauge, NY

GROUNDWATER EXTRACTION & EX-SITU TREATMENT SYSTEM (AIR STRIPPING) DIRECT CAPITAL COSTS SUMMARY		Base Estimate*	Material Mark-up (30% x Est.)	Subtotal (Est. + Mark-up)	Contingency (20% x Subtotal)	Total (Rounded) (Subtotal + Cont.)
1	Groundwater Extraction and Air Stripping Equipment					
	Materials	$ 20,540.00	$ 6,162.00	$ 26,702.00	$ 5,340.40	$ 32,050.00
2	Groundwater Extraction Piping, Fittings & Appurtenances					
	Materials	$ 4,501.00	$ 1,350.30	$ 5,851.30	$ 1,170.26	$ 7,030.00
3	Emissions Control					
	Materials	$ 800.00	$ 240.00	$ 1,040.00	$ 208.00	$ 1,250.00
4	Site Work					
	Trenching	$ 1,674.00	$ -	$ 1,674.00	$ 334.80	$ 2,010.00
	Backfill & Tamping	$ 1,767.00	$ -	$ 1,767.00	$ 353.40	$ 2,130.00
	Concrete slab	$ 735.00	$ -	$ 735.00	$ 147.00	$ 890.00
	Groundwater Treatment System Installation	$ 8,400.00	$ -	$ 8,400.00	$ 1,680.00	$ 10,080.00
	Electrical Installation	$ 3,040.00	$ -	$ 3,040.00	$ 608.00	$ 3,650.00
5	Extraction Well Installation					
	Labor & Materials	$ 32,431.00	$ -	$ 32,431.00	$ 6,486.20	$ 38,920.00
6	Recharge Well Installation					
	Labor & Materials	$ 24,067.00	$ -	$ 24,067.00	$ 4,813.40	$ 28,890.00
7	C&D Disposal					
	Construction Debris Disposal	$ 1,000.00	$ -	$ 1,000.00	$ 200.00	$ 1,200.00
8	Hazardous Waste Disposal					
	Drill Cuttings Disposal	$ 2,000.00	$ -	$ 2,000.00	$ 400.00	$ 2,400.00
9	Restoration					
	Site Restoration	$ 4,000.00	$ -	$ 4,000.00	$ 800.00	$ 4,800.00
10	TOTAL	$ 104,955.00	$ 7,752.30	$ 112,707.30	$ 22,541.46	$ 135.300.00

TABLE 4-1 Feasibility Study Cost Estimates
Alternative 3- Groundwater Extraction (Air Stripping) Direct Costs
Former Computer Circuits Superfund Site
145 Marcus Boulevard
Hauppauge, NY

	Description	Reference	Quantity	Unit	Unit cost	Unit
1	*Groundwater Extraction and Air Stripping Equipment*					
a	GW/Air Stripping Package	NEEP Systems quote	1	ea.	$ 20,540.00	ea.
	Well Pump: 25 gpm @ 150' TDH					
	Well Motor: 1-1/2 HP					
	Well Pump/Motor Electrical Controls and Wiring					
	Air Stripper: Shallow Tray 2321-P					
	Discharge Pump: 30 gpm @ 50' TDH					
	Equipment Enclosure					
	Air Stripper and Discharge Pump Electrical Controls and Wiring					
2	*Groundwater Extraction Piping, Fittings, & Appurtenances*					
a	2" SCH 80 PVC pipe	E-Pipe Connection quote	315	ft.	$ 111.00	100 ft.
b	2" SCH 80 PVC 90	E-Pipe Connection quote	8	ea.	$ 3.00	ea.
c	2" SCH 80 PVC tee	E-Pipe Connection quote	1	ea.	$ 10.00	ea.
d	2" SCH 80 PVC couplings	E-Pipe Connection quote	26	ea.	$ 3.00	ea.
e	Flow meter	Sensus	2	ea.	$ 2,000.00	ea.
f	Pressure gauges	McMaster-Carr	3	ea.	$ 13.00	ea.
3	*Emissions Control*					
a	Carbon drum	Carbtrol	1	ea.	$ 800.00	ea.
4	*Site Work*					
a	Trenching	RS Means 02315 462 6040	93	c.y.	$ 18.00	c.y.
b	Backfill and Tamping	RS Means 02315 110 1900	93	c.y.	$ 19.00	c.y.
c	Pour and set 6" concrete slab	RS Means 03310 240 5010	150	s.f.	$ 4.90	s.f.
d	GW Treatment Sys. Installation	Allowance	24	hours	$ 350.00	hour / 4-man crew
e	Electrical System Installation	Allowance	16	hours	$ 190.00	hour / 2-man crew
5	*Extraction Well Installation*					
A	*One Extraction Well to 150'*					
a	Mobilization/Demobilization	Delta Well Quote	1	l.s.	$ 650.00	l.s.
b	Reverse Rotary Drilling - 10"	Delta Well Quote	150	l.f.	$ 170.00	l.f.
c	8" SCH 40 well screen	Delta Well Quote	20	l.f.	$ 26.00	l.f.
d	8" SCH 40 well riser	Delta Well Quote	130	l.f.	$ 36.00	l.f.
e	Well gravel	Delta Well Quote	20	l.f.	$ 4.70	l.f.
f	Bentonite pellets	Delta Well Quote	1.20	5 gal. pail	$ 66.00	5 gal. pail
g	Grout	Delta Well Quote	6	94 lb. bag	$ 18.00	94 lb. bag
h	Well development	Delta Well Quote	4	hr.	$ 200.00	hr.
i	8" Pitless adapter	Delta Well Quote	1	ea.	$ 6,510.00	ea.
6	*Recharge Well Installation*					
A	*Two Recharge Wells to 110'*					
a	Mobilization/Demobilization	Delta Well Quote	2	l.s.	$ 650.00	l.s.
b	Reverse Rotary Drilling - 10"	Delta Well Quote	210	l.f.	$ 170.00	l.f.
c	8" SCH 40 well screen	Delta Well Quote	80	l.f.	$ 26.00	l.f.
d	8" SCH 40 well riser	Delta Well Quote	140	l.f.	$ 36.00	l.f.
e	Well gravel	Delta Well Quote	80	l.f.	$ 4.70	l.f.
f	Bentonite pellets	Delta Well Quote	2.40	5 gal. pail	$ 66.00	5 gal. pail
g	Grout	Delta Well Quote	10	94 lb. bag	$ 18.00	94 lb. bag
h	Well development	Delta Well Quote	20	hr.	$ 200.00	hr.
i	Well vault	Allowance	2	ea.	$ 3,000.00	ea.
7	*C&D Disposal*					
a	Construction Debris Disposal	Allowance	1	l.s.	$ 1,000.00	l.s.
8	*Hazardous Waste Disposal*					
a	Drill cuttings disposal	Allowance	8	drum	$ 250.00	drum
9	*Restoration*					
a	Site Restoration	Allowance	1	l.s.	$ 4,000.00	l.s.
10	TOTAL					

TABLE 4-1 Feasibility Study Cost Estimates
Alternative 3- Groundwater Extraction (Air Stripping) Direct Costs
Former Computer Circuits Superfund Site
145 Marcus Boulevard
Hauppauge, NY

Total Cost	
$	**20,540.00**
$	20,540.00
$	**4,501.00**
$	350.00
$	24.00
$	10.00
$	78.00
$	4,000.00
$	39.00
$	**800.00**
$	800.00
$	**15,616.00**
$	1,674.00
$	1,767.00
$	735.00
$	8,400.00
$	3,040.00
$	**32,431.00**
$	650.00
$	25,500.00
$	520.00
$	4,680.00
$	94.00
$	79.00
$	108.00
$	800.00
$	6,510.00
$	**48,834.00**
$	1,300.00
$	35,700.00
$	2,080.00
$	5,040.00
$	376.00
$	158.00
$	180.00
$	4,000.00
$	6,000.00
$	**1,000.00**
$	1,000.00
$	**2,000.00**
$	2,000.00
$	**4,000.00**
$	4,000.00
$	**129,722.00**

TABLE 4-1 Feasibility Study Cost Estimates
Alternative 4- Air Sparge / Soil Vapor Extraction Direct Capital Costs Summary
145 Marcus Boulevard
Hauppauge, NY

AIR SPARGE / SOIL VAPOR EXTRACTION DIRECT CAPITAL COSTS SUMMARY

		Base Estimate	Material Mark-up (30% x Est.)	Subtotal (Est. + Mark-up)	Contingency (20% x Subtotal)	Total (Rounded) (Subtotal + Cont.)
1	Air Sparge Equipment					
	Materials	$ 3,945.00	$ 1,183.50	$ 5,128.50	$ 1,025.70	$ 6,160.00
2	Air Sparge System Piping, Fittings & Appurtenances					
	Materials	$ 2,700.00	$ 810.00	$ 3,510.00	$ 702.00	$ 4,220.00
3	SVE System Equipment					
	Materials	$ 3,400.00	$ 1,020.00	$ 4,420.00	$ 884.00	$ 5,310.00
4	SVE System Piping, Fittings & Appurtenances					
	Materials	$ 1,002.00	$ 300.60	$ 1,302.60	$ 260.52	$ 1,570.00
5	Emissions Control					
	Materials	$ 800.00	$ 240.00	$ 1,040.00	$ 208.00	$ 1,250.00
6	Equipment Shed					
	Materials	$ 3,440.00	$ 1,032.00	$ 4,472.00	$ 894.40	$ 5,370.00
7	Electrical System					
	Materials	$ 9,132.00	$ 2,739.60	$ 11,871.60	$ 2,374.32	$ 14,250.00
8	Site Work					
	Trenching	$ 1,314.00	$ -	$ 1,314.00	$ 262.80	$ 1,580.00
	Backfill & Tamping	$ 1,387.00	$ -	$ 1,387.00	$ 277.40	$ 1,670.00
	Concrete slab	$ 490.00	$ -	$ 490.00	$ 98.00	$ 590.00
	AS/SVE System Installation	$ 14,000.00	$ -	$ 14,000.00	$ 2,800.00	$ 16,800.00
	Electrical Installation	$ 6,080.00	$ -	$ 6,080.00	$ 1,216.00	$ 7,300.00
9	AS/SVE Well Installation					
	Labor & Materials	$ 24,438.00	$ -	$ 24,438.00	$ 4,887.60	$ 29,330.00
10	C&D Disposal					
	Construction Debris Disposal	$ 2,000.00	$ -	$ 2,000.00	$ 400.00	$ 2,400.00
11	Hazardous Waste Disposal					
	Drill Cuttings Disposal	$ 3,750.00	$ -	$ 3,750.00	$ 750.00	$ 4,500.00
12	Restoration					
	Site Restoration	$ 3,500.00	$ -	$ 3,500.00	$ 700.00	$ 4,200.00
13	TOTAL	$ 81,378.00	$ 7,325.70	$ 88,703.70	$ 17,740.74	$ 106,500.00

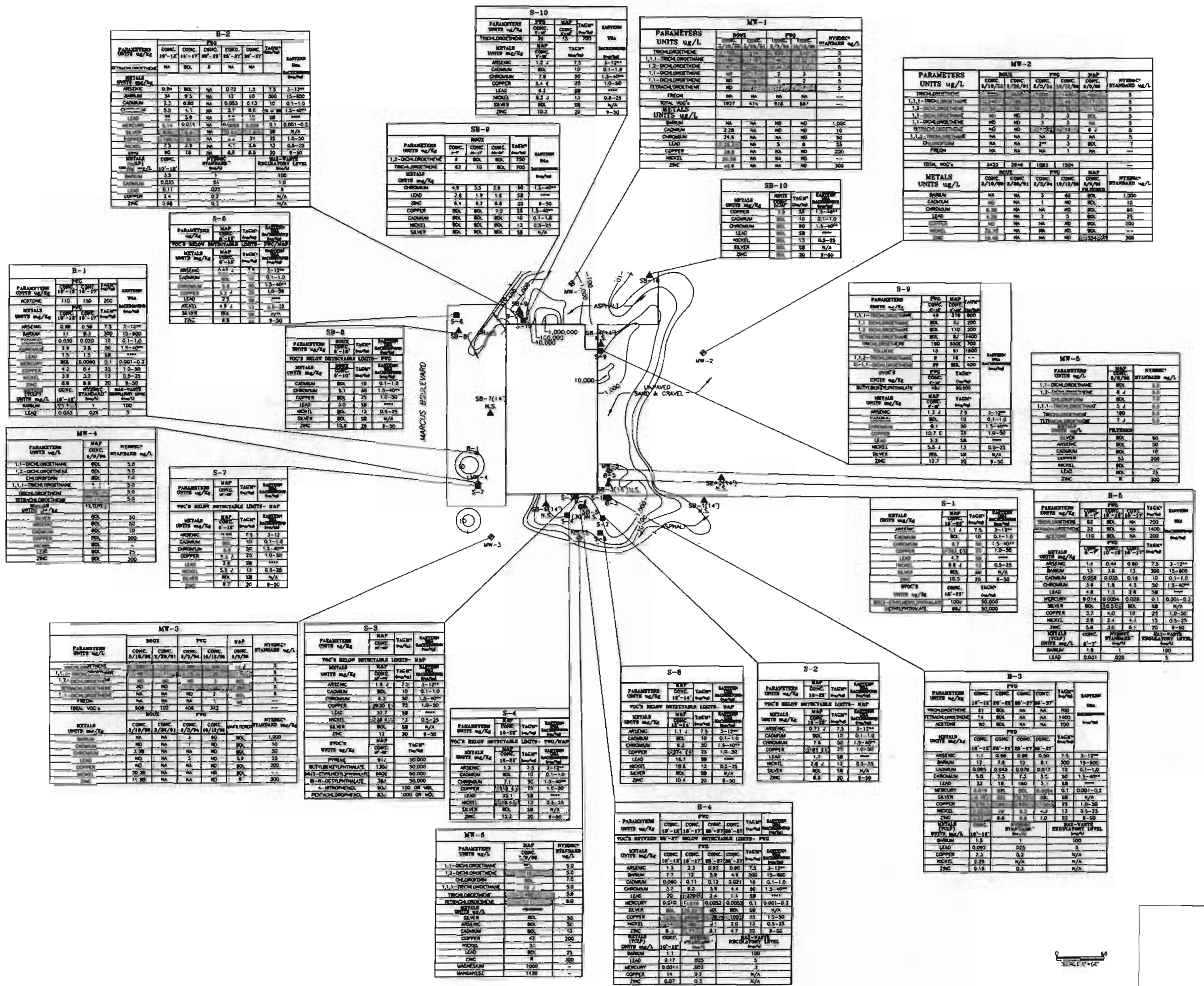
TABLE 4-1 Feasibility Study Cost Estimates
Alternative 4- Air Sparge / Soil Vapor Extraction Capital Costs Backup
Former Computer Circuits Superfund Site
145 Marcus Boulevard
Hauppauge, NY

	Description	Reference	Quantity	Unit	Unit cost	Unit	Total Cost
1	*Air Sparge Equipment*						$ 3,945.00
a	Air sparge blower package Blower Relief valve Inlet filter Inlet silencer Discharge silencer Motor Pressure gauge	R&G Group quote (6/06)	1	ea.	$ 3,344.00	ea.	$ 3,344.00
b	Air Cooled Aftercooler (100 cfm)	McMaster-Carr	1	ea.	$ 552.00	ea.	$ 552.00
c	Flow meter	J.E. Gasho quote	1	ea.	$ 49.00	ea.	$ 49.00
2	*Air Sparge System Piping, Fittings, & Appurtenances*						$ 2,700.00
a	1-1/2" Galvanized pipe		36	ft.	$ 18.60	4 ft	$ 167.40
b	2" SCH 80 PVC pipe	E-Pipe Connection quote	1200	ft.	$ 111.00	100 ft.	$ 1,332.00
c	2" PVC union ball valves	E-Pipe Connection quote	9	ea.	$ 58.00	ea.	$ 522.00
d	2" SCH 80 PVC 90	E-Pipe Connection quote	14	ea.	$ 3.00	ea.	$ 42.00
e	2" SCH 80 PVC tee	E-Pipe Connection quote	6	ea.	$ 10.00	ea.	$ 60.00
f	2"x1-1/2" SCH 80 PVC reducer	E-Pipe Connection quote	6	ea.	$ 7.00	ea.	$ 42.00
g	2" SCH 80 PVC union	E-Pipe Connection quote	14	ea.	$ 12.40	ea.	$ 173.60
h	2" SCH 80 PVC couplings	E-Pipe Connection quote	70	ea.	$ 3.00	ea.	$ 210.00
i	Temperature gauge	McMaster-Carr	1	ea.	$ 34.00	ea.	$ 34.00
j	Pressure gauges	McMaster-Carr	9	ea.	$ 13.00	ea.	$ 117.00
3	*SVE System Equipment*						$ 3,400.00
a	SVE Blower	J.E. Gasho quote	1	ea.	$ 1,785.00	ea.	$ 1,785.00
b	Flow Meter	J.E. Gasho quote	1	ea.	$ 264.00	ea.	$ 264.00
c	Air filter	J.E. Gasho quote	1	ea.	$ 201.00	ea.	$ 201.00
d	Moisture Separator	J.E. Gasho quote	1	ea.	$ 1,135.00	ea.	$ 1,135.00
e	Vacuum relief valves	J.E. Gasho quote	1	ea.	$ 15.00	ea.	$ 15.00
4	*SVE System Piping, Fittings, & Appurtenances*						$ 1,002.00
a	2" SCH 40 PVC pipe	E-Pipe Connection quote	40	ft.	$ 58.00	100 ft.	$ 23.20
b	4" SCH 40 PVC pipe	E-Pipe Connection quote	210	ft.	$ 176.00	100 ft.	$ 369.60
c	2" PVC union ball valves	E-Pipe Connection quote	3	ea.	$ 58.00	ea.	$ 174.00
d	4" PVC union ball valves	E-Pipe Connection quote	1	ea.	$ 242.00	ea.	$ 242.00
e	4" SCH 40 PVC 90	E-Pipe Connection quote	4	ea.	$ 7.00	ea.	$ 28.00
f	2" SCH 40 PVC union	E-Pipe Connection quote	2	ea.	$ 14.30	ea.	$ 28.60
g	4"x2" SCH 40 PVC reducer	E-Pipe Connection quote	1	ea.	$ 6.00	ea.	$ 6.00
h	4" SCH 40 PVC couplings	E-Pipe Connection quote	21	ea.	$ 4.00	ea.	$ 82.00
i	2" SCH 40 PVC couplings	E-Pipe Connection quote	7	ea.	$ 1.00	ea.	$ 7.00
j	Pressure gauges	McMaster-Carr	1	ea.	$ 13.00	ea.	$ 13.00
k	Vacuum gauges	McMaster-Carr	2	ea.	$ 14.30	ea.	$ 28.60
5	*Emissions Control (Start-up period only)*						$ 800.00
a	Carbon drum	Carbtrol	1	ea.	$ 800.00	ea.	$ 800.00
6	*Equipment Shed*						$ 3,440.00
a	Shed	Environmental Means 33 13 23	1	ea.	$ 3,440.00	ea.	$ 3,440.00
7	*Electrical System*						$ 9,132.00
a	Motor Starters	RS Means 16440 660 0700	2	ea.	$ 2,501.00	ea.	$ 5,002.00
b	Circuit Panel	RS Means 16410 200 0600	1	ea.	$ 4,130.00	ea.	$ 4,130.00
8	*Site Work*						$ 23,271.00
a	Trenching	RS Means 02315 462 6040	73	c.y.	$ 18.00	c.y.	$ 1,314.00
b	Backfill and Tamping	RS Means 02315 110 1900	73	c.y.	$ 19.00	c.y.	$ 1,387.00
c	Pour and set 6" concrete slab	RS Means 03310 240 5010	100	s.f.	$ 4.90	s.f.	$ 490.00
d	AS/SVE System Installation	Allowance	40	hours	$ 350.00	hour / 4-man crew	$ 14,000.00
e	Electrical System Installation	Allowance	32	hours	$ 190.00	hour / 2-man crew	$ 6,080.00
9	*AS/SVE Well Installation*						$ 24,438.00
A	*Six AS Wells (to 118')*						
a	Geoprobe with 2 man crew	Delta Well Quote	708	l.f.	$ 6.10	l.f.	$ 4,318.80
b	Materials	Delta Well Quote	708	l.f.	$ 5.40	l.f.	$ 3,823.20
c	Mobilization/Demobilization	Delta Well Quote	1	l.s.	$ 270.00	l.s.	$ 270.00
B	*Three SVE Well (to 100')*						
a	Mobilization/Demobilization	Delta Well Quote	3	l.s.	$ 650.00	l.s.	$ 1,950.00
b	HSA Drilling - 6.25-inch	Delta Well Quote	300	l.f.	$ 30.00	l.f.	$ 9,000.00
c	4" SCH 40 well screen	Delta Well Quote	120	l.f.	$ 13.00	l.f.	$ 1,560.00
d	4" SCH 40 well riser	Delta Well Quote	180	l.f.	$ 12.00	l.f.	$ 2,160.00
e	Well gravel	Delta Well Quote	120	l.f.	$ 4.70	l.f.	$ 564.00
f	Bentonite	Delta Well Quote	1.50	5 gal. pail	$ 68.00	5 gal. pail	$ 102.00
g	Grout	Delta Well Quote	7.50	94 lb. bag	$ 18.00	94 lb. bag	$ 135.00
h	Install flushmount manhole	Delta Well Quote	3	ea.	$ 185.00	l.s.	$ 555.00
10	*C&D Disposal*						$ 2,000.00
a	Construction Debris Disposal	Allowance	1	l.s.	$ 2,000.00	l.s.	$ 2,000.00
11	*Hazardous Waste Disposal*						$ 3,750.00
a	Drill cuttings disposal	Allowance	15	drum	$ 250.00	drum	$ 3,750.00
12	*Restoration*						$ 3,500.00
a	Site Restoration	Allowance	1	l.s.	$ 3,500.00	l.s.	$ 3,500.00
13	**TOTAL**						$ 81,378.00

6

2

Appendix A



NOTES:
SOIL SAMPLING DATES:

PWGC 9/28/95 - 9/29/95
ROUX 2/8/89 - 2/15/89
M&P 3/22/96 - 3/26/96

KEY

▲ SB-9	ROUX SAMPLE LOCATION, MAY 3, 1989
■ S-9	MALCOM & PIRNIE (M&P) SAMPLE LOCATION, MARCH 1996
◈ MW-3	EXISTING MONITORING WELL
● B-2	PWGC BORING LOCATION
TAGM*	DIVISION TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM ON DETERMINATION OF SOIL CLEANUP OBJECTIVES AND CLEANUP LEVELS. HWR-94-4046 JANUARY 24, 1995
**	NEW YORK STATE BACKGROUND LEVEL (TAGM)
****	BACKGROUND LEVELS IN LEAD VARY WIDELY. BACKGROUND LEVELS IN METROPOLITAN OR SUBURBAN AREAS NEAR HIGHWAYS TYPICALLY RANGE FROM 200-500ppm. USEPA'S INTERIM LEAD HAZARD GUIDANCE ESTABLISHES A RESIDENTIAL SCREENING LEVEL OF 40ppm.
-	NEW YORK STATE OF DEPARTMENT OF ENVIRONMENTAL CONSERVATION AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES - OCTOBER 1993.
SB	SITE BACKGROUND
N/A	NOT AVAILABLE
NA	NOT ANALYZED
BDL	BELOW DETECTABLE LIMIT
N.S.	NOT SAMPLED
R	ANALYSIS DID NOT PASS EPA'S QA/QC
J	ESTIMATED VALUE - COMPOUND DETECTED BELOW CRQL BUT ABOVE IDL
E	ESTIMATED VALUE
∿	VOC CONTOUR (TCE)- SOIL GAS SURVEY PERFORMED BY NYSDEC, FEBRUARY 1996

SAMPLE RESULTS - PREVIOUS INVESTIGATION
FORMER COMPUTER CIRCUITS FACILITY
145 MARCUS BLVD
HAUPPAUGE, NEW YORK

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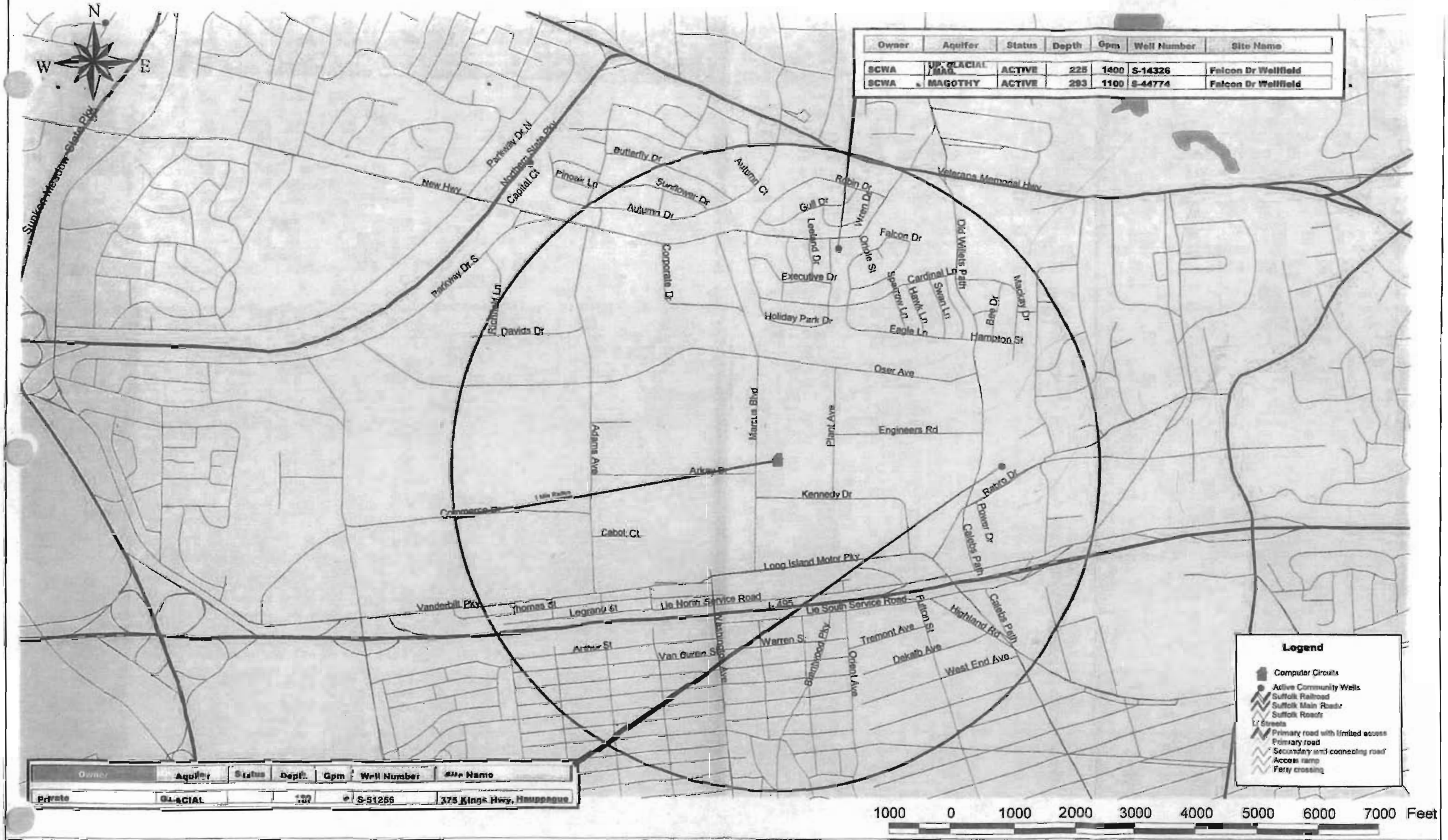
Project: TED0001	Approved By: PWG	Figure No: 3
Designed By:	Date: 1/03/02	
Drawn By:		

PWG/TED/0001/[illegible] FIGURE 01-13-05/FIGURE 3



Owner	Aquifer	Status	Depth	Gpm	Well Number	Site Name
SCWA	UP. GLACIAL /MAG.	ACTIVE	225	1400	S-14326	Falcon Dr Wellfield
SCWA	MAGOTHY	ACTIVE	293	1100	S-44774	Falcon Dr Wellfield

Owner	Aquifer	Status	Depth	Gpm	Well Number	Site Name
Private	GLACIAL		180	[illegible]	S-51256	375 Kings Hwy, Hauppauge

Computer Circuits
Local Supply Wells
Figure 4

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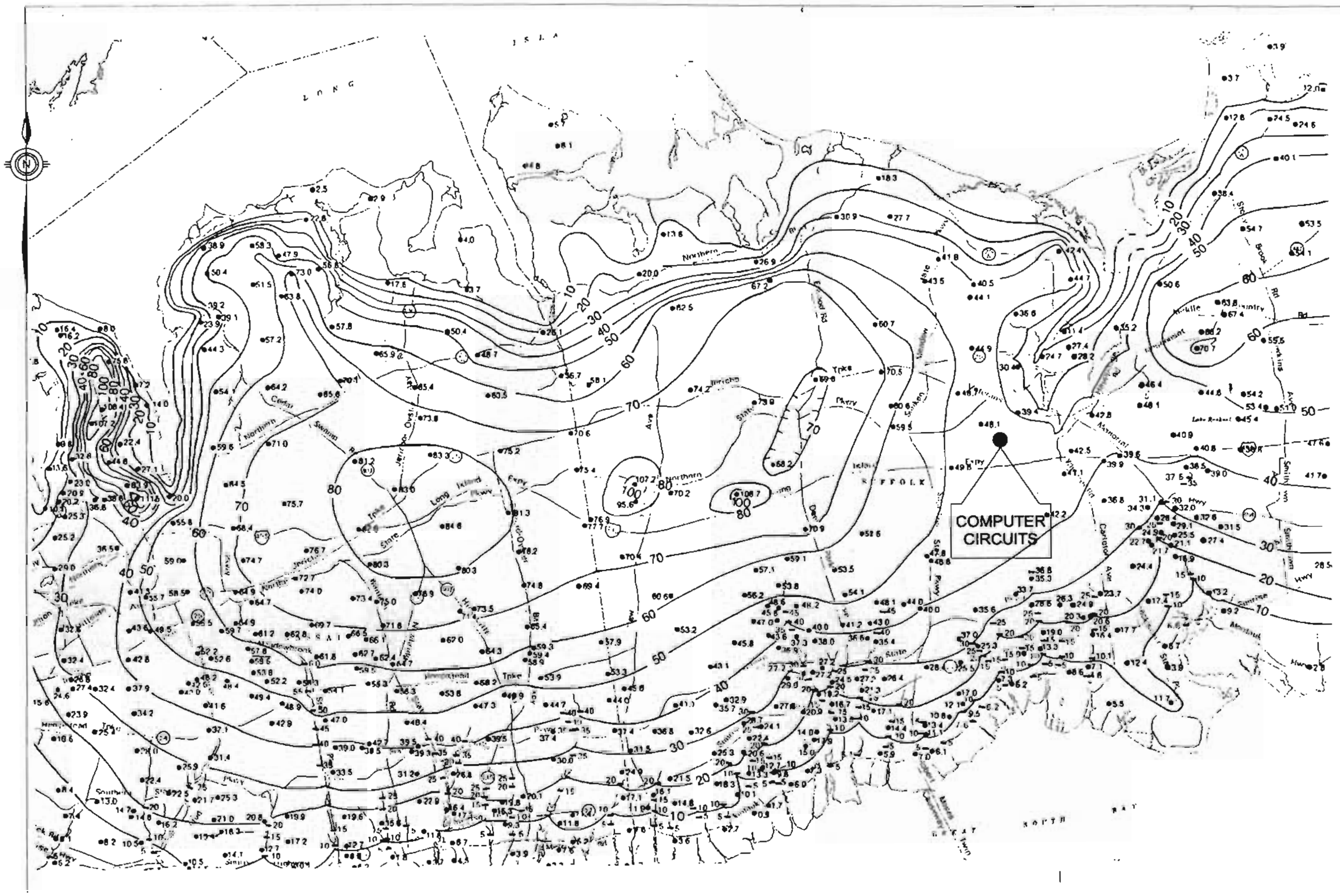

SURFACE WATER ALTITUDE--Altitude of water surface in stream or river, in feet above NGVD of 1929

OBSERVATION WELL AND WATER-SURFACE ALTITUDE--Altitude of water level, in feet above or below (-) NGVD of 1929 (Well numbers shown in plate 2)

LINE OF EQUAL WATER-TABLE ALTITUDE--Solid where approximately known, dashed where inferred. Contour interval 10 and 20 feet. Hachures indicate depression

0 1 2 3 4 5 MILES
0 1 2 3 4 5 KILOMETERS

SOURCE: (FROM DORISKI, T.P.1983, POTENTIOMETRIC - SURFACE ALTITUDE OF MAJOR AQUIFERS ON LONG ISLAND, NEW YORK IN 1983, USGS WATER RESOURCE INVESTIGATIONS REPORT 85-4321
FIGURE OBTAINED FROM
FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY DEC '99

FORMER COMPUTER CIRCUITS FACILITY
REGIONAL WATER TABLE SURFACE
MARCH 1983

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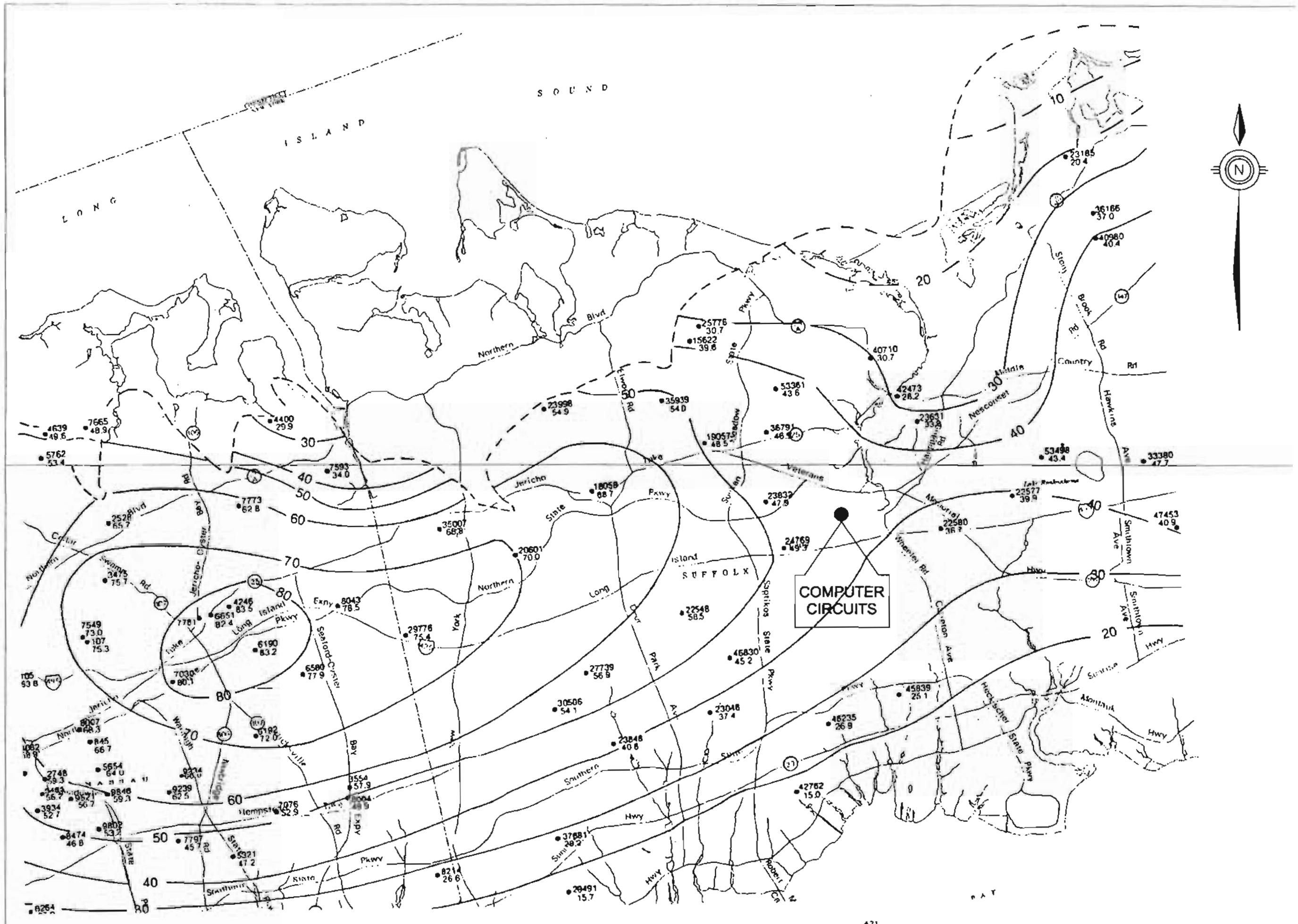
Project:	Designed By:	Figure No:
TED0001	LS	11
CADD Operator:	Approved By:	Date:
JAK	JPR	8/8/00



●471 13.2 OBSERVATION WELL AND NUMBER--Prefixes Q, N, and S for Queens, Nassau, and Suffolk Counties, respectively, are omitted. Lower number is potentiometric-surface altitude, in feet above or below (-) NGVD of 1929

—10— LINE OF EQUAL POTENTIOMETRIC-SURFACE ALTITUDE--Shows altitude at which water level would have stood in tightly cased wells. Solid where approximately known; dashed where inferred. Contour interval 10 feet. Hachures indicate depression

– – – – INFERRED LIMIT OF MAGOTHY AQUIFER

0 1 2 3 4 5 MILES
0 1 2 3 4 5 KILOMETERS

SOURCE: (FROM DORISKI, T.P.1986, POTENTIOMETRIC - SURFACE ALTITUDE OF MAJOR AQUIFERS ON LONG ISLAND, NEW YORK IN 1983, USGS WATER RESOURCE INVESTIGATIONS REPORT 85-4321

FIGURE OBTAINED FROM
FOSTER WHEELER ENVIRONMENTAL CORPORATION
LIVINGSTON, NEW JERSEY DEC '99

FORMER COMPUTER CIRCUITS FACILITY
REGIONAL MAGOTHY FORMATION
POTENTIOMETRIC SURFACE
MARCH 1983

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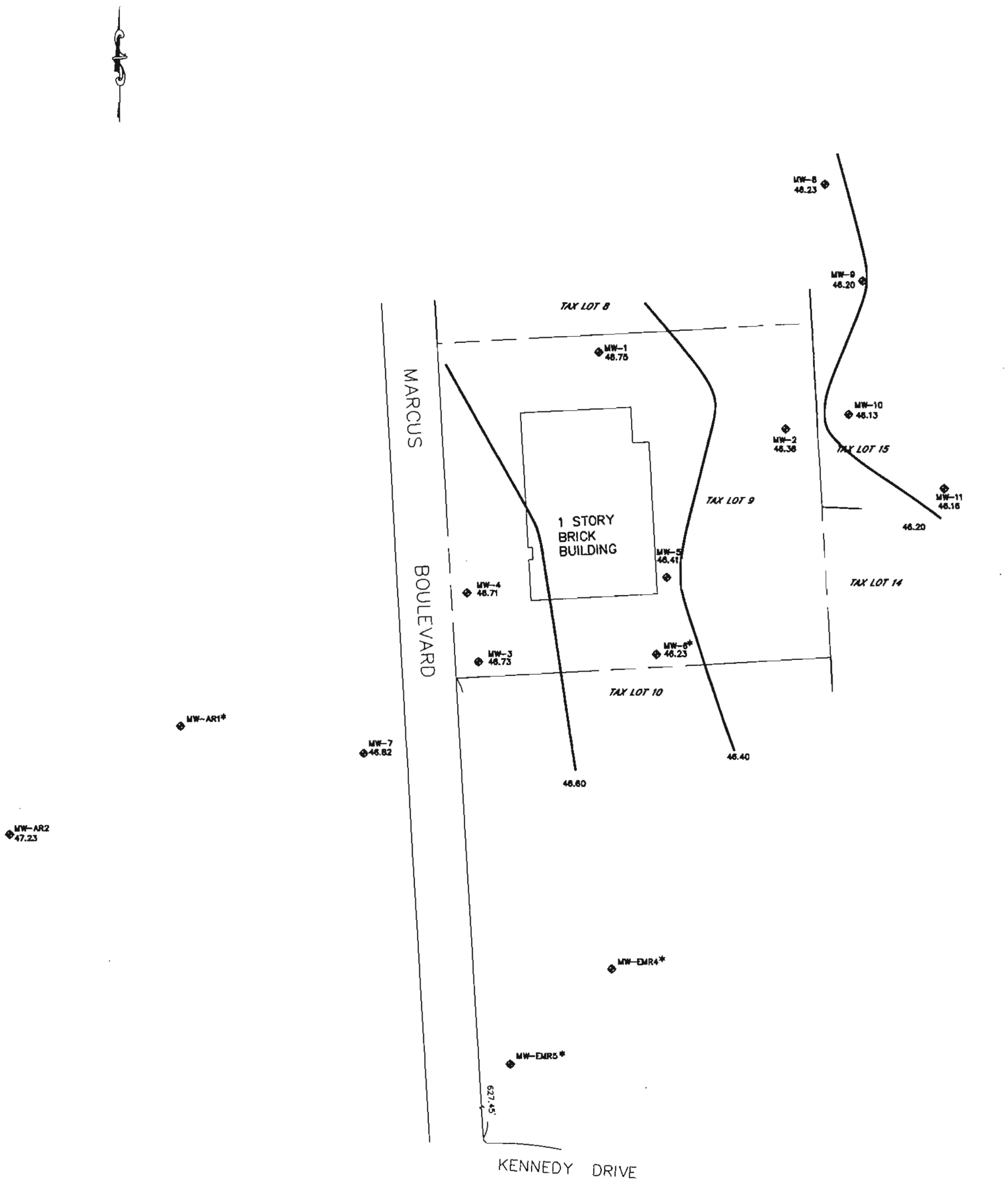
Project:	Designed By:	Figure No:
TED0001	LS	12
CADD Operator: JAK	Approved By: JPR	Date: 8/8/00



LEGEND:

- * WELL NOT USED IN CONTOURING SUSPECTED CONSTRUCTION PROBLEMS
- ◆ MONITORING WELL
- ——— GROUNDWATER CONTOUR LINE

SCALE: 1" = 100'

Ted\0001 Computer Circuits RI-FS\cadd\RI Report 01-01-03/FIG 13_12-7-06

WATER TABLE ELEVATIONS

April 1, 2002

145 MARCUS BOULEVARD
HAUPPAUGE , NEW YORK

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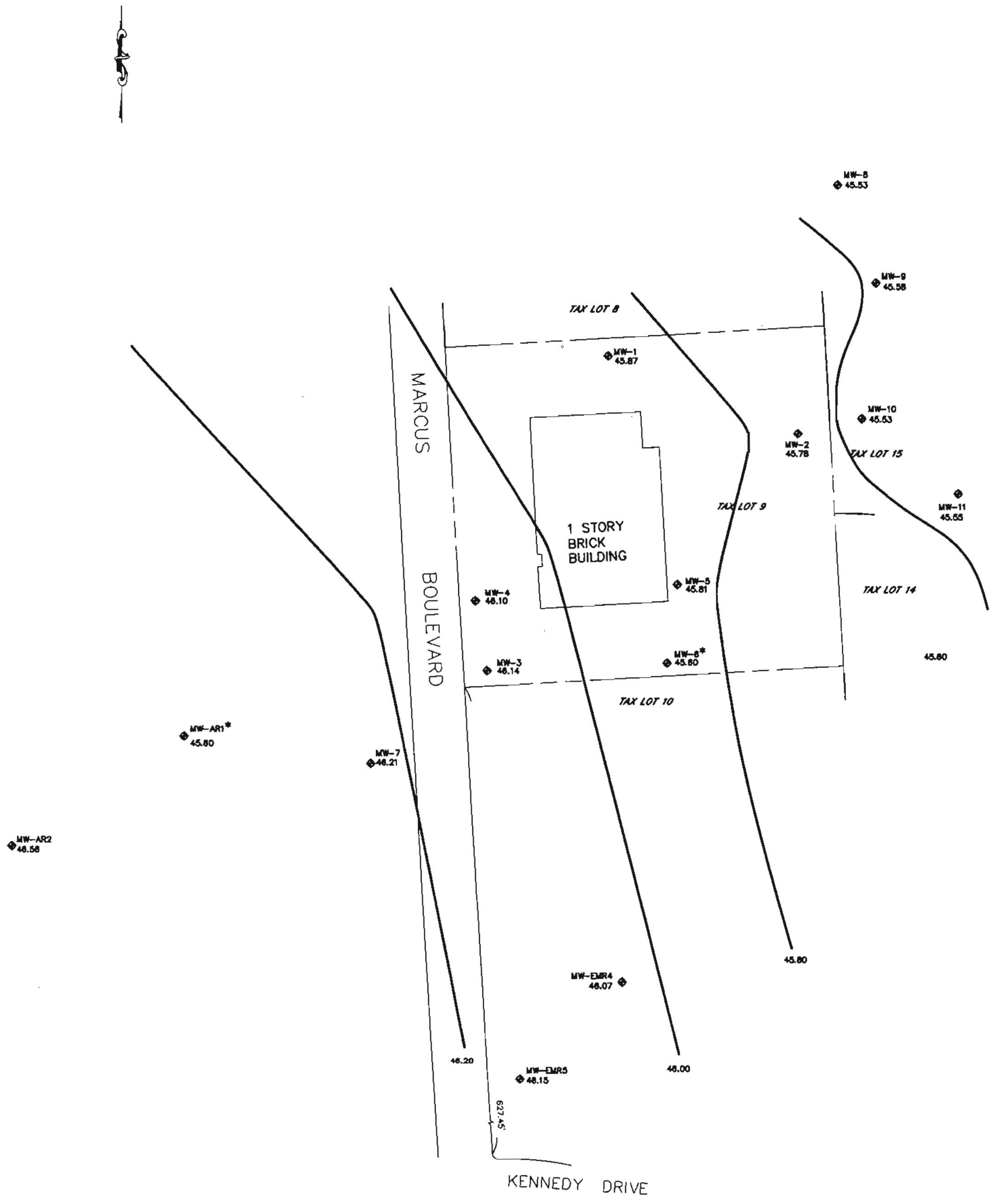
Project: TED0001	Designed By: CS	Figure No: 13
CADD Operator: DLM	Approved By: JPR	Date: 5/29/02



LEGEND:

- * WELL NOT USED IN CONTOURING
- ◆ MONITORING WELL
- ——— GROUNDWATER CONTOUR LINE

NOTE: AR1 DRY WELL CONDITION
MW-6 SUSPECTED CONSTRUCTION PROBLEMS

SCALE: 1" = 100'

Ted\0001 Computer Circuits /cad/PE REPORT FIGURES 01-01-03/FIG 14_12-7-05

WATER TABLE ELEVATIONS

June 2, 2002

145 MARCUS BOULEVARD
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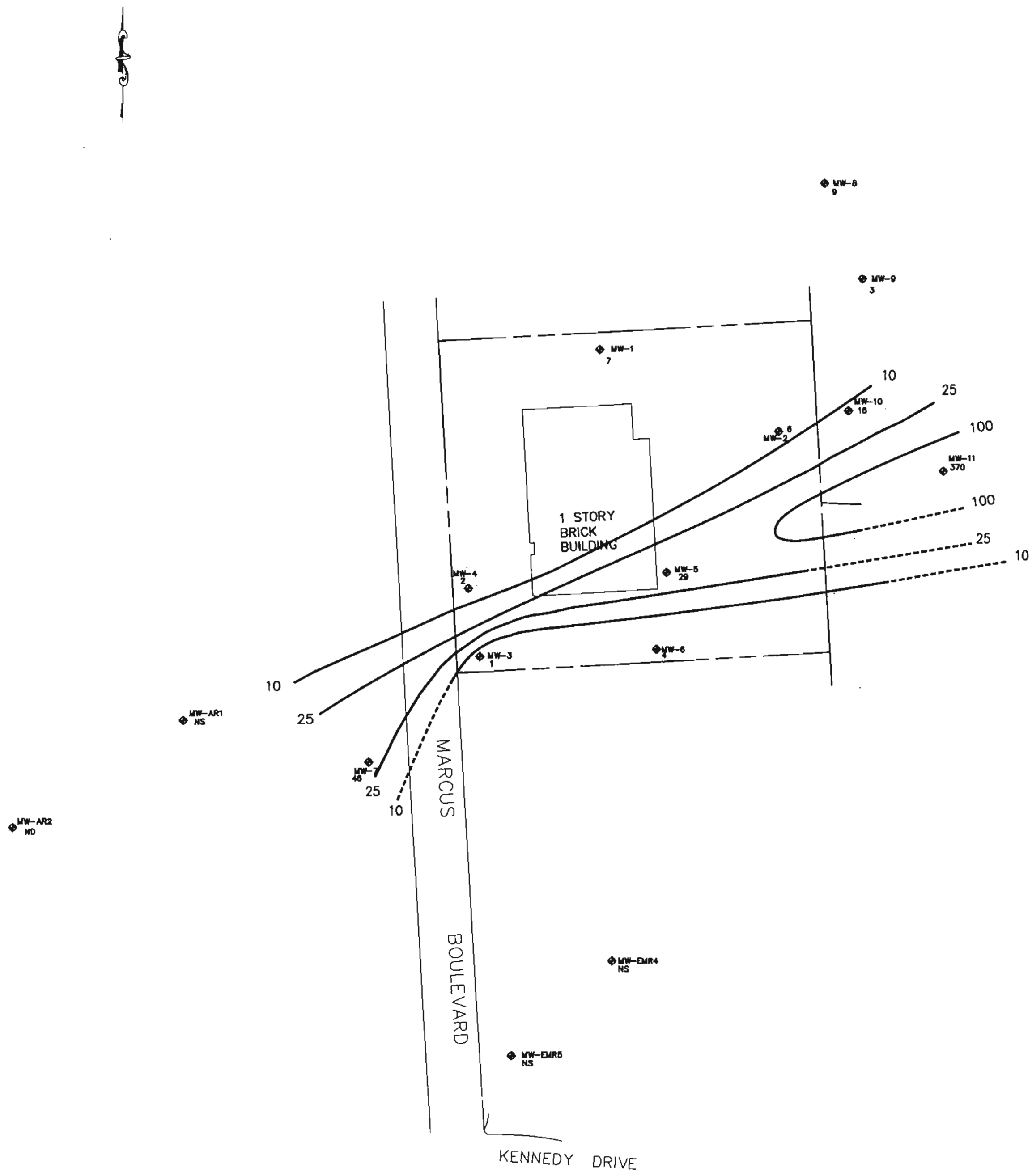

LEGEND:

NS- NOT SAMPLED
ND- NOT DETECTED
◈ MW-1 MONITORING WELL LOCATION
TCA CONTOUR
DASHED WHERE INFERRED

SCALE: 1" = 100'

Ted\0001 Computer Circuits RI-FS\cadd\RI Report 01-01-03/FIG 16

PCE Groundwater Sampling Results
April 2002

145 MARCUS BOULEVARD
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TED0001	CS	16
CADD Operator: TC/KF	Approved By: PWG	Date: 07/02/02

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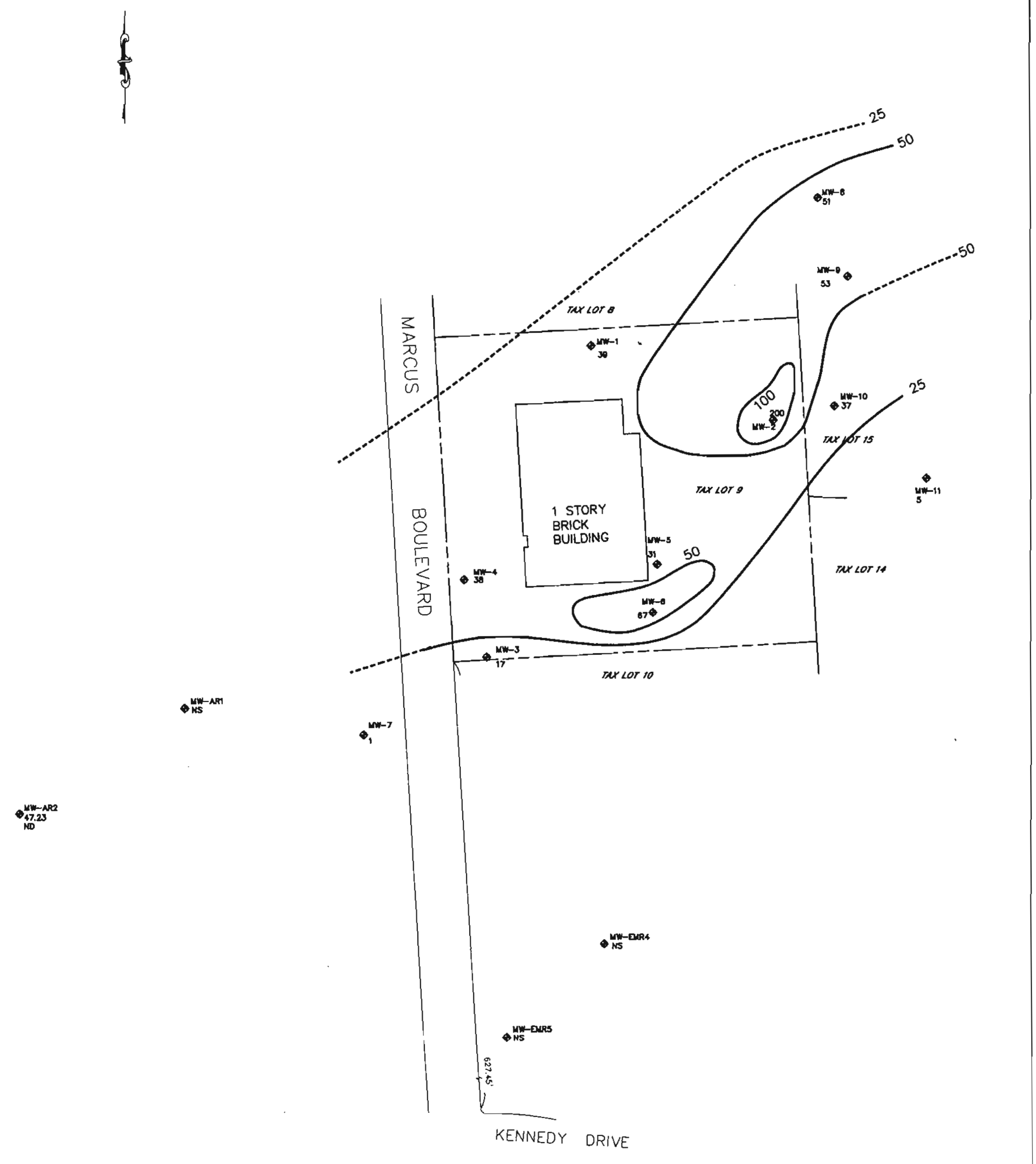

LEGEND:

NS- NOT SAMPLED
ND- NOT DETECTED

MW-1 MONITORING WELL LOCATION

TCA CONTOUR
DASHED WHERE INFERRED

SCALE: 1" = 100'

TCE Groundwater Sampling Results

April 2002

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CADD Operator: KF/TC	Approved By: PWG	Date: 07/02/02

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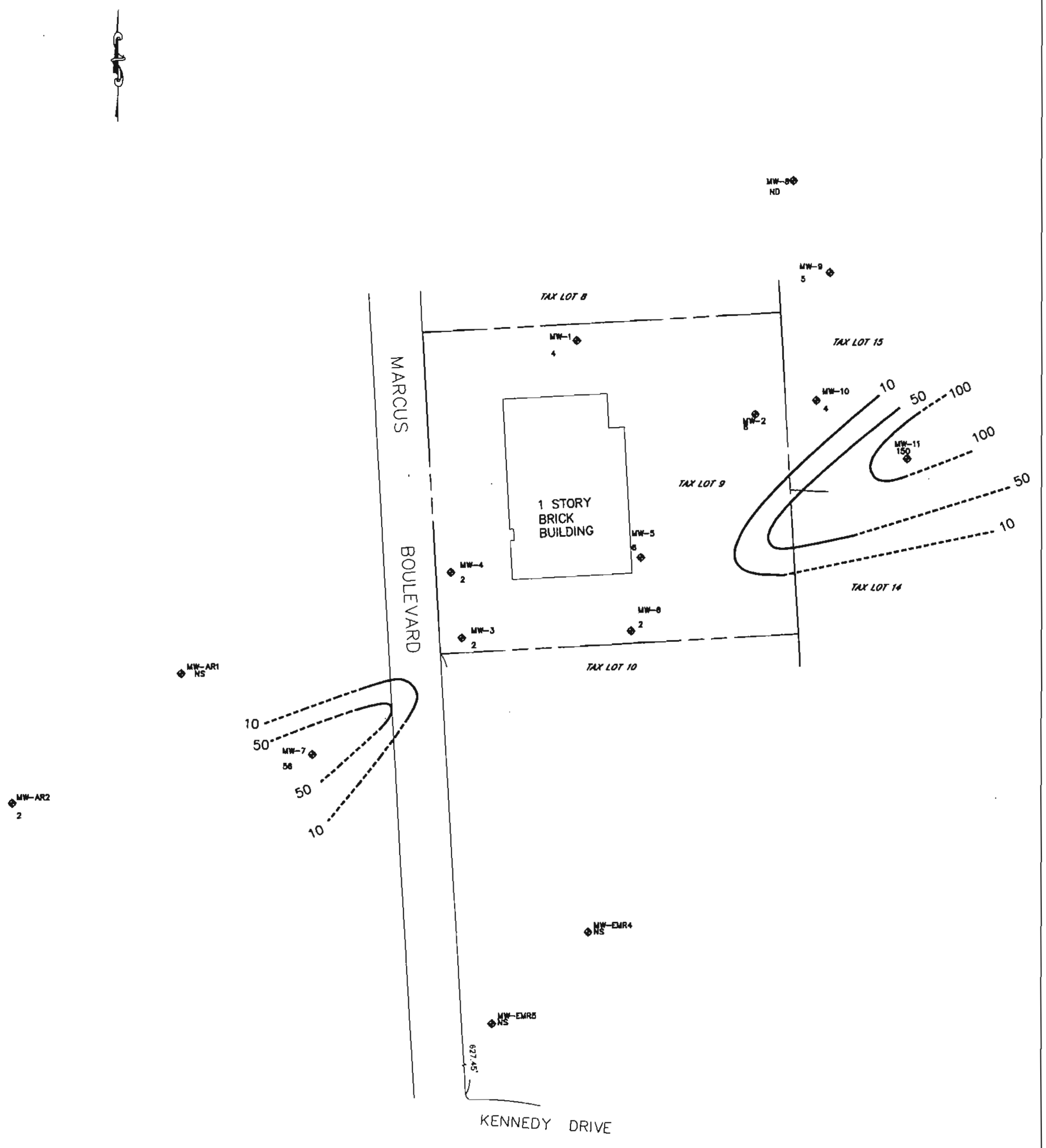
Ted\0001 Computer Circuits RI-FS\cadd\RI Report 01-01-013/ FIG 17_12-7-05



LEGEND:

NS	NOT SAMPLED
ND	NOT DETECTED
◈ MW-1	MONITORING WELL LOCATION
⌣	TCA CONTOUR DASHED WHERE INFERRED

SCALE: 1" = 100'

Ted\0001 Computer Circuits RI-FS\cadd\RI REPORT FIG 01-01-03/FIG 18_12-7-05

1,1,1,-TCA Groundwater Sampling Results

April 2002

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HAUPPAUGE , NEW YORK

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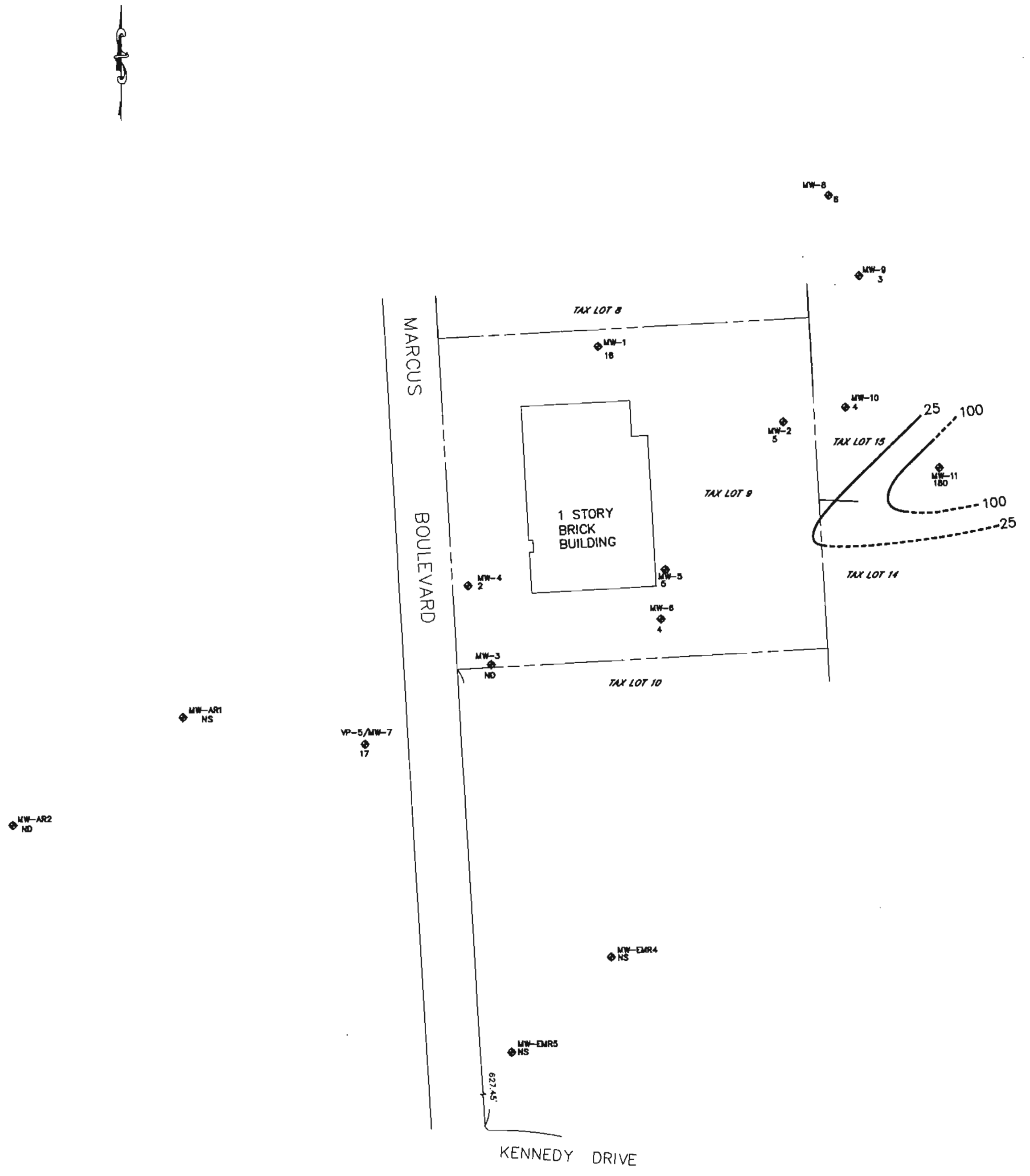
Project: TED0001	Designed By: CS	Figure No: 18
CADD Operator: TC / K.F.	Approved By: PWG	Date: 07/02/02



LEGEND:

NS	NOT SAMPLED
ND	NOT DETECTED
MW-1	MONITORING WELL LOCATION
⁀	PCE CONTOUR DASHED FOR INFERRED

SCALE: 1" = 100'

Ted\0001 Computer Circuits RI-FS\cadd\RI Report 01-01-03/ FIG 19

PCE Groundwater Sampling Results
July 2002

145 MARCUS BOULEVARD
HAUPPAUGE , NEW YORK

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Project: TED0001	Designed By: CS	Figure No: 19
CADD Operator: KF/TC	Approved By: PWG	Date: 07/02/02

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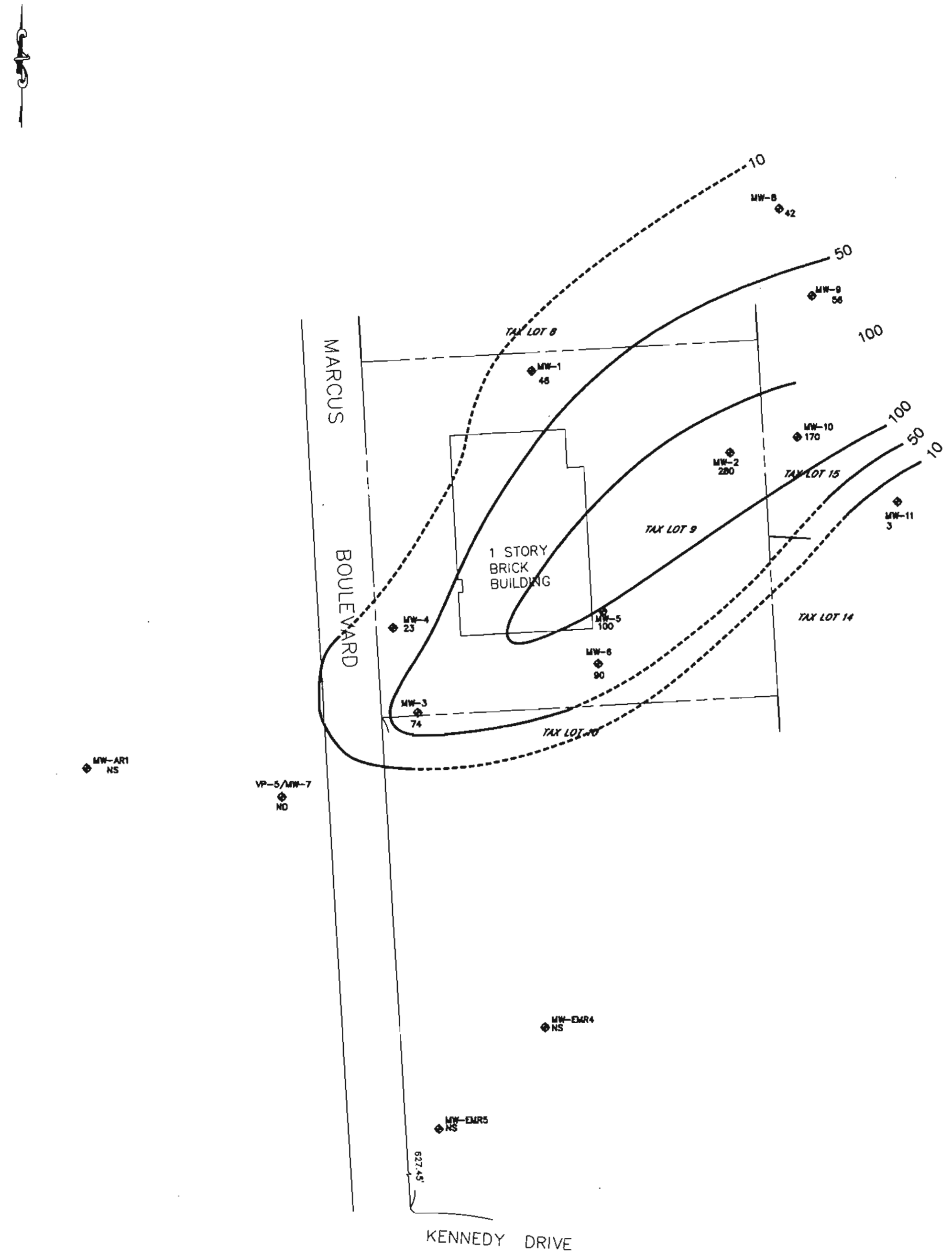

LEGEND:

NS	NOT SAMPLED
ND	NOT DETECTED
MW-1	MONITORING WELL LOCATION
	TCE CONTOUR DASHED WHERE INFERRED

SCALE: 1" = 100'

TCE Groundwater Sampling Results

July 2002

145 MARCUS BOULEVARD
HAUPPAUGE , NEW YORK

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Project: TED0001	Designed By: CS	Figure No: 20
CADD Operator: KF/TC	Approved By: PWG	Date: 07/02/02

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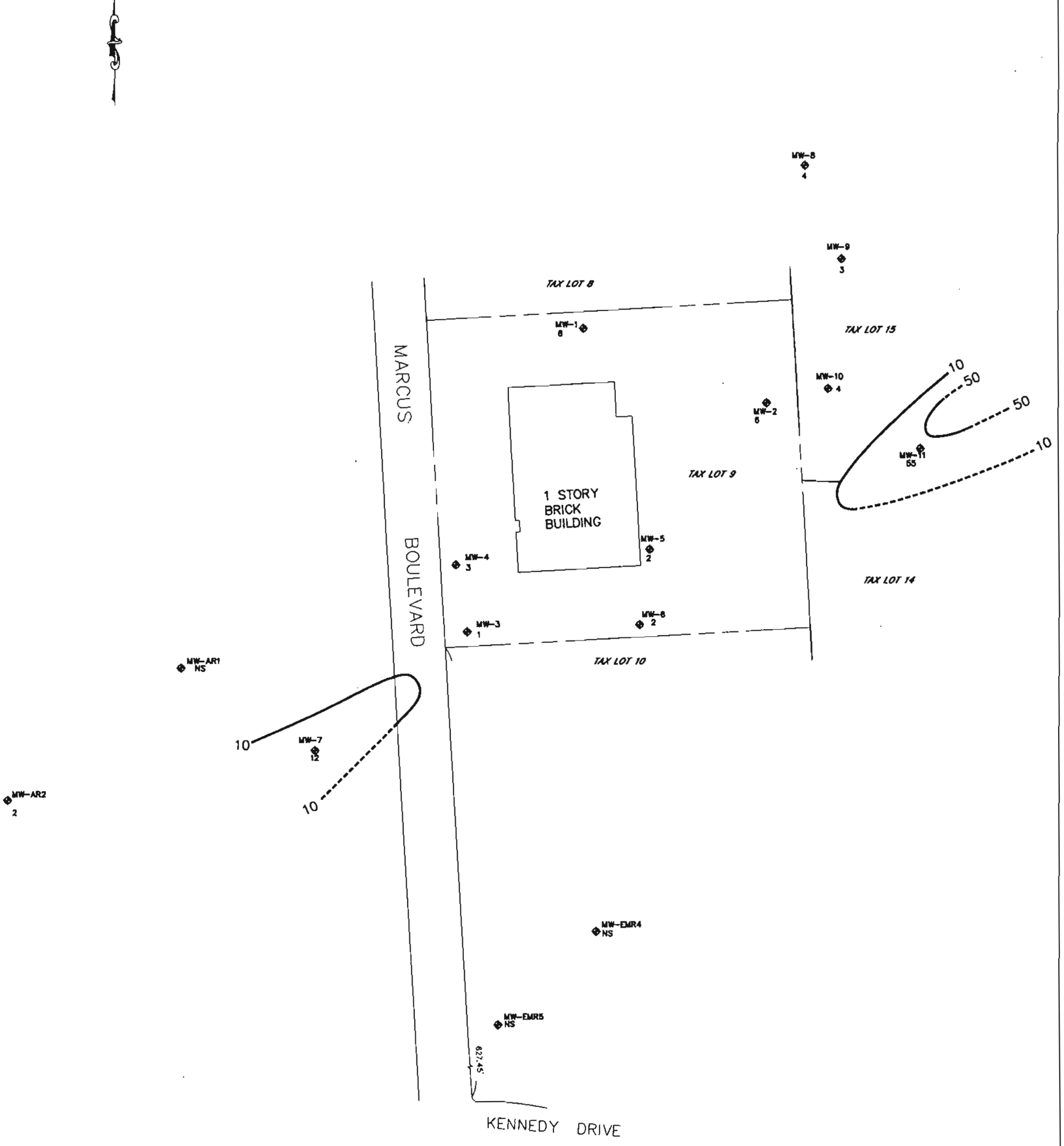
Ted\0001 Computer Circuits RI-FS\code\RI Report 01-01-03/ FIG 20_12-7-05



LEGEND:

NS	NOT SAMPLED
ND	NOT DETECTED
◈ MW-1	MONITORING WELL LOCATION
⌣	TCA CONTOUR DASHED WHERE INFERRED

SCALE: 1" = 100'

Ted\0001 Computer Circuits RI-FS\cadd\RI REPORT FIGURES 1-01-03\FIGURE 21_12-7-06

1,1,1,-TCA Groundwater Sampling Results

July 2002

145 MARCUS BOULEVARD
HAUPPAUGE , NEW YORK

P.W. GROSSER CONSULTING, INC.

630 Johnson Ave. Suite 7
Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705
E-mail: www.pwgrosser.com

Project: TED0001	Designed By: CS	Figure No: 21
CADD Operator: TC / K.F.	Approved By: PWG	Date: 07/02/02

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING AND RELATED DOCUMENTS IS A VIOLATION OF SEC. 7209 OF THE N.Y.S. EDUCATION LAW

FORMER COMPUTER CIRCUITS SITE
Hauppauge, New York

Table 16
GROUNDWATER ELEVATION SUMMARY

	Total	Bottom	Screened	Surface	Casing	4/1/2002	4/1/2002	6/2/2002	6/2/2002
Well	**Depth**	**Elevation**	**Interval**	**Elevation**	**Elevation**	**DTW**	**GW Elevation**	**DTW**	**GW Elevation**
MW1	116.2	31.5	31.5 to 11.5	148.1	147.7	101.25	46.45	101.83	45.87
MW2	115.8	33.3	33.3 to 13.3	149.3	149.1	102.74	46.36	103.32	45.78
MW3	117.9	31.4	31.4 to 11.4	149.7	149.3	102.57	46.73	103.16	46.14
MW4	104.7	43.6	43.6 to 23.6	148.8	148.3	101.59	46.71	102.20	46.10
MW5	109.8	39.5	39.5 to 19.5	149.7	149.3	102.89	46.41	103.49	45.81
MW6	110	39.7	39.7 to 19.7	150.2	149.7	103.47	46.23	104.10	45.60
MW7	152.6	-1.5	-1.5 to -6.5	151.7	151.1	104.28	46.82	104.89	46.21
MW8	105	36.1	36.1 to 21.1	141.4	141.1	94.87	46.23	95.57	45.53
MW9	117.1	23.5	23.5 to 18.5	141.0	140.6	94.40	46.20	95.02	45.58
MW10	105.0	34.1	34.1 to 19.1	139.6	139.1	92.97	46.13	93.57	45.53
MW11	117.1	20.0	20.0 to 15.0	137.8	137.1	90.94	46.16	91.55	45.55
ERM4	114.9	38.9		154.2	153.8			107.73	46.07
ERM5				155.2	154.9			108.75	46.15
AR1	108.5	45.9		154.9	154.4			108.80	45.60
AR2	112	43.1		155.3	155.1	107.87	47.23	108.52	46.58

NOTES:
units - feet
ERM - 99 Marcus Blvd Monitoring Well
AR - 22 Arkay Drive Monitoring Well

Appendix B

Data Validation Services
120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429
Facsimile 518-251-4428

March 20, 2007

Adrian Steinhauff
P. W. Grosser Consulting
630 Johnson Avenue
Bohemia, NY 11718

RE: Validation of Computer Circuits Site Data Packages
H2M Laboratory SDG No. PWG013

Dear Mr. Steinhauff:

Review has been completed for the data packages generated by H2M Laboratories that pertain to samples collected 12/28/06 at the Computer Circuits site. Five aqueous samples and a field duplicate were analyzed for TCL volatiles by the method USEPA SW846 8260B and TAL Metals by EPA 6010B/7470. Matrix spikes/duplicates and field/trip blanks were also analyzed.

Data validation was performed with guidance from the USEPA CLP National Functional Guidelines for (In)Organic Data Review and the USEPA Region 2 SOPs HW-2 and HW-6, in consideration of the specific method requirements. The following items were reviewed:

- Data Completeness
- Custody Documentation
- Holding Times
- Surrogate and Internal Standard Recoveries
- Matrix Spike Recoveries/Duplicate Correlations
- Laboratory Control Samples
- Blank Contamination
- Instrumental Tunes
- Calibration Standards
- Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with project requirements.

In summary, samples were processed in compliance with method requirements. Results are usable as reported, usable with qualification as estimated (one volatile and two metal analytes), or usable with edit to non-detection (zinc).

Copies of the laboratory case narratives are attached to this text, and should be reviewed in conjunction with this report. Also included are sample results forms from the data summary package, edited with qualifications noted within this report.

TCL Volatile Analyses by EPA 8260B

Holding times were met. Surrogate and internal standard responses are within required ranges. Blanks show no contamination.

Sample matrix spikes were performed on aqueous sample MW-3, and show accuracy and precision within acceptance ranges. The spiked blank shows elevated recoveries for two analytes not detected in the project samples; reported results are unaffected.

The blind field duplicate correlation of MW-6 shows good correlations.

Calibration standard responses were within validation guidelines, with the exception of that for chloromethane (30%D), results of which are qualified as estimated ("UJ" or """J") in the project samples.

Tentatively Identified Compounds (TICs) that are flagged as "X" by the laboratory are considered external contamination/analysis artifacts, and are to be disregarded as sample components.

TAL Metals by 6010B, 7470, and 7471

Sample matrix spike evaluations for sample MW-3 show acceptable recoveries and duplicate correlations. The blind field duplicate correlation of MW-6 also shows good correlations.

ICP serial dilution correlation evaluation was performed on MW-3, and shows all acceptable correlations.

The field blank shows a low concentration of zinc (35 ug/L). All sample zinc detections are within the action range for consideration as contamination, and have been edited to reflect non-detection at the originally reported concentrations. It can be said that zinc is not present in the samples at levels above that reported.

Due to low recoveries in the low level CRI standards, results for arsenic (75.7 to 74.7%) and selenium (75.8% and 73.1%) in the samples are qualified as estimated, and may have a slight low bias. No corrective action was required of the laboratory.

Instrument processing is compliant.

Please do not hesitate to contact me if you have questions or comments regarding this report.

Very truly yours,

Judy Harry

VALIDATION QUALIFIER DEFINITIONS

DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process. If the Regions choose to use additional qualifiers, a complete explanation of those qualifiers should accompany the data review.

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 present 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 meet quality control criteria. The presence or absence of the analyte cannot be verified.**

LABORATORY SAMPLE IDs AND CASE NARRATIVES

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

SDG: PWG013

Analytical Requirements

Customer Sample Code	Laboratory Sample Code	ME	MSVOA
FB-1	0613397-001	X	X
MW-1	0613397-002	X	X
MW-2	0613397-003	X	X
MW-3	0613397-004	X	X
MW-4	0613397-005	X	X
MW-6	0613397-006	X	X
MW-10	0613397-007	X	X
TB-1	0613397-008		X

CLP, [✓ Non-CLP] (Please indicate year of protocol) ASP B 10/95

11/10/07

H2M LABS, INC.

SDG NARRATIVE FOR METALS
SAMPLES RECEIVED: 12/28/06
SDG#: PWG013

For Samples:

FB-1
MW-1
MW-2
MW-3 MS/MSD
MW-4
MW-6
MW-10

Seven water samples were received by H2M Labs, Inc. on 12/28/06 for analysis of a select list of metals.

Samples were prepared and analyzed using EPA method 6010B with a TJA 61E Trace ICP Instrument. Mercury was analyzed by method 7470A on a Leeman Hydra AA.

Sample MW-3 was utilized for QC analysis and reporting.

No problems were noted during the analysis of this sample group.

> **I certify that this data package is in compliance with the terms and conditions of the contract, 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.**

Date Reported: January 10, 2007

****
*   *
*   *
****

Ursula Middel
Technical Manager

QUALIFIED REPORT FORMS

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-1

Lab Name: H2M LABS, INC. Contract: ______

Lab Code: 10478 Case No.: PWG SAS No.: ______ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34441.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ______ (µL) Soil Aliquot Volume ______ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FB-1

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: PWG SAS No.: SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-001A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34441.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

U.S. EPA - CLP

1
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO
FB-1

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No. SAS No.: SDG No.: PWG013

Matrix (soil/water): WATER Lab Sample ID: 0613397-001

Level (low/med): LOW Date Received: 12/28/2006

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	30.6	B		P
7440-36-0	Antimony	4.2	B		P
7440-38-2	Arsenic	2.9	U	J	P
7440-39-3	Barium	6.4	U		P
7440-41-7	Beryllium	1.1	B		P
7440-43-9	Cadmium	1.2	B		P
7440-70-2	Calcium	63.4	B		P
7440-47-3	Chromium	1.0	B		P
7440-48-4	Cobalt	1.3	U		P
7440-50-8	Copper	2.7	B		P
7439-89-6	Iron	31.8	B		P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	28.4	B		P
7439-96-5	Manganese	1.2	B		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	1.8	U		P
7440-09-7	Potassium	96.9	B		P
7782-49-2	Selenium	1.7	U	J	P
7440-22-4	Silver	0.39	B		P
7440-23-5	Sodium	117	B		P
7440-28-0	Thallium	3.4	B		P
7440-31-5	Tin	3.1	U		P
7440-62-2	Vanadium	1.4	U		P
7440-66-6	Zinc	35.2	~~U~~		P

3-20-07
no cdl

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
Date Reported: 1/10/2007

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-1

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: PWG SAS No.: ____ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34444.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	1	J
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	2	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	1	J
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	15	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	9	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-1

Lab Name: H2M LABS, INC. Contract: ________

Lab Code: 10478 Case No.: PWG SAS No.: ________ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-002A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34444.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 2 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q	
1.	~~column bleed (15.4)~~	15.40	~~8~~	~~JX~~	R
2.	~~column bleed (17.97)~~	17.97	~~5~~	~~JX~~	R

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

MW-1

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No. SAS No.: SDG No.: PWG013

Matrix (soil/water): WATER Lab Sample ID: 0613397-002

Level (low/med): LOW Date Received: 12/28/2006

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	70.2	B		P
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	2.9	U	J	P
7440-39-3	Barium	29.2	B		P
7440-41-7	Beryllium	0.19	B		P
7440-43-9	Cadmium	0.29	B		P
7440-70-2	Calcium	11600			P
7440-47-3	Chromium	5.2	B		P
7440-48-4	Cobalt	1.3	U		P
7440-50-8	Copper	3.0	B		P
7439-89-6	Iron	117			P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	5820			P
7439-96-5	Manganese	105			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	8.6	B		P
7440-09-7	Potassium	1640	B		P
7782-49-2	Selenium	1.7	U	J	P
7440-22-4	Silver	0.38	U		P
7440-23-5	Sodium	17300			P
7440-28-0	Thallium	2.9	U		P
7440-31-5	Tin	3.1	U		P
7440-62-2	Vanadium	1.4	U		P
7440-66-6	Zinc	39.7	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Date Reported: 1/10/2007

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: PWG SAS No.: ____ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34445.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CONCENTRATION UNITS:
(µg/L or µg/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	1	J
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	28	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
MW-2

Lab Name: H2M LABS, INC. Contract: ______

Lab Code: 10478 Case No.: PWG SAS No.: ______ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-003A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34445.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 1 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.	~~column bleed~~	15.41	6	~~JX~~ R

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

MW-2

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No. SAS No.: SDG No.: PWG013

Matrix (soil/water): WATER Lab Sample ID: 0613397-003

Level (low/med): LOW Date Received: 12/28/2006

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	23.0	B		P
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	2.9	U	J	P
7440-39-3	Barium	51.7	B		P
7440-41-7	Beryllium	0.17	U		P
7440-43-9	Cadmium	0.28	U		P
7440-70-2	Calcium	19900			P
7440-47-3	Chromium	3.1	B		P
7440-48-4	Cobalt	1.3	U		P
7440-50-8	Copper	2.7	B		P
7439-89-6	Iron	39.6	B		P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	6500			P
7439-96-5	Manganese	147			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	10.4	B		P
7440-09-7	Potassium	3850	B		P
7782-49-2	Selenium	1.7	U	J	P
7440-22-4	Silver	0.38	U		P
7440-23-5	Sodium	17700			P
7440-28-0	Thallium	2.9	U		P
7440-31-5	Tin	3.1	U		P
7440-62-2	Vanadium	1.4	U		P
7440-66-6	Zinc	42.9	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Date Reported: 1/10/2007

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: PWG SAS No.: ____ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34449.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	4	J
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	29	
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-3

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No.: PWG SAS No.: SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-004A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34449.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

FORM I VOA-TIC OLM04.2

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

MW-3

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No. SAS No.: SDG No.: PWG013

Matrix (soil/water): WATER Lab Sample ID: 0613397-004

Level (low/med): LOW Date Received: 12/28/2006

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.1	B		P
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	2.9	U	J	P
7440-39-3	Barium	43.8	B		P
7440-41-7	Beryllium	0.17	U		P
7440-43-9	Cadmium	0.28	U		P
7440-70-2	Calcium	12800			P
7440-47-3	Chromium	7.4	B		P
7440-48-4	Cobalt	1.3	U		P
7440-50-8	Copper	2.6	B		P
7439-89-6	Iron	81.1	B		P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	3600	B		P
7439-96-5	Manganese	308			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	13.2	B		P
7440-09-7	Potassium	3480	B		P
7782-49-2	Selenium	1.7	U	J	P
7440-22-4	Silver	0.38	U		P
7440-23-5	Sodium	21300			P
7440-28-0	Thallium	2.9	U		P
7440-31-5	Tin	3.1	U		P
7440-62-2	Vanadium	1.4	U		P
7440-66-6	Zinc	49.0	u		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Date Reported: 1/10/2007

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MW-4

Lab Name: H2M LABS, INC. Contract: ________

Lab Code: 10478 Case No.: PWG SAS No.: ________ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-005A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34446.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ________ (μL) Soil Aliquot Volume ________ (μL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	6	J
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	6	J
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-4

Lab Name: H2M LABS, INC.   Contract:

Lab Code: 10478   Case No.: PWG   SAS No.:   SDG No.: PWG013

Matrix: (soil/water) WATER   Lab Sample ID: 0613397-005A

Sample wt/vol: 5 (g/mL) ML   Lab File ID: 7\P34446.D

Level: (low/med) LOW   Date Received: 12/28/06

% Moisture: not dec.   Date Analyzed: 01/02/07

GC Column: R-502.2   ID: .53 (mm)   Dilution Factor: 1.00

Soil Extract Volume: (µl)   Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 1   (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.	~~column bleed~~	15.42	~~5~~	~~JX~~ R

FORM I VOA-TIC   OLM04.2

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

MW-4

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No. SAS No.: SDG No.: PWG013

Matrix (soil/water): WATER Lab Sample ID: 0613397-005

Level (low/med): LOW Date Received: 12/28/2006

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	102	B		P
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	2.9	U	J	P
7440-39-3	Barium	133	B		P
7440-41-7	Beryllium	0.17	U		P
7440-43-9	Cadmium	0.71	B		P
7440-70-2	Calcium	33800			P
7440-47-3	Chromium	138			P
7440-48-4	Cobalt	1.6	B		P
7440-50-8	Copper	4.3	B		P
7439-89-6	Iron	893			P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	12700			P
7439-96-5	Manganese	1160			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	41.9			P
7440-09-7	Potassium	5690			P
7782-49-2	Selenium	1.7	U	J	P
7440-22-4	Silver	0.41	B		P
7440-23-5	Sodium	57000			P
7440-28-0	Thallium	2.9	U		P
7440-31-5	Tin	3.1	U		P
7440-62-2	Vanadium	1.4	U		P
7440-66-6	Zinc	61.4	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Date Reported: 1/10/2007

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MW-6

Lab Name: H2M LABS, INC.   Contract: ______

Lab Code: 10478   Case No.: PWG   SAS No.: ______   SDG No.: PWG013

Matrix: (soil/water) WATER   Lab Sample ID: 0613397-006A

Sample wt/vol: 5 (g/mL) ML   Lab File ID: 7\P34447.D

Level: (low/med) LOW   Date Received: 12/28/06

% Moisture: not dec.   Date Analyzed: 01/02/07

GC Column: R-502.2   ID: .53 (mm)   Dilution Factor: 1.00

Soil Extract Volume: ______ (µL)   Soil Aliquot Volume ______ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	4	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

EPA SAMPLE NO.

MW-6

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC.   Contract: ______

Lab Code: 10478   Case No.: PWG   SAS No.: ______   SDG No.: PWG013

Matrix: (soil/water) WATER   Lab Sample ID: 0613397-006A

Sample wt/vol: 5 (g/mL) ML   Lab File ID: 7\P34447.D

Level: (low/med) LOW   Date Received: 12/28/06

% Moisture: not dec.   Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm)   Dilution Factor: 1.00

Soil Extract Volume: (µl)   Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0   (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

MW-6

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No. SAS No.: SDG No.: PWG013

Matrix (soil/water): WATER Lab Sample ID: 0613397-006

Level (low/med): LOW Date Received: 12/28/2006

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	472			P
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	2.9	U	J	P
7440-39-3	Barium	42.7	B		P
7440-41-7	Beryllium	0.19	B		P
7440-43-9	Cadmium	0.28	U		P
7440-70-2	Calcium	18000			P
7440-47-3	Chromium	150			P
7440-48-4	Cobalt	1.7	B		P
7440-50-8	Copper	16.0	B		P
7439-89-6	Iron	1100			P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	9350			P
7439-96-5	Manganese	99.6			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	32.4	B		P
7440-09-7	Potassium	2130	B		P
7782-49-2	Selenium	1.7	U	J	P
7440-22-4	Silver	0.38	U		P
7440-23-5	Sodium	31000			P
7440-28-0	Thallium	2.9	U		P
7440-31-5	Tin	3.1	U		P
7440-62-2	Vanadium	1.4	U		P
7440-66-6	Zinc	54.4	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Date Reported: 1/10/2007

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-10

Lab Name: H2M LABS, INC. Contract: ____

Lab Code: 10478 Case No.: PWG SAS No.: ____ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34448.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ____ (µL) Soil Aliquot Volume ____ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	4	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MW-10

Lab Name: H2M LABS, INC. Contract: ______

Lab Code: 10478 Case No.: PWG SAS No.: ______ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-007A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34448.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 0 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO

MW-10

Lab Name: H2M LABS, INC. Contract:

Lab Code: 10478 Case No. SAS No.: SDG No.: PWG013

Matrix (soil/water): WATER Lab Sample ID: 0613397-007

Level (low/med): LOW Date Received: 12/28/2006

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	388			P
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	2.9	U	J	P
7440-39-3	Barium	40.8	B		P
7440-41-7	Beryllium	0.17	U		P
7440-43-9	Cadmium	0.28	U		P
7440-70-2	Calcium	17400			P
7440-47-3	Chromium	119			P
7440-48-4	Cobalt	1.5	B		P
7440-50-8	Copper	13.0	B		P
7439-89-6	Iron	826			P
7439-92-1	Lead	1.5	U		P
7439-95-4	Magnesium	8990			P
7439-96-5	Manganese	95.4			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	21.7	B		P
7440-09-7	Potassium	2030	B		P
7782-49-2	Selenium	1.7	U	J	P
7440-22-4	Silver	0.40	B		P
7440-23-5	Sodium	30400			P
7440-28-0	Thallium	2.9	U		P
7440-31-5	Tin	3.1	U		P
7440-62-2	Vanadium	1.4	U		P
7440-66-6	Zinc	49.8	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Date Reported: 1/10/2007

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB-1

Lab Name: H2M LABS, INC. Contract: ______

Lab Code: 10478 Case No.: PWG SAS No.: ______ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34442.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: ______ (µL) Soil Aliquot Volume ______ (µL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (µg/L or µg/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	10	U
67-64-1	Acetone	10	U
75-35-4	1,1-Dichloroethene	10	U
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
76-13-1	Freon-113	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1F

EPA SAMPLE NO.

TB-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: H2M LABS, INC. Contract: ______

Lab Code: 10478 Case No.: PWG SAS No.: ______ SDG No.: PWG013

Matrix: (soil/water) WATER Lab Sample ID: 0613397-008A

Sample wt/vol: 5 (g/mL) ML Lab File ID: 7\P34442.D

Level: (low/med) LOW Date Received: 12/28/06

% Moisture: not dec. Date Analyzed: 01/02/07

GC Column: R-502.2 ID: .53 (mm) Dilution Factor: 1.00

Soil Extract Volume: (µl) Soil Aliquot Volume: 0 (µL)

CONCENTRATION UNITS:

Number TICs found: 2 (µg/L or µg/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST.CONC.	Q
1.	column bleed (12.62)	12.62	6	JX
2.	column bleed (15.4)	15.40	8	JX

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040. FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : 0706501-001

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-7

Collected 6/4/07 11:20:00 AM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
Copies To PRELIMINARY REPORT
CC ; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Trichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 5:18 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

PRELIMINARY

D.F. = Dilution Factor

Date Reported :

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : **0706501-002**

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-8

Collected 6/4/07 3:15:00 PM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
Copies To PRELIMINARY REPORT
CC ; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Trichloroethene	14		1	µg/L	SW8260B	06/11/2007 5:53 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 5:53 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040. FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : 0706501-003

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-9

Collected	6/4/07 4:10:00 PM
Received	6/4/07 5:05:00 PM
Collected By	CLIENT
Copies To	PRELIMINARY REPORT
CC	; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Trichloroethene	17		1	µg/L	SW8260B	06/11/2007 6:27 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 6:27 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Tetrachloroethene	11		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM

Qualifiers: E - Value above quantitation range.
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040. FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

Lab No. : **0706501-004**

Sample Information...
Type : Trip Blank

Origin:

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Client ID. : TB-1

Collected	6/4/07 8:30:00 AM
Received	6/4/07 5:05:00 PM
Collected By	CLIENT
Copies To	PRELIMINARY REPORT
CC	; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Trichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 7:01 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

PRELIMINARY

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631)694-3040. FAX:(631)420-8436 NYSDOH ID # 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : **0706501-001**

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-7

Collected 6/4/07 11:20:00 AM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
Copies To PRELIMINARY REPORT
CC ; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Trichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 5:18 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 . FAX: (631) 420-8436 NYSDOH ID # 10478

LABORATORY RESULTS

Sample Information...
Type : Aqueous

Origin:

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : **0706501-002**

Client ID. : MW-8

Collected	6/4/07 3:15:00 PM
Received	6/4/07 5:05:00 PM
Collected By	CLIENT
Copies To	PRELIMINARY REPORT
CC	; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Trichloroethene	14		1	µg/L	SW8260B	06/11/2007 5:53 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 5:53 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 . FAX: (631) 420-8436 NYSDOH ID # 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : **0706501-003**

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-9

Collected 6/4/07 4:10:00 PM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
Copies To PRELIMINARY REPORT
CC ; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Trichloroethene	17		1	µg/L	SW8260B	06/11/2007 6:27 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 6:27 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Tetrachloroethene	11		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040 . FAX: (631) 420-8436 NYSDOH ID # 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : **0706501-004**

Sample Information...
Type : Trip Blank

Origin:

Client ID. : TB-1

Collected 6/4/07 8:30:00 AM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
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Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Trichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 7:01 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM

Qualifiers:	E - Value above quantitation range
	D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040. FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : 0706501-001

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-7

Collected 6/4/07 11:20:00 AM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
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Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Trichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 5:18 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:18 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.
575 Broad Hollow Road, Melville NY 11747
(631) 694-3040. FAX: (631) 420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : 0706501-002

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-8

Collected 6/4/07 3:15:00 PM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
Copies To PRELIMINARY REPORT
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Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Trichloroethene	14		1	µg/L	SW8260B	06/11/2007 5:53 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 5:53 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 5:53 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

PRELIMINARY

D.F. = Dilution Factor

Date Reported :

H2M LABS, INC.

575 Broad Hollow Road, Melville NY 11747
(631)694-3040. FAX: (631)420-8436 NYSDOH ID# 10478

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : 0706501-003

Sample Information...
Type : Aqueous

Origin:

Client ID. : MW-9

Collected 6/4/07 4:10:00 PM
Received 6/4/07 5:05:00 PM
Collected By CLIENT
Copies To PRELIMINARY REPORT
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Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Trichloroethene	17		1	µg/L	SW8260B	06/11/2007 6:27 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 6:27 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Tetrachloroethene	11		1	µg/L	SW8260B	06/11/2007 6:27 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 6:27 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :

LABORATORY RESULTS

P.W. Grosser Consulting
630 Johnson Ave.-Ste.7
Bohemia, NY 11716
Attn To : Original

Lab No. : **0706501-004**

Sample Information...
Type : Trip Blank

Origin:

Client ID. : TB-1

Collected	6/4/07 8:30:00 AM
Received	6/4/07 5:05:00 PM
Collected By	CLIENT
Copies To	PRELIMINARY REPORT
CC	; Original

Parameter(s)	Results	Qualifier	D.F.	Units	Method Number	Analyzed
Chloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromomethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Vinyl chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Methylene chloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Acetone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1-Dichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Carbon disulfide	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloroethene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chloroform	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Freon-113	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
2-Butanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,1-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Carbon tetrachloride	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromodichloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,2-Dichloropropane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
cis-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Trichloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Dibromochloromethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,2-Trichloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Benzene	< 0.70		1	µg/L	SW8260B	06/11/2007 7:01 PM
trans-1,3-Dichloropropene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Bromoform	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
4-Methyl-2-pentanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
2-Hexanone	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Tetrachloroethene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
1,1,2,2-Tetrachloroethane	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Toluene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Chlorobenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Ethylbenzene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Styrene	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM
Xylene (total)	< 5.0		1	µg/L	SW8260B	06/11/2007 7:01 PM

Qualifiers: E - Value above quantitation range
D - Results for Dilution

D.F. = Dilution Factor

Date Reported :