REPORT

WL-12

REMEDIAL INVESTIGATION REPORT

WEST LOT SITE
NYSDEC SITE NO. 633036
UTICA, NEW YORK

Prepared For:
Martin Marietta Corporation

August 1995

SCAN

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Report

Remedial Investigation Report

West Lot Site
NYSDEC Site No. 633036
Utica, New York

Prepared For:
Martin Marietta Corporation

August 1995

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

6723 Towpath Road
Syracuse, New York 13214
(315) 446-9120

Table of Contents

4.0 - Risk Assessment

5.0 - Conclusions and Recommendations

6.0 - References

Figures

Tables

Appendices

Certification Statement

Certification Statement

I, Lowell W. McBurney, the Blasland, Bouck & Lee, Inc. Project Manager for the Remedial Investigation (RI) conducted at the West Lot Site (Site No. 633036), to the best of my knowledge, certify that the RI activities were performed in general conformance with the following New York State Department of Environmental Conservation- (NYSDEC-) approved documents for the site:

- Remedial Investigation/Feasibility Study Work Plan (March 1994, Revised May 1994);
- A January 17, 1995 letter to Mr. Darrell Sweredoski, P.E., of NYSDEC presenting the proposed, revised Scope of Work for the Phase II Ground-Water Studies;
- A January 25, 1995 letter to Mr. William Jesmore of NYSDEC regarding revisions to the Phase II Ground-Water Studies Scope of Work dated January 17, 1995;
- A January 26, 1995 letter to Mr. Brian Kent of Martin Marietta regarding NYSDEC's approval of the Phase II Ground-Water Studies Scope of Work;
- A May 23, 1995 letter to Mr. William Jesmore of NYSDEC presenting the results of the Phase II Ground-Water Studies and describing the use of a solute-transport model to identify the extent of the dissolved-phase plume of volatile organic compounds; and
- A July 6, 1995 letter to Mr. William Jesmore of NYSDEC confirming the use of a qualitative approach for purposes of the Human Health Risk Assessment.

Lowell W. McBurney, P.E.
Project Manager

Blasland, Bouck & Lee, Inc.
6723 Towpath Road, P.O. Box 66
Syracuse, NY 13214

RI Report Prepared By:
Lowell W. McBurney, P.E.
Patrick T. Farr, P.E.
Michael J. Gefell
Philip A. Zach
Michele A. Anatra-Cordone
Robert J. Fewster

Executive Summary

Martin Marietta Corporation (Martin Marietta) has completed a Remedial Investigation (RI) including a qualitative Human Health Risk Assessment (RA) and an Ecological RA [i.e., a Fish and Wildlife Impact Analysis (FWIA)] for the West Lot Site (the Site) located in Utica, New York. The Site is currently listed as a Class 2 site on the New York State Registry of Inactive Hazardous Waste Disposal Sites (Site No. 633036). The RI, FWIA and RA have been completed in accordance with a December 15, 1993 Order on Consent (Index No. A6-0311-93-11) between the New York State Department of Environmental Conservation (NYSDEC) and Martin Marietta, and the NYSDEC-approved Remedial Investigation/Feasibility Study Work Plan, West Lot Site (Work Plan), prepared by Blasland, Bouck & Lee, Inc. (BB&L), dated March 1994 and revised May 1994. The results of the RI, FWIA and RA are presented in the RI Report.

The overall objective of the RI is to provide data to assess the current Site conditions, determine potential risks associated with those Site conditions, provide data for preparation of a Feasibility Study (FS) and, if necessary, identify IRMs that may be implemented at the Site. Based on this overall RI objective, the following specific objectives have been established for the RI:

1. To determine the nature and extent of chemical constituents in environmental media (i.e., soils and ground water) at the Site;

2. To provide data for the completion of a baseline RA that will evaluate potential risks (if any) posed by chemical constituents identified at the Site;

3. To determine the need for IRMs to address existing conditions at the Site; and

4. To provide data for preparation of a FS to determine appropriate remedial actions for implementation at the Site.

To meet the RI objectives Martin Marietta completed soil and ground-water investigations at the Site and completed limited ground-water investigations on two adjacent properties known as the New York State Department of Transportation (NYSDOT) property and the 10-Acre Parcel. As detailed in the RI Report, the soil investigation was concluded as a single phase, while the ground-water investigation was designed and concluded in two separate, yet related, phases (known as Phase I and Phase II Ground-Water Studies). Related tasks performed in conjunction with the soil investigation and ground-water studies included field staking of soil sampling locations and evaluating existing monitoring wells. As part of the Phase II Ground-

Water Studies, Martin Marietta also performed solute-transport modeling of the Site ground water to estimate the potential extent of the plume of dissolved volatile organic compounds (VOCs).

Based on the findings of the RI, FWIA and the RA the following conclusions have been made regarding the Site soils and ground-water:

Soil

- VOCs have been identified in the unsaturated soils up to a total concentration of 0.163 ppm. None of the VOCs identified in the unsaturated soil samples exceeds NYSDEC Technical and Administrative Guidance Memorandum #4046 - Determination of Soil Cleanup Objectives and Cleanup Levels.

- The human health RA has concluded that there are no known exposures to the chemicals identified in the subsurface soils at the Site. The human health RA recognizes that workers involved in excavation of soils at the Site would potentially be exposed for a short duration to low levels of VOCs; however, risks associated with such exposures would be negligible.

- The FWIA has concluded that there are no apparent pathways of exposure to wildlife or resources from the chemicals identified in the subsurface soils at the Site.

Ground-Water

- VOCs have been identified in ground-water samples collected at the Site up to a total concentration of 83,600 ppb. The individual concentrations of vinyl chloride, 1,2-dichloroethene (1,2-DCE), 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, toluene, ethylbenzene and xylenes exceed NYS Ambient Water Quality Standards and Guidance Values for ground-water, at one or more of the sampled locations.

- Polychlorinated biphenyls (PCBs) have been identified in one ground-water sample collected from the alleged "burn pit" area of the Site. The identified concentration of PCBs (estimated concentration of 0.7 ppb) exceeds New York State Ambient Water Quality Standards and Guidance Values for ground water.

- Ground-water modeling conducted to predict the extent of the VOC-impacted ground-water (based on 1,2-DCE concentrations) has determined that the VOC plume sourced at the Site may extend onto the NYSDOT property to a location approximately 600 feet downgradient of the Site.

- One VOC (1,2-DCE) has been identified in a ground-water sample collected from the adjacent NYSDOT property at a concentration of 28 ppb. The presence of 1,2-DCE at MW-1 on the NYSDOT property may be due to the past usage as the Town of New Hartford Dump.

- A ground-water sample collected on the NYSDOT property adjacent to Sauquoit Creek (i.e., MW-7) did not contain VOCs, indicating that VOC impacted ground-water does not extend to or discharge at the creek.

- The RA concluded that there are presently no exposure pathways associated with the chemicals identified in the ground-water and, hence, no risks associated with the ground-water under current exposure scenarios. However, the RA recognizes that carcinogenic and non-carcinogenic risks to human health would be elevated in the unlikely event that someone were to drink shallow ground water with the chemicals and concentrations currently detected on-site.

The results of the RI, RA, and FWIA have provided sufficient data for preparation of a FS to determine appropriate remedial actions for implementation at the Site. Based on the conclusions of the RI, RA, and FWIA, it is recommended that remedial alternatives to address the impacts to on-site ground water be fully evaluated as part of the FS to identify a final remedy for the Site. At this time, the results of the RI, RA, and FWIA do not suggest that implementation of an IRM to address impacted media is necessary. Rather, a final remedy will be developed which will be consistent with the remedial action objectives (to be established as part of the FS) for the Site. The FS will be completed in accordance with the NYSDEC-approved RI/FS Work Plan and the Order on Consent for the Site.

Introduction

1.0 - Introduction

1.1 Preface

This Remedial Investigation (RI) Report presents the results of the RI, the Fish and Wildlife Impact Analysis (FWIA), and the Human Health Risk Assessment (RA) conducted for the West Lot Site (the Site) located in Utica, New York. The Site is currently listed as a Class 2 site on the New York State (NYS) Registry of Inactive Hazardous Waste Disposal Sites (Site No. 633036).

This report, which was prepared by Blasland, Bouck & Lee, Inc. (BB&L) at the request of Martin Marietta Corporation (Martin Marietta) and in accordance with a December 15, 1993 Order on Consent (Index No. A6-0311-93-11) between the New York State Department of Environmental Conservation (NYSDEC) and Martin Marietta, presents the following information:

- A detailed description of the RI activities that were implemented to assess the presence and extent of chemical constituents in soil and ground water at the Site;

- The results of the FWIA that was performed to evaluate potential fish and wildlife concerns associated with the Site; and

- The results of the Human Health RA that was performed to characterize potential risks to human health associated with exposure to identified chemical constituents at the Site.

The RI field investigation activities, the FWIA, the human health RA, and this report are consistent with the elements of an RI as set forth in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. 960 et seq.; the National Contingency Plan (NCP); and the United States Environmental Protection Agency (USEPA) guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," dated October 1988.

The RI activities, including the FWIA, were performed in accordance with the Remedial Investigation/Feasibility Study Work Plan, West Lot Site (Work Plan), prepared by BB&L, dated March 1994 and revised May 1994. The Work Plan was approved by the NYSDEC in a July 22, 1994 letter from NYSDEC to Martin Marietta.

Relevant background information, the project objectives and the report organization are presented below.

1.2 Background Information

This section presents a summary of the following information used to develop the strategy for the RI: a description of the location and physical setting of the Site; a summary of previous Site investigations; and a summary of Interim Remedial Measures (IRM) being conducted at the Site.

1.2.1 Location and Physical Setting

The location of the Site, its topographic and surface water features, and its geologic and hydrogeologic setting are discussed below.

1.2.1.1 Location

The Site is located near the western property boundary of Martin Marietta's French Road facility in the City of Utica, Oneida County, New York. The location of the Site is shown on Figure 1 and a Site plan is provided on Figure 2.

The Site measures approximately 2 acres and is bordered to the east and west by property owned by Martin Marietta, to the north by undeveloped land belonging to the Town of New Hartford and to the south by property operated by the New York State Department of Transportation (NYSDOT). The primary Site feature related to this RI is an alleged "burn pit", which was reportedly used for fire training purposes which included the burning of waste materials, including spent solvents. The burn pit is approximately 80 feet in diameter and contains fill material to an approximate depth of 12 feet. The fill material has been excavated as part of an IRM and is currently being treated by an ex-situ soil vapor extraction system.

The Site consists of vacant and undeveloped land that has not been used for French Road facility manufacturing operations. The physical features related to plant operations closest to the Site is an area where two aboveground fuel oil storage tanks were formerly located, and an inactive rail spur. Active and inactive railroad tracks remain on and near the Site (see Figure 2).

1.2.1.2 Topography and Drainage

The Site is located in the glaciated Mohawk section of the Appalachian Plateau Physiographic Province. United States Geological Survey (USGS) topographic mapping (the Utica West, 7.5 Minute Quadrangle) indicates that the Site is relatively flat and maintains an elevation of approximately 510 feet, with a gentle slope toward the south-southwest.

No active surface water features are present at the Site. The nearest surface water feature, Sauquoit Creek, is approximately ¼ mile west of the Site.

1.2.1.3 Geology and Hydrogeology

The Site is situated in the lowland section of the western Mohawk River Basin. The unconsolidated geologic materials in the region, in general, were deposited during a complex history of glaciation by four glacial ice lobes that advanced into the Mohawk River Basin from the west, northwest, northeast, and east during the most recent (Wisconsin) glaciation. The hydrogeologic units deposited by these glacial lobes include various types of till, kame, outwash, and glacio-lacustrine sediments (Reynolds, 1900).

A review of the available hydrogeologic literature for the Utica area suggests that the Site is underlain primarily by glacial kame sediments, which are heterogeneous, ice-contact deposits consisting predominantly of sand and gravel with a minor component of silt and clay. Geologic data from soil borings completed during previous field investigations support this inference. The saturated soils at the Site have generally been described as sand or sand and gravel, with little to some silt, trace clay, and localized lenses of silt and/or clay. The potential yield of wells installed in the kame deposits in the Utica area has been estimated to be 10 to 100 gallons per minute (gpm) (Reynolds, 1900). A calculated slug-test hydraulic conductivity of approximately 2×10^{-2} centimeters/second (cm/sec) for the saturated sand and gravel (ERM-Northeast, 1992), supports the inference that the Site is underlain by moderate-to high permeability materials such as kame deposits.

A geologic contact separating the moderate-to high permeability sand and gravel kame deposits to the north from moderately permeable glacio-lacustrine sand deposits to the south has been mapped in the immediate vicinity of the Site (Reynolds, 1900). Geologic data from soil borings completed at the Site suggest that the margin of the lacustrine deposits may lap onto the Site, as the unsaturated materials within 4 to 6 feet of ground surface have been described as finer grained, including sand or silty sand during previous Site investigations. Grain-size data obtained during the RI indicate that the upper few feet of the subsurface include primarily silt or sandy silt, compatible with a glaciolacustrine origin.

The unconsolidated, kame aquifers in the vicinity of the Site have been reported as generally 10 to 60 feet thick. Geologic data obtained from deep soil borings performed at the Site during the RI indicated that a layer of till was encountered beneath the kame, approximately 30 and 36 feet below ground surface. The top of bedrock, consisting of Ordovician shale and sandstone of the

Utica Formation (Van Diver, 1985) was encountered beneath the till at depths ranging from 41 to 46 feet below ground surface.

1.2.2 Site History

In the early 1950's, General Electric Company (GE) constructed a 500,000-square-foot manufacturing facility on approximately 55 acres of property on French Road in Utica, New York. Production operations conducted by GE at this plant included the manufacture, assembly, and testing of electrical components for the defense and aerospace industries (e.g., radar, aircraft guidance systems). GE maintained these production operations until early 1993, when Martin Marietta acquired the French Road facility. Production operations similar to those conducted by GE continue at this plant under Martin Marietta's ownership. The Site has never been used as part of the facility production operations.

Based on discussions with facility employees, the Site was used by the facility's fire brigade for firefighting training exercises through the early 1970's. Waste materials, consisting primarily of wooden pallets and construction debris, were reportedly brought to the Site and ignited. The materials were allowed to burn under controlled conditions and subsequently were extinguished by the fire brigade.

During interviews with four former GE employees conducted by Martin Marietta personnel, it was reported that solvents and magnesium were burned behind the French Road plant. One of the former GE employees indicated that this activity occurred in the 1950's and early 1960's, and that waste oils were also burned. The burn pit was identified as an area approximately 20 feet in diameter located northwest of the west parking lot. Other than the information provided in these interviews, internal inquiries and review of file documents have revealed no other information or data regarding the types, quantities, physical state, location, and dates of disposal of hazardous waste at the West Lot.

In 1990, GE initiated an investigation at the Site, which evaluated potential impacts to Site soils and ground water due to the presence of volatile organic compounds (VOCs). Due to the presence of the VOCs identified during these initial investigations, the Site is currently listed as a Class 2 site on the NYS Registry of Inactive Hazardous Waste Disposal Sites (Site No. 633036).

In 1993, Martin Marietta and NYSDEC entered into an Order on Consent for the Site which requires the development and execution of a RI/FS. Also in 1993, Martin Marietta developed and initiated an IRM for the Site that included excavation of soils containing VOCs from within the suspected burn pit area, to be followed by ex-situ treatment using a soil venting system within a lined treatment cell.

1.2.3 Summary of Previous Site Investigations

A series of previous investigations have been conducted at the Site, these investigations are documented in the following reports and summarized below:

- Dunn Geoscience Corporation, Soil Gas Investigation, General Electric Company, French Road Site, City of Utica Area (Albany, New York: April 12, 1990).

- O'Brien & Gere Engineers, Inc., Site Assessment, General Electric Aerospace, West Lot, French Road Facility, Utica, New York (Syracuse, New York: May 1991).

- O'Brien & Gere Engineers, Inc., Focused Remedial Investigation, General Electric Aerospace, West Lot Site, General Electric Company, Utica, New York (Syracuse, New York: July 1992).

- ERM-Northeast, French Road Facility, Hydrogeological Investigation (Syracuse, New York: October 23, 1992).

- O'Brien & Gere Engineers, Inc., West Lot Site, Additional Investigations (Syracuse, New York: April 16, 1993).

- O'Brien & Gere Engineers, Inc., Work Plan - Interim Remedial Measure, West Lot Site, Martin Marietta Corporation, Utica, New York (Syracuse, New York: September 1993).

GE retained Dunn Geoscience, Inc. (Dunn) in early 1990 to perform a soil gas survey at the Site. The soil gas survey was centered in the area of the Site containing fill material and suspected as being formerly used as a burn pit. The survey identified an area of approximately 150 square feet that contained concentrations of VOCs within the soil gas at concentrations up to 250 parts per million (ppm). Based on the survey results, Dunn created a VOC iso-concentration contour map, which identified a potential source area based on the VOC concentrations measured. The iso-concentration map was included in the Soil Gas Investigation Report prepared by Dunn, dated April 12, 1990.

In March 1990, O'Brien & Gere Engineers, Inc. (O'Brien & Gere) was retained to perform a Site assessment of the West Lot. Initially, this assessment included the installation and sampling of one ground-water monitoring well (MW-A) and one soil boring within the potential source area identified by Dunn. Soil and ground-water samples were submitted for laboratory analysis of VOCs. The results of these analyses confirmed the presence of various VOCs in the soil and ground water.

As a result of these findings, the Site assessment conducted by O'Brien & Gere was expanded to include:

- the installation of six shallow ground-water monitoring wells (MW-A, MW-B, MW-C, MW-D, MW-E and MW-F) and one deep ground-water monitoring well (MW-AD);

- the installation of nine shallow soil borings (SB-1, SB-2, SB-3, SB-4, SB-5, SB-6, SB-7, SB-8, and SB-9); and

- the collection and analysis of ground-water and soil samples.

Two ground-water monitoring wells (MW-1 and MW-5) located on GE property adjacent to the West Lot property boundary were also utilized as part of the Site assessment. The monitoring wells and the borings were installed at locations surrounding the potential source area to allow for: 1) a preliminary delineation of the horizontal and vertical extent of the soil and ground-water contamination; and 2) an evaluation of the source and nature of the VOCs. The locations of the monitoring wells and borings are shown on Figure 2.

Observations made by O'Brien & Gere during the installation of the borings and monitoring wells indicated that the overburden materials outside of the burn pit area consist primarily of fine- to coarse-grained sands with varying amounts of pebbles and silt, and traces of clay. The fill material identified in the burn pit was found to be comprised of brown, black, and gray sand and silt with varying amounts of silt, clay, and fine pebbles. The fill material was also noted to contain cloth, plastic, glass, metal, wire, wood, and brick with some oil-like staining and residues.

None of the borings or monitoring wells were completed to till or bedrock. Ground-water measurements obtained at the monitoring wells by O'Brien & Gere in July 1990, August 1990 and April 1991 indicated the depth to ground water was approximately 10 feet, and the horizontal hydraulic gradient was towards the south and southwest. In addition, temporary ground-water mounding was identified near the burn pit area during spring time conditions (April 1991).

The initial Site assessment conducted by O'Brien & Gere included the collection of ten subsurface soil samples from the area noted to contain detectable concentrations of VOCs during the soil gas survey. Soil samples were obtained from various depths within the overburden, based on the location of the highest photoionization detector (PID) readings observed during sample collection. In addition, one soil sample was obtained from the native material located immediately below the fill material (i.e., at 13 feet below grade) within the suspected source area. Nine of the soil samples were submitted for analysis for VOCs, and one soil sample (collected from within the suspected source area) was submitted for full New York State Target Compound List (TCL) analysis, and analysis for metals and cyanide.

Twenty eight ground-water samples, collected by O'Brien & Gere between March 1990 and April 1991 from various Site monitoring wells, were submitted for laboratory analysis of VOCs. In addition, the ground-water samples collected from monitoring wells MW-A, MW-1, and MW-5 were filtered and analyzed for nickel, chromium, lead, and cyanide. Also, unfiltered samples collected from monitoring wells MW-A, MW-AD, MW-B, and MW-D were analyzed for PCBs. Based on a review of the PCB analytical data obtained from this sampling event (discussed below), an additional filtered sample from MW-A was submitted for analysis of PCBs.

An additional ground-water investigation was conducted by O'Brien & Gere at the Site in February 1993. This investigation included resampling two existing monitoring wells (MW-1 and MW-5) located on the adjacent 10-acre parcel (also owned by Martin Marietta) and installing and obtaining ground-water samples from four shallow (8 to 10 feet deep) temporary well points (WP1, WP-2, WP-3, and WP-4). One ground-water sample was obtained from each sample location (six samples total) and analyzed for VOCs. The well points were removed following the sampling activities. The location of the well points is shown on Figure 2.

A summary of the analytical results of the previous investigations is presented below.

1.2.3.1 Soil Sampling

Analytical results indicate that VOC concentrations ranged from non-detectable to 940 ppm in the subsurface soils. The highest concentrations of VOCs were detected within and near the source area identified by Dunn (i.e., the burn pit). The VOC concentrations were noted to decrease with depth and were delineated horizontally. The VOCs detected in the soils included: 1,2 dichloroethene (0.14 ppm to 140 ppm); tetrachloroethane (49 ppm); trichloroethene (0.21 ppm to 900 ppm); ethylbenzene (0.31 ppm to 77 ppm); toluene (0.24 ppm to 940 ppm); and xylenes (1.1 ppm to 370 ppm).

No semi-volatile compounds, pesticides, or cyanide were identified in the soil sample from the boring advanced for the installation of MW-AD. With the exception of magnesium, concentrations of metals detected were within the normal concentrations for the region. PCB Aroclor 1254 was detected in a soil sample from the MW-AD boring at a concentration of 3.1 ppm.

1.2.3.2 Ground-Water Sampling

The analytical results indicate detectable concentrations of VOCs in all of the West Lot monitoring wells, with the exception of MW-1 and MW-5, which are located on the adjacent 10-acre parcel. The concentrations of VOCs ranged from non-detectable to 86,000 parts per billion (ppb). The highest concentration of VOCs was identified within and downgradient (south, southwest) of the burn pit. VOCs were identified in both the shallow and deep monitoring wells (the deepest well, MW-AD, was completed at 29 feet), with concentrations typically decreasing vertically.

The following VOCs were identified in the ground water: 1,1-dichloroethane (5 ppb to 7 ppb); 1,1-dichloroethene (1 ppb); 1,2-dichloroethene (7 ppb to 86,000 ppb); tetrachloroethane (2 ppb to 5 ppb); 1,1,1-trichloroethane (3 ppb to 42 ppb); trichloroethene (4 ppb to 1,200 ppb); vinyl chloride (1 ppb to 3,400 ppb); toluene (4 ppb to 21,000 ppb); xylenes (8 ppb to 6,600 ppb); and benzene (13 ppb to 14 ppb). Additional shallow ground-water samples obtained from the temporary wellpoints indicated the presence of 1,2-dichloroethene and toluene at WP-4 at concentrations of 27 ppb and 1 ppb, respectively.

New York State ground-water standards and/or guidance values for the following VOCs have been equalled or exceeded during previous investigations at one or more of the on-site monitoring wells and wellpoints: 1,1-dichloroethene; 1,2-dichloroethene; ethylbenzene; tetrachloroethane; trichloroethene; vinyl chloride; toluene; xylenes; and benzene.

In addition to VOCs, PCBs were detected in the unfiltered ground-water samples collected at monitoring wells MW-A and MW-B at concentrations of 99 ppb and 0.24 ppb, respectively. A subsequent sample was collected from MW-A, filtered, and analyzed for PCBs. The filtered sample did not indicate the presence of detectable PCBs.

Hydraulic conductivity testing was conducted in September 1992 by ERM-Northeast, Inc. using existing Site monitoring wells. The hydraulic testing included slug tests at monitoring wells MW-A and MW-AD, and specific capacity tests at wells MW-B and MW-AD. The results of the testing indicated that the hydraulic conductivity of the fill area was approximately 4×10^{-3} cm/sec, while that of the underlying sand and gravel aquifer was approximately 2×10^{-2} cm/sec.

Based on the findings of the previous Site investigations, Martin Marietta proposed and is currently conducting an IRM to address the source area of VOCs identified within the soils at the Site. The proposed IRM is described in detail in the document entitled West Lot Site IRM Work Plan, prepared by O'Brien & Gere, dated September 1993. The on-going IRM is summarized below.

1.2.4 Summary of Interim Remedial Measure

Following approval of the IRM Work Plan (O'Brien & Gere Engineers, September 1993), Martin Marietta retained OBG Technical Services, Inc. (OBG Tech) to implement the selected IRM (described below) at the Site. The objective of the IRM was to address the source area as defined by previous investigations (i.e., the burn pit). To accomplish this objective, Martin Marietta proposed using ex-situ soil venting.

The IRM design prepared by O'Brien & Gere included the removal, stockpiling and treatment, through the use of vapor extraction, of contaminated soils from the burn pit area. Vapors removed from the contaminated soil are being managed as a separate waste stream.

On-site activities associated with the IRM were initiated by OBG Tech in December 1993. Start-up of the ex-situ vapor extraction system commenced in November 1994. In accordance with the IRM Work Plan, the ex-situ vapor extraction system will be operated until remedial objectives are obtained. At the end of the treatment period, the treated soils will be backfilled on Site.

1.3 Objectives of the Remedial Investigation

The overall objective of the RI is to provide data to assess the current Site conditions, determine potential risks associated with those Site conditions and, if necessary, identify additional IRMs that may be implemented at the Site. Based on this overall RI objective, the following specific objectives have been established for the RI:

1. To determine the nature and extent of chemical constituents in environmental media (i.e., soils and ground water) at the Site;

2. To provide data for the completion of a baseline RA that will evaluate potential risks (if any) posed by chemical constituents identified at the Site;

3. To determine the need for additional IRMs to address existing conditions at the Site; and

4. To provide data for preparation of a FS to determine appropriate remedial actions for implementation at the Site.

1.4 Report Organization

The RI Report is organized into the following sections:

Section	Purpose
Section 1.0 - Introduction	Provides Site background information and describes the objectives and scope of the RI.
Section 2.0 - Description of Remedial Investigation Field Activities	Provides a description of the field investigation activities performed during the RI.
Section 3.0 - Summary of Remedial Investigation Results	Provides a summary of analytical results for samples obtained during the field investigations.
Section 4.0 - Risk Assessment	Provides the results of the Human Health RA and the Fish and Wildlife Impact Analysis.
Section 5.0 - Conclusions and Recommendations	Summarizes the findings of the RI, RA, and FWIA and presents conclusions and recommendations regarding the Site's environmental condition.
Section 6.0 - References	Identifies referenced material used in the generation of the RI Report.

Description of Remedial Investigation Field Activities

2.1 General

This section presents a description of the field activities performed during the RI to generate the data needed to meet the objectives set forth in Section 1.3. These activities were conducted to determine the concentration of VOCs and other chemical constituents in the Site soil and ground water at a number of locations at and downgradient (with respect to ground-water flow direction) from the Site.

As stated above, the RI field activities consisted of soil and ground-water investigations. The soil investigation was concluded as a single phase, while the ground-water investigation was designed and concluded in two separate, yet related, phases (known as Phase I and Phase II Ground-Water Studies). Related tasks performed in conjunction with the soil investigation and ground-water studies included field staking of soil sampling locations and evaluating existing monitoring wells.

A description of each of these RI field activities is presented in this section. Field activities associated with the RI were performed in accordance with the following project documents prepared in March 1994 and revised in May 1994 by BB&L, unless otherwise noted:

- Analytical procedures followed for the samples collected as part of the RI are presented in the West Lot Site, Sampling and Analysis Plan, Volume 1: Quality Assurance Project Plan (QAPP). As detailed in the QAPP, samples collected for the RI were analyzed by Aquatec, Incorporated using NYSDEC ASP 1991 Analytical Services Protocol (ASP) Methods and United States Environmental Protection Agency SW-846 Methods, as specified in the RI/FS Work Plan.

- Field protocols followed during the investigations are detailed in the West Lot Site, Sampling And Analysis Plan, Volume 2: Field Sampling Plan (FSP);

- Health and safety protocols followed by field sampling personnel during implementation of the RI work tasks are presented in the West Lot Site, Sampling and Analysis Plan, Volume 3: Health and Safety Plan; and

- Public participation activities conducted are presented in the West Lot Site, Citizen Participation Plan (CPP).

2.2 Soil and Ground-Water Investigations

The soil and ground-water investigations were conducted to determine the nature and extent of VOCs in Site soils and ground water. Soil activities were concluded as a single phase, while the ground-water investigation activities were concluded in two separate phases (i.e., Phase I and Phase II). The soil investigation and the Phase I Ground-Water Studies were completed concurrently during August and September 1994; the Phase II Ground-Water Studies were completed during February and March 1995.

The soil investigation activities included the installation of shallow soil borings (within the unsaturated zone), field screening of soils with a photoionization detector (PID) and laboratory analysis of selected soil samples. The Phase I Ground-Water Studies included the installation of deep soil borings (within the saturated zone), field screening of saturated soils by use of a PID and collection and analysis of ground-water samples from select boring locations. In addition, a new monitoring well was installed to serve as a replacement monitoring well at location MW-A. The Phase II Ground-Water Studies included the sampling and analysis of ground-water from existing on-site monitoring wells and monitoring wells from the adjoining properties, the measurement of ground-water elevations from the on-site and adjoining properties monitoring wells, the installation of a new piezometer and the installation and sampling of a second replacement monitoring well. A detailed description of the RI field activities is presented below.

2.2.1 Field Staking of Soil Sampling Locations

The initial field task of the RI consisted of field staking the locations of the 19 proposed soil borings. The sample locations were based on a 100-foot by 100-foot sampling grid focused on the area of known ground-water impacts (i.e., downgradient of the former burn pit). Each sampling location was measured and located by use of a tape measure and physically located by use of a alphanumerically designated (e.g., boring location B-5) wooden stake which identified each sampling location. As described in the RI/FS Work Plan several of the proposed sampling locations were adjusted in the field based on the presence of potential soil impacts (e.g., soil staining, stressed vegetation, etc.) at the ground surface, or field conditions at the time of sampling (e.g., overhead or surface obstructions). The soil sampling locations, as surveyed following installation, are shown on Figure 2.

2.2.2 Collection of Subsurface Soil Samples

Soil borings were installed by Parratt-Wolff, Inc. of East Syracuse, New York, at the 19 boring locations shown on Figure 2, between August 29 and September 13, 1994. Soil borings were advanced using a rotary rig equipped with hollow-stem augers. Soil samples were obtained using a split-spoon sampler, from the ground surface to the water table. Soil samples were collected at two-foot sampling intervals, field screened with a PID and visually characterized for color, grain size, moisture content, and odor, if any, by the on-site BB&L geologist.

One soil sample was selected from each boring for laboratory analysis of VOCs by ASP Method 91-1. In accordance with the RI/FS Work Plan, samples submitted for laboratory analysis were selected based on the presence of staining, odors or elevated PID measurements. If no staining, odors or elevated PID levels were observed in the unsaturated or the saturated zone, the deepest unsaturated soil sample collected immediately above the water table was submitted for laboratory analysis (with the exception of locations B-3, B-6, and C-5, as discussed below).

At borings B-3, B-6, and C-5, no staining or odors were observed within the unsaturated zone, and PID readings were found to be higher within the saturated zone. Based on a telephone discussion with Mr. William Jesmore of the NYSDEC on August 31, 1994, it was decided that the analysis of saturated soil which exhibited elevated PID readings (which may indicate VOC impacts) would provide more relevant Site data than analysis of the unsaturated soil (which exhibited little or no impacts based on field screening). Therefore, at location B-3, B-6, and C-5, no unsaturated soil sample was submitted for laboratory analysis. Instead, saturated soil samples collected at the 15-17 foot sample interval at each location were submitted for laboratory analysis using ASP Method 91-1.

The initial soil and ground-water samples collected at boring locations A-2, A-3, A-6, B-4, B-6, C-5 and D-1 were not analyzed due to an error in shipment that resulted in elevated sample temperatures upon receipt by the laboratory. This information was detailed in a September 6, 1994 letter to the NYSDEC (see Appendix A). In that letter, BB&L proposed to collect and analyze replacement samples at the identical depths of the initial samples within three feet of the above-referenced boring locations. The NYSDEC concurred with the proposal to collect and analyze replacement samples. The replacement samples were collected and analyzed for the suite of parameters proposed for the initial samples. Soil boring data are detailed on the subsurface boring logs presented in Appendix B.

2.2.3 Evaluation of Existing Monitoring Wells

BB&L evaluated the eight existing ground-water monitoring wells (MW-1, MW-2, MW-AD, MW-B, MW-C, MW-D, MW-E and MW-F) to determine their physical condition prior to using those wells as ground-water sampling locations. The evaluation consisted of reviewing the construction details and determining if representative ground-water samples could be collected from the existing wells. In addition, a field inspection of the existing wells was also performed on August 23, 1994, to evaluate the following:

- Condition of the protective casing, cap and lock;
- Condition of the surface seal surrounding the protective casing;
- Presence of depressions or standing water around the casing;
- Presence of grout between the riser and outer protective casing, and presence of a drain hole in the protective casing;
- Turbidity measurement of ground water from each monitoring well; and
- Presence of siltation based on well depth measurement.

A summary of the results of the well inspection is presented on Table 2-1. Although the monitoring wells (with the exception of MW-Ad) were determined to be in suitable condition for continued use, several minor corrective actions were recommended for each of the wells (see Table 2-1). The corrective actions recommended and subsequently implemented included redevelopment of each of the existing ground-water monitoring wells to remove accumulated fine grain materials and to improve the hydraulic connection between the monitoring well and the surrounding formation. Other corrective actions included replacing caps and locks, repairing surface seals and installing grout between the riser and protective casing.

The inspection of monitoring well MW-Ad determined that the protective casing and the riser section of the monitoring well was damaged (i.e., bent). An attempt to bail the well for turbidity measurement was hindered due to the condition of the well. Since well MW-Ad is within the former burn pit area which has been excavated to approximately 12-feet during the soil IRM, it was inferred that the well was compromised during the excavation activities. Based on discussions with NYSDEC, a replacement well (MW-Adr) was installed during the Phase I Ground-Water Studies (discussed below).

2.2.4 Phase I Ground-Water Studies

Saturated Soil Sampling

During the Phase I Ground-Water Studies, eight of the 19 soil borings performed as part of the unsaturated-zone soil investigation were advanced to the top of the glacial till layer (A-1, A-7, B-6, and D-4) or the top of bedrock (A-5, B-3, C-5, and D-2). The locations of the eight borings selected for use in the ground-water studies were selected to provide a representative cross section of the sand and gravel kame deposit at the Site (see Figure 5). Split-spoon soil samples were collected every five feet throughout the thickness of the sand and gravel, field screened and visually characterized by the on-site BB&L geologist. Field screening and visual characterization were performed to provide information to be used in evaluating the need for and location of possible future placement of ground-water monitoring locations. Soil boring data are documented on the subsurface boring logs presented in Appendix B.

At borings A-7, B-3, B-6, C-5 and D-4, a total of 14 saturated soil samples were obtained for laboratory analysis of total organic carbon (TOC) for use in soil-water patitioning calculations. These samples were obtained from the upper, middle and lower portions of the glacial kame deposit at depths of approximately 10, 20 and 30 feet, respectively.

At boring location B-3, seven soil samples were collected for grain size characterization of the following depth intervals within the unconfined aquifer: 4-6 feet; 10-12 feet; 15-17 feet; 20-22 feet; 25-27 feet; 32-34 feet; and 35-37 feet. The grain size (sieve) analyses were performed to establish a basis for designing monitoring well screen slot sizes and filter pack specifications for new ground-water monitoring wells which were installed during the Phase I and Phase II Ground-Water Studies (described below), and to provide additional geologic characterization.

Ground-Water Sampling

During the Phase I Ground-Water Studies, a total of 14 ground-water samples were obtained from the saturated overburden at deep soil borings A-7, B-3, B-6, C-5 and D-4 using a Hydropunch sampling device in accordance with the RI/FS Work Plan. The ground-water samples were obtained from the upper, middle and lower portions of the formation at depths of approximately 10, 20 and 30 feet, respectively. The Hydropunch ground-water samples were submitted for laboratory analysis of VOCs by USEPA Methods 601/602.

At deep boring C-5, a saturated soil sample from the 33-35 foot depth interval was submitted for laboratory analysis in lieu of a ground-water sample; this field modification to the RI/FS Work Plan was completed because attempts to obtain a Hydropunch sample from the lower portion of the formation at C-5 did not yield a ground-water sample for analysis. The results of the Phase I Ground-Water Studies are presented in Section 3.

Ground-Water Monitoring Well Installation

In accordance with the RI/FS Work Plan and discussions with NYSDEC, a new ground-water monitoring well, designated MW-Ar, was installed at boring location B-2. Monitoring well MW-Ar was installed as a replacement for the former monitoring well MW-A, which was removed during the implementation of the soil IRM. Based on a telephone discussion with Mr. William Jesmore of NYSDEC on September 7, 1994, well MW-Ar was installed with the screen at a depth of 13 to

18 feet, immediately beneath the 12 foot thick zone that was excavated during the soil IRM. The grain size data obtained at the 15-17 foot depth interval at soil boring B-3 were used to select the 0.010-inch slot well screen and Morie No. 0 sand pack for well MW-Ar, in accordance with monitoring well design procedures described by Nielson (1991). MW-Ar was developed following installation. The location of MW-Ar is shown on Figure 2 and its construction is detailed in the subsurface boring logs presented in Appendix B.

As discussed above, since the integrity of existing monitoring well MW-Ad was apparently compromised during implementation of the soil IRM, monitoring well MW-Ad was removed and the borehole was backfilled with bentonite. A new monitoring well, MW-Adr, was installed as a replacement for abandoned well MW-Ad. Based on discussions with NYSDEC, well MW-Adr was installed with the screen at a depth of 19 to 29 feet, the same interval as screened by the former MW-Adr. The grain size data obtained at the 25-27 foot depth interval at soil boring B-3 were used to select the 0.006-inch slot well screen and Morie No. 00 sand pack for well MW-Adr, in accordance with monitoring well design procedures described by Nielson (1991). MW-Adr was developed following installation. The location of MW-Adr is shown on Figure 2 and its construction is detailed in the subsurface logs presented in Appendix B.

Monitoring Well Development

Upon completion of the monitoring wells, each well was developed by surging and bailing or pumping to remove fine-grained sediment and enhance the hydraulic connection between the well and the surrounding formation. Field measurements were taken following each subsequent surging and purging event, as described in the FSP. In accordance with the FSP, well development continued until purged water turbidity was reduced to 50 nephelometric turbidity units (NTUs) or, if 50 NTUs could not be reached, development was continued until three consecutive measurements of Ph, conductivity and temperature were consistent within 10 percent.

2.2.5 Phase II Ground-Water Studies

As specified in the RI/FS Work Plan, the scope of the Phase II Ground-Water Studies would be defined, in part, based on the results of the completed Phase I Ground-Water Studies. Based on review of the Phase I ground-water data it was proposed that the Phase II Studies proceed as defined in the RI/FS Work Plan which included the following sample collection and analysis schedule:

PROPOSED SAMPLE ANALYSIS*			
Monitoring Well Identification	**VOCs (ASP 91-1)**	**SVOCs (ASP 91-2)****	**PCBs (ASP 91-3)*****
MW-Ar	X	X	X
MW-Ad	X	X	X
MW-B	X	X	
MW-C	X		
MW-D	X	X	
MW-E	X		
MW-F	X		
MW-1	X		
MW-5	X		

* Summary table does not include additional samples which may be collected as a result of the Phase I Ground-Water Studies.
** Base and neutral extractables only.
*** PCBs only.

Based on the NYSDEC's review of the proposed scope of the Phase II Studies, the NYSDEC indicated concerns, in a November 15, 1994 letter to Martin Marietta, that the proposed sampling schedule did not appear adequate to define the extent the VOC-impacted ground water identified in the Phase I data. Through a series of follow-up meetings and correspondence, NYSDEC and Martin Marietta agreed that the Phase II Ground-Water Studies would be expanded, beyond the scope presented in the RI/FS Work Plan, to evaluate the extent of the ground-water plume. This evaluation included investigating the hydrogeologic relationship between the Site, the adjacent NYSDOT property, and the 10-Acre Parcel located west of the Site (see Figure 2).

As part of the Phase II investigations, Martin Marietta obtained and reviewed the West Lot Site RI Phase I ground-water analytical results and the Preliminary Site Assessment (PSA) Report for the former New Hartford Town Dump, which includes the NYSDOT property. The Phase I ground-water quality data (discussed in Section 3) indicate a zone of VOCs in the ground water extending from the former source area on the West Lot Site to the downgradient (southwest) property line abutting the NYSDOT property. In addition, some chemical constituents previously identified in ground-water samples collected from the NYSDOT property (during the PSA) are common to those identified at the West Lot Site. In light of this data review and in agreement with the NYSDEC, Martin Marietta determined that sampling of existing ground-water monitoring wells on the NYSDOT property may be appropriate to determine the extent of the Site plume boundaries.

To evaluate the hydrogeologic relationship between the Site and the adjacent properties, survey control was established for the existing monitoring wells at the Site, the NYSDOT property and the 10-Acre Parcel. Ground-water elevation data from the three Sites would provide a comprehensive evaluation of the ground-water flow direction.

In addition to evaluating the relationship between the Site and the adjacent properties, the NYSDEC requested that Martin Marietta provide additional ground-water elevation and sampling points at the Site near the former burn pit. To fulfill the NYSDEC's requests, Martin Marietta proposed the following Phase II Scope of Work which was subsequently accepted by the NYSDEC and executed by BB&L:

- Install and develop one piezometer (PZ-A) upgradient of the former burn pit to confirm ground-water hydraulics in that area.

- Install one new monitoring well (MW-G) in the former burn pit at the approximate location where PCBs were identified during the IRM program to provide additional ground-water quality data near the former burn pit (see Figure 9 for the locations of PZ-A and MW-G).

- Conduct a survey of the Site, the NYSDOT property (eastern portion) and the 10-acre parcel to generate a comprehensive site map of the overall area. The survey ties the existing ground-water monitoring wells at the three sites and piezometer PZ-A into a common horizontal and vertical datum.

- Obtain ground-water elevations from the following locations:

  <u>West Lot Site</u>

  MW-Adr, MW-Ar, MW-B, MW-C, MW-D, MW-E, MW-F, MW-G, PZ-A

  <u>NYSDOT Property</u>

  MW-1, MW-2, MW-3, MW-7

10-Acre Parcel

MW-1, MW-2, MW-3, MW-4, MW-5

The ground-water elevation data were intended to generate a regional ground-water elevation referenced to the common Site datum established by the Site survey described above.

- Obtain ground-water samples from the following locations:

West Lot Site

MW-Adr, MW-Ar, MW-B, MW-C, MW-D, MW-E, MW-F, MW-G

NYSDOT Property

MW-1, MW-7

10-Acre Parcel

MW-1, MW-5

Samples from all the above-listed monitoring wells were analyzed for VOCs using ASP Method 91-1. Ground-water samples from monitoring wells MW-Adr, MW-B and MW-D were also analyzed for SVOCs using ASP Method 91-2. Ground-water samples from monitoring wells MW-Ar, MW-Adr and MW-G were analyzed for PCBs using ASP Method 91-3.

Ground-Water Elevation Monitoring

Ground-water elevation measurements were obtained on March 13, 1995 at 17 monitoring wells located on the Site, the NYSDOT property and the 10-acre parcel. The measured elevations at each of the wells were later referenced to a common datum established during the Site survey (described below). The ground-water elevation data measured on March 13, 1995, are summarized in Table 3-10 and depicted as contours on Figure 3.

Ground-Water Sampling

Pursuant to the Phase II Scope of Work, 12 overburden ground-water monitoring wells were sampled. Prior to sampling, each monitoring well was purged of three well volumes using a low flow pump. The purged water from the wells located on the NYSDOT property (i.e., MW-1 and MW-7) was containerized for temporary storage prior to off-site disposal. The purged water from the remaining wells was discharged to the ground adjacent to the purged well in accordance with the RI/FS Work Plan.

Following well purging, a dedicated disposable bailer was used to collect the required ground-water samples at each monitoring well. The ground water was poured directly from the bailer into the appropriate sample container (provided by the laboratory). The samples were labelled and containerized for shipment in accordance with the FSP. After the appropriate sample containers were filled, an additional volume of ground water was removed, inspected for physical appearance and measured for pH, temperature, dissolved oxygen and conductivity.

All samples collected for laboratory analysis were shipped, via overnight courier, to Aquatec Laboratories. All of the ground-water samples from each monitoring well were analyzed for VOCs using ASP Method 91-1; ground-water samples from monitoring wells MW-Adr, MW-B and MW-D were analyzed for SVOCs using ASP Method 91-2; and ground-water samples from monitoring wells MW-Adr, MW-Ar and MW-G were analyzed for PCBs using ASP Method 91-3. A summary of the analysis performed on each of the collected samples is presented in Table 2-2.

Site Survey

BB&L conducted a survey of the Site, the NYSDOT property (eastern portion) and the 10-acre parcel in March 1995. As described above, the survey tied in existing structures (e.g., buildings, railroad beds, etc.) on each of the properties as well as the ground-water monitoring well locations and elevations. The surveyed locations of Site features and adjacent properties are shown on Figure 2. A summary of the surveyed monitoring well elevation data is presented in Table 3-10.

2.2.6 Solute Transport Modeling

The Phase II ground-water analytical data were presented to the NYSDEC in a May 23, 1995 letter from Martin Marietta. As discussed in that letter, and described in detail below, the Phase II results confirmed that the hydraulic gradient and, by inference, ground-water flow is toward the southwest at the Site and adjacent properties. These data confirmed the previously interpreted flow relationship between ground-water at the Site and the downgradient NYSDOT property. The ground-water sampling and analysis confirmed previous findings at the Site and the NYSDOT property, which indicate VOC impacts to ground water.

As part of the May 23, 1995 letter, Martin Marietta proposed to develop a solute-transport model to estimate the potential extent of the plume of dissolved VOCs. The proposed model solves for two-dimensional solute transport based on advection, dispersion, sorption-based retardation and first-order decay, while assuming a constant concentration source and the available hydrogeologic database for the Site and the downgradient NYSDOT property. The results of the solute-transport model are discussed in Section 3.

2.3 Risk Assessment

BB&L performed a baseline RA, including a Human Health RA and a FWIA, to characterize potential risks to human health and the environment associated with the compounds identified at the Site.

The results of the RI (discussed below) indicate exceedances of the NYS Ground-Water Quality Standards and Guidance Values for some of the chemicals detected in the ground water at the Site. Since ground-water quality exceedances have been identified at the Site, Martin Marietta proposed (see July 6, 1995 letter from Mr. Patrick Salvador of Martin Marietta to Mr. William Jesmore of NYSDEC) to complete the Human Health RA on a qualitative basis, in lieu of a quantitative RA, in recognition of potential human risks associated with VOC impacts to ground-water if human exposure occurs. NYSDEC concurred that completing the Human Health RA in a qualitative manner would accurately define potential risks to human health.

The FWIA was completed in accordance with Steps I through IIA of the NYSDEC 1992 Fish and Wildlife Impact Analysis guidance. The FWIA involved a Site visit by a qualified biologist to evaluate the general ecology of the Site. A full description of the Human Health RA and the FWIA is presented in Section 4.

Summary of Remedial Investigation Results

3.1 General

This section presents the ground-water usage information, analytical sample data and hydrogeologic and geologic characterization data obtained from the RI field activities. Laboratory analyses were performed by Aquatec Laboratories in accordance with NYSDEC 1991 ASP methods and USEPA SW-846 methods, as specified in the RI/FS Work Plan. Analytical results were independently validated by Roy F. Weston, Inc.; validation reports are presented in Appendix C.

The following notes pertain to the presentation of the analytical data in this section:

- Soil data are presented in parts per million (ppm); aqueous data are presented in parts per billion (ppb), unless otherwise noted;

- For ease of discussion, the samples are referenced herein by sample location (e.g., A-7, B-3, MW-A, etc.), type (i.e., ground-water or soil) and interval (where appropriate).

- The following sample prefixes are used in each sample number presented on the summary data tables:

  GW - indicates a Hydropunch ground-water sample;

  SS - indicates a soil sample; and

  MW - indicates a monitoring well ground-water sample.

The data summary tables also present sample location (e.g., A7, B3, MW-Ar, etc.) and sample depth or interval (e.g., S20, 10-12, etc);

- In the tables presenting VOC data results, only the detected compounds and their respective concentrations are reported. The full list of compounds analyzed is included in the data validation reports in Appendix C.

3.3.2 Field Screening Results

PID field screening measurements were taken from the headspace of the unsaturated soil samples. As presented in Table 3-1, PID measurements ranged from 0 to 170 ppm. The highest PID reading detected during the soil investigation/Phase I studies was detected at boring location A-5 at the 0- to 2- foot sampling interval. Similar PID readings (in excess of 100 ppm) where also identified at boring locations A-2 and B-2. The PID readings at locations A-5, B-2 and C-5 are consistently higher, in comparison to the remaining boring locations, throughout the sampled soil column (both saturated and unsaturated soils).

3.3.3 VOC Analytical Results

Unsaturated soil samples were collected from 13 soil boring locations. One soil sample was selected from each location for analysis of VOCs; the basis of the soil sample selection is summarized on Table 3-1.

Twelve VOCs were detected in the unsaturated soil samples including: vinyl chloride (VC); methylene chloride; acetone; carbon disulfide; 1,2-dichloroethene (1,2-DCE); 2-butanone; 1,1,1-trichloroethane (1,1,1-TCA); trichloroethene (TCE); benzene; tetrachloroethene (PCE); toluene; ethylbenzene and xylenes. The distribution of total VOCs identified in the soils is presented on Figure 4.

Table 3-2 summarizes the unsaturated soil sample VOC analytical results. Also presented on Table 3-2, for comparison purposes, are the recommended soil cleanup objectives presented in the NYSDEC's Technical Administrative Guidance Memorandum (TAGM) #4046 - Determination of Soil Cleanup Objectives and Cleanup Levels. None of the identified VOC concentrations in the unsaturated soil samples exceed the published recommended soil cleanup objectives.

The highest frequency of detection of VOCs was at boring location A-4 which contained six of the 12 identified VOCs; the remaining boring locations typically contained one, two or three of the identified VOCs. The highest concentration of total VOCs identified in the unsaturated soil samples was 0.163 ppm at boring location C-1 which is located adjacent to the source area.

3.4 Phase I Ground-Water Studies Results

As part of the Phase I Ground-Water Studies, BB&L advanced eight borings to the top of the glacial till layer (A-1, A-7, B-6 and D-4) or the top of bedrock (A-5, B-3, C-5 and D-2). Saturated soil samples were collected at five foot intervals for visual characterization and field screening. The results of the visual characterization are detailed on the boring logs (see Appendix B); a summary of the PID results is presented on Table 3-1. Additional saturated soil and ground-water samples were collected for laboratory analysis of VOCs and/or TOC. Table 2-2 summarizes the laboratory analysis performed on the selected samples; the results of the laboratory analysis are discussed in Section 3.4.6.

The soil sample collection, characterization, screening and analysis has provided the following information concerning the Site geology and ground-water quality.

3.4.1 Physical Description

The physical description of the collected soil samples is detailed on the soil boring logs presented in Appendix B.

3.4.2 Field Screening

As discussed above, the PID readings at locations A-5, B-2 and C-5 are consistently higher, in comparison to the remaining boring locations, throughout the sampled soil column (both saturated and unsaturated soils). The measured PID readings are summarized on Table 3-1.

3.4.3 Overburden Geology

Nineteen soil borings, two replacement monitoring well installations, and two new well/piezometer installations were completed at the Site during the Phase I and Phase II Ground-Water Studies. The geologic data generated by these field activities reveal an overburden stratigraphy that is generally consistent with soil descriptions reported in the literature. The thickness of the overburden, however, was found to be somewhat less than previously reported.

Four main overburden units were observed during the subsurface investigations completed during the RI. These four units are shown pictorially on cross sections A-A' and B-B' (Figures 6 and 7, respectively), summarized on the subsurface logs included in Appendix B, and described below (in increasing order of depth encountered).

Fill

An approximately 0- to 10-foot thick layer of fill, consisting of loose, brown, fine sand with trace gravel, was encountered in the former burn pit area that was excavated and backfilled during the soil IRM activities. The thickest area of fill was encountered at boring B-2, which was installed near the center of the former excavation. The fill material was identified based on its relative homogeneity, lack of sub-horizontal soil fabric, and very low blow-counts per six-inch advance of the split-spoon soil sampler.

Glacio-Lacustrine Unit

An approximately 0- to 6-foot thick layer of light brown to brown silt and silty sand was encountered in the upper few feet of the subsurface or immediately beneath the fill material. Based on its thickness, grain-size distribution, and near-surface position, this unit is interpreted as the sandy/silty glacio-lacustrine layer that is described in the literature as lapping onto the Site from the south (Reynolds, 1990). As described in the field during this and previous investigations (O'Brien & Gere, July 1992), and confirmed by sieve analysis of the 4-6 foot sample interval from boring B-3 (see Appendix B), the glacio-lacustrine layer is relatively fine-grained, consisting of primarily silt (up to 80% fines in the sieve sample) and fine sand (the remainder of the sieve sample).

Glacial Kame

Beneath the glacio-lacustrine layer, each of the soil borings performed during the RI encountered an approximately 25- to 36-foot thick, stratified deposit consisting of brown to gray-brown sands and occasional gravelly or silty lenses. The middle of the approximately 30-foot thick kame deposit is generally coarsest, and consists of relatively "clean" fine to coarse sand and gravel with trace or no silt. The upper and lower portions of the kame deposit consist of primarily fine sand or silty sand. This crude coarsening and then fining with depth is shown schematically on the generalized geologic cross sections presented as Figures 6 and 7, and is supported by the results of sieve analyses from soil samples obtained between the depths of 10-12 feet through 25-27 feet at boring B-3 (see Appendix B). While the middle of the kame deposit is coarser grained and, by inference more permeable than the top or bottom portions of the unit, ground-water movement within the kame deposit is likely close to horizontal due to the sub-horizontal stratigraphy throughout the unit, as well as the presence of the underlying glacial till aquitard, which would limit downward ground-water movement within the kame deposit.

Glacial Till

Beneath the kame deposit, each of the eight deep borings encountered an approximately 10- to 12-foot thick unit consisting of relatively dense, gray-brown, sandy silt with a minor component of gray, shaley gravel. This unit is interpreted as till, which is described in the literature as comprising the primarily surface soil unit on Burrstone Hill, north of the Site (see Figure 1). As indicated by the results of sieve analyses for till samples from the depth intervals of 32-34 and 35-37 feet at boring B-3, the till consists of greater than 40% silt (and minor clay), approximately 40% sand, and the remainder gravel. The gravel component of the till is composed of fragments of shale, which were likely derived from the underlying shale bedrock.

3.4.4 Bedrock Geology

The top of bedrock at the Site was encountered approximately 43 to 47 feet below grade during the installation of deep soil borings during the Phase I Ground-Water Studies. Split-spoon samples obtained of the weathered top of bedrock surface indicate that the bedrock consists of gray shale. The bedrock in the area of the Site is described in the literature as the Ordovician Utica Formation, which is characterized by interbedded shales and sandstones (Van Diver, 1985).

3.4.5 Site Hydrogeology

Ground-water flow in porous media is predominantly controlled by the hydraulic conductivity of the saturated formation through which flow occurs. Ground-water flow at the Site is likely limited within the glacio-lacustrine unit, the till, and the shale bedrock. Based on ground-water elevations measured at shallow overburden monitoring wells, the glacio-lacustrine unit is mainly unsaturated, and the water table is typically within the underlying glacial kame deposit. The glacio-lacustrine unit, therefore, does not present a significant ground-water flow zone at the Site. Owing to the substantial fraction of silt, the relatively high density, and lack of observable stratification within the till unit, it likely behaves as a relatively low-permeability aquiclude, which does not transmit significant overburden ground water. Likewise, while the Paleozoic bedrock strata in the vicinity of Utica may be expected to exhibit some degree of fracturing, in terms of volumetric ground-water flux, the shale bedrock is likely constitutes a relatively insignificant ground-water flow zone at the Site.

This sandy, gravelly kame deposit encountered at the Site is described in the literature as highly-permeable, capable of supporting well yields of up to 100 gallons per minute (gpm). Owing to its relatively coarse grain-size composition and high permeability, the glacial kame deposit is the primary ground-water flow zone at the Site. Within the kame deposit, the direction of ground-water flow can be inferred based on measured hydraulic head data. Ground-water elevations were measured at shallow ground-water monitoring wells installed in the kame deposit at the Site and the neighboring NYSDOT property on March 13, 1995. These data are depicted as contours of equal potentiometric elevation on Figure 3. As shown by the pattern of the contours, the hydraulic gradient at the former burn pit area (centered about monitoring well MW-Ar) at the Site is approximately 0.003 feet per foot toward the south-southwest. Near the boundary with the site, the gradient changes to a southwest direction and steepens to approximately 0.02 feet per foot. This change in the hydraulic gradient and, by inference, ground-water flow direction is compatible with previous data measured at the West Lot Site (O'Brien & Gere, July 1992) and NYSDOT property (ABB and YEC, April 1994), and may indicate the hydraulic influence of Sauquoit Creek as a ground-water discharge point. The steepening of the gradient at the NYSDOT property likely reflects a slightly lower hydraulic conductivity at the NYSDOT property than at the Site, which is consistent with the qualitatively finer grained deposits described at the NYSDOT property (ABB and YEC, April 1994).

Based on the results of slug tests and specific capacity tests performed a the Site, the hydraulic conductivity of the kame deposit has been estimated as approximately 2×10^{-2} to 3×10^{-2} centimeters per second (cm/sec) (ERM-Northeast, October 1992), or 60 to 170 feet per day (ft/day). The ground-water flow velocity within the kame deposit at the Site can be estimated as:

$$v = K\,i / n_e,$$

where: v = ground-water flow velocity (ft/day);
K = hydraulic conductivity (60 to 170 feet per day);
i = hydraulic gradient (0.003 ft/ft); and
n_e = porosity (dimensionless).

Based on the average moisture content of 16% (weight fraction) reported by AquaTec Laboratories for the saturated overburden deposits, and an assumed density of approximately 2.65 g/cc for silicate minerals comprising the solid soil matrix, the soil porosity can be calculated as approximately 0.34, which is representative for sand and gravel. Based on the deduced porosity value of 0.34 and the parameters listed above, the ground-water flow velocity at the Site is estimated as approximately 0.5 to 1.5 feet per day.

3.4.6 Ground-Water Analytical Characterization

Saturated Soil

Three saturated soil samples, collected at boring locations B-3, B-6 and C-6 (in lieu of unsaturated soil samples) were analyzed for VOCs using ASP method 91-1. The following eight VOCs were identified in the saturated soil samples: VC; 1,2-DCE; 1,1,1-TCA; TCE; PCE; toluene; ethylbenzene, and xylenes. Each of the identified VOCs was also identified in the unsaturated soil samples, with the exception of ethylbenzene. The distribution of total VOCs identified in the soil samples is shown on Figure 4. The VOC results for the saturated soil samples are summarized on Table 3-3.

Saturated soil samples from boring locations A-7, B-3, B-6, C-5 and D-4 were analyzed for TOC for use in soil-water partitioning calculations. The TOC results are summarized on Table 3-4.

Ground-Water Samples

Phase I ground-water samples were collected from the upper, middle and lower portions (approximately 10-, 20- and 30-feet deep, respectively) of the unconsolidated aquifer at boring locations A-7, B-3, B-6, C-5 and D-4 (15 samples total) and analyzed for VOCs using USEPA method 601/602. Fourteen VOCs were detected in the ground-water samples, including: chloromethane; VC; bromomethane; trichlorofluoromethane; Freon-113; 1,1-DCE; cis-1,2-DCE; 1,1,1-TCA; 1,2-DCE; TCE; benzene, toluene; ethylbenzene; and xylenes.

VOCs were identified in each of the ground-water samples at concentrations of total VOCs ranging from 1.4 ppb (at location D-4) to 83,600 ppb (at location B-3). The VOC results for the Phase I ground-water samples are summarized on Table 3-5.

The horizontal and vertical distribution of total VOC concentrations, based on Phase I data, is shown on Figure 8.

3.5 Phase II Ground-Water Studies Results

As part of the Phase II Ground-Water Studies, BB&L installed one new/replacement monitoring well, one new piezometer, collected and analyzed ground-water samples from on-site and off-site, conducted a Site survey and obtained one round of ground-water elevations from on-site and off-site monitoring wells and the new piezometer.

3.5.1 Visual Characterization and Field Screening

During the installation of the new piezometer and monitoring well, soil samples were collected continuously, visually characterized and field screened. The results of the visual characterization is detailed in the boring logs presented in Appendix B; the results of the field screening are summarized on Table 3-6.

As shown on Table 3-6, the field screening identified PID readings up to 1,430 ppm at MW-G, which is within the source area (see Figure 2); this reading is an order of magnitude higher than the highest readings identified during the soil investigation and the Phase I Ground-Water Studies. Also, the on-site geologist described the soil samples collected from the 8-feet through 16-feet intervals at MW-G as displaying a "petroleum sheen" and/or "chemical odor". The PID readings obtained during the installation of PZ-A, which is upgradient of the source area, were typically non-detect; no unusual observations were made during the installation of PZ-A.

3.5.2 Ground-Water Analytical Characterization

Ground-water samples collected at the Site, the adjacent 10-acre parcel and the NYSDOT property were analyzed for one or more of the following parameters using ASP methods: VOCs, SVOCs and PCBs. The results of these analyses are presented below.

3.5.2.1 VOCs

West Lot Site

Eleven VOCs were detected in ground-water samples collected from monitoring wells located on the Site (i.e., MW-Adr, MW-Ar, MW-B, MW-C, MW-D, MW-E and MW-F), including: VC; 1,1-DCE; 1,1-dichloroethane (1,1-DCA); 1,2-DCE; chloroform; 1,1,1-TCA; TCE; toluene; ethylbenzene; and xylenes. No VOCs were detected in the ground-water sample collected at MW-C; only one VOC (chloroform at an estimated concentration of 2 ppb) was detected in the ground-water sample collected at MW-B. Each of the identified VOCs has been detected during previous investigations at the Site.

The concentration of total VOCs ranged from 2 ppb at MW-B (i.e., upgradient of the source area) to 66,190 ppb at MW-G (i.e., directly downgradient of the source area). The VOC results for the Phase II ground-water collected at the Site are summarized on Table 3-7; the distribution of the Phase II ground-water results are shown on Figure 9. For purposes of comparison Figure 9 also presents historical VOC concentrations identified during previous investigations. As shown on Figure 9, the highest frequency of detection and total concentration of VOCs at the downgradient edge (with respect to ground-water flow direction) of the source area (i.e., at MW-G); as stated above the soils at MW-G display a petroleum sheen and chemical odor. The concentration of total VOCs decreases proportionally to horizontal distance downgradient of the former burn pit.

For purposes of comparison, Table 3-7 includes the New York State Ambient Ground-Water Quality Standards and Guidance Values. The concentrations of VC, 1,2-DCE, 1,1,1-TCA, TCE, PCE, toluene, ethylbenzene and xylenes exceed the published standard or guidance value in one or more of the collected samples.

The stratigraphic distribution of total VOCs (as identified during the Phase I and Phase II studies) along the geologic cross-sections A-A' and B-B' is shown on Figures 10 and 11, respectively. As shown on Figures 10 and 11, the concentration of total VOCs decrease vertically with depth and horizontally with distance from the source area.

10-Acre Parcel

No VOCs were identified in the ground-water samples collected from the 10-acre parcel.

NYSDOT Property

One VOC (1,2-DCE) was detected at MW-1 (see Figure 9) on the NYSDOT property at a concentration of 28 ppb.

3.5.2.2 SVOCs

Ground-water samples obtained from MW-Adr, MW-B and MW-D were analyzed for SVOCs. Six SVOCs were identified in the ground-water samples, including: bis(2-ethylhexyl)phthalate; di-n-butyl phthalate; 1,2-Dichlorobenzene (1,2-DCB); diethylphthalate; 2-methylnapthalene; and naphthalene.

The SVOC results for the Phase II ground-water samples collected at the Site are summarized on Table 3-8; the distribution of the SVOC results are shown on Figure 9. As shown on Figure 9, the highest frequency of detection and highest total concentration of SVOCs was identified within the source area, at MW-Adr.

For purposes of comparison, Table 3-8 includes the New York State Ambient Ground-Water Quality Standards and Guidance Values. The identified concentration of 1,2-DCB at MW-Adr exceeds the reported guidance value; the remaining identified SVOCs are below the standards and guidance values.

3.5.2.3 PCBs

The PCB results for the Phase II ground-water samples collected at the Site are summarized on Table 3-9. Ground-water samples obtained from MW-Ar, MW-Adr and MW-G were analyzed for PCBs. One PCB, aroclor-1254, was detected within the source area (at MW-Adr) at an estimated concentration of 0.7 ppb.

For purposes of comparison, Table 3-9 includes the New York State Ambient Ground-Water Quality Standards and Guidance Values. The identified concentration of PCB at MW-Adr exceeds the reported ground-water quality standard.

3.5.3 Site Survey

A survey was performed at the Site and at portions of the adjacent NYSDOT property and 10-acre parcel using standard survey techniques. The survey was performed to located existing structures, sample location and provide vertical control for the monitoring well network at each of the properties. Figure 2 presents the surveyed locations of the existing structures and sampling locations. Table 3-10 presents a summary of the existing monitoring well elevations and measured ground-water elevations.

3.5.4 Ground-Water Elevations

One round of ground-water elevations was measured on March 13, 1995 at the following locations:

West Lot Site

MW-Adr, MW-Ar, MW-B, MW-C, MW-D, MW-E, MW-F, MW-G

NYSDOT Property

MW-1, MW-7

10-Acre Parcel

MW-1, MW-5

The measured ground-water elevations are summarized on Table 3-10. Ground-water contours developed based on the measured elevations are presented on Figure 3.

3.5.5 Solute-Transport Model

To develop an estimate of the downgradient distribution of dissolved VOCs migrating from the former burn pit area, a solute-transport model was developed using the United States Geological Survey Method of Characteristics (USGS-MOC). The modeling has been performed to estimate the transport behavior of cis-1,2-DCE, which has been detected at generally the highest concentrations at the Site, is relatively mobile in the ground-water flow system (non-sorptive), and is anticipated to be the furthest reaching compound within the VOC plume.

While the ground-water flow direction and velocity can be calculated based on the ground-water hydraulics parameters measured at the Site, the transport of dissolved VOCs in the saturated zone is more complex. In addition to ground-water flow, or advection, VOC behavior is influenced by:

- Longitudinal and transverse hydrodynamic dispersion (i.e., mixing or dilution), which tend to reduce the concentration during transport;

- Organic-carbon-based retardation due to temporary sorption of part of the VOC mass to soil, which results in the VOC velocity being less (on average) than the overall ground-water velocity; and

- Decay to geochemical reactions or biogenic transformation.

The modeling process and results which are summarized in Appendix D, indicate that a plume of VOCs sourced at the Site may have migrated approximately 600 feet off-site onto the neighboring NYSDOT property. The simulated plume of 1,2-DCE used as a conservative indicator of the plume extent, is depicted on Figure 12.

Risk Assessment

4.1 General

As part of the RI, BB&L completed a baseline Human Health RA and FWIA. The results of the RA and FWIA are presented below.

4.2 Human Health RA

The baseline Human Health RA evaluates potential exposure and risks associated with the chemicals detected currently on site in ground water and subsurface soil. As discussed with Mr. Robert Giffiths of the NYSDOH on June 14 and June 16, 1995, given the observed exceedences of NYS Ground-Water Quality Standards and Guidance Values for chemicals detected in ground water (see Section 3.5.2), there is no need to do a quantitative risk assessment to estimate risks associated with hypothetical potable use of ground water. Furthermore, site-related chemicals which remain in soil following excavation of the burn pit and implementation of the IRM are located at depths well below ground surface, and hence, unlikely to be associated with exposure and adverse effects on health. Since Martin Marietta acknowledges the concentration of VOCs and PCBs in ground water exceed published criteria, and acknowledges that the ground water at the Site may need to be addressed to mitigate any potential future risks associated with hypothetical exposures to ground water, this RA is qualitative in nature.

4.2.1 Data Evaluation

This section of the RA typically identifies the chemicals of interest present at the Site. The chemicals of interest for the Site include all of the organic compounds detected in at least one sample taken from monitoring wells and subsurface soil. The constituents of interest in ground water are shown in Table 4-1. The constituents of interest in subsurface soil are shown in Table 4-2. The frequency of observation, detected concentrations and applicable qualifications for these compounds are discussed in detail in Section 3.

4.2.2 Exposure Assessment

The exposure assessment evaluates potential pathways by which human receptors may be exposed to chemicals of interest associated with the Site.

There are no complete pathways of exposure associated with ground water and subsurface soils at the Site under current conditions. There is no known potable use of ground water in the vicinity of the Site, and although low concentrations of chemicals of interest have been detected in soil, these constituents are detected at depths well below ground surface, and are hence, not available for typical exposures. There are exposures potentially associated with excavated burn pit soils and implementation of the IRM, but these exposures and subsequent risks are limited to remediation workers regulated by health and safety plans, and are not the subject of this baseline risk assessment. Potential air emissions from the IRM are similarly regulated, and are not the subject of this assessment.

Potable water for industrial users as well as residents within a two-mile radius of the Site is supplied by the Utica Board of Water Supply (UBWS). Water distributed by UBWS is from the Hinckley Reservoir, located several miles east of the Site and at a higher topographic elevation with respect to the Site (O'Brien & Gere, 1994). In 1991, Mr. Russ LoGalbo of UBWS was of the belief that no residences within the service area of the UBWS had private wells (O'Brien & Gere, 1991). The lack of residential wells within 2-miles of the Site was confirmed in a July 24, 1995 conversation with Mr. Louis Ferrara of the Oneida County Division of Environmental Health. These observations suggest that there is no primary human exposure to ground water.

Potential exposures to chemicals of interest in soil via incidental ingestion of soil, dermal contact with soil, or inhalation of dust or vapors released to air from soil is not likely to occur because chemicals of interest in soil are found at low concentrations in deeper subsurface soil samples. The highest concentrations of volatile organic compounds were detected in soil borings located along the "B" and "C" grid lines (see Figure 4) at depths greater than 15 feet. Very low concentrations (generally less than 0.01 ppm total) were detected in samples taken within the top 6 feet of soil at grid points near the sanitary sewer and electrical transmission line poles. Workers engaged in excavations to maintain the sewer or install electrical poles could be exposed via ingestion, dermal contact and inhalation of constituents in these soils, but the exposure would be of short duration and limited intensity (low dose). No exposure would occur following completion of the excavation since any open excavations would be backfilled.

Exposure via contact with Sauquoit Creek is currently not of concern. Shallow ground water is believed to discharge to the creek. No chemicals of interest have been detected in MW-7, the furthest downgradient well, indicating that chemicals of interest have not been discharged to the creek via ground water. Discharge of chemicals of interest to the creek via overland flow is not of concern because chemicals are detected at depths well below ground surface.

4.2.3 Toxicity Assessment

The toxicity of each of the chemicals of interest is discussed briefly and qualitatively in the following sub-sections. While reading these profiles, it is important to keep in mind that the effects reported for a given chemical are always dependent upon the dose, duration, and route of exposure. Thus the effects reported below are not necessarily those which would occur in association with hypothetical exposure postulated for the Site.

1,1-Dichloroethane (1,1-DCA)

1,1-Dichloroethane can be taken into the body by oral, dermal and inhalation exposure. Inhalation is the primary route of exposure. There is no information on the rates and extent of absorption by any route of exposure (ATSDR, 1989).

There is no reliable information on how exposure to 1,1-DCA effects human health. Exposure to high concentrations of 1,1-DCA in air caused kidney damage and delayed growth of offspring in some studies with animals. Rats exposed orally to very high doses or 1,1-DCA developed various types of cancer. However, the poor survival rate of both control and treated animals in the study preclude drawing definitive conclusions about whether 1,1-DCA has carcinogenic potential. There is no evidence that 1,1-DCA causes cancer in humans (ATSDR, 1989).

1,1-Dichloroethene (1,1-DCE)

Animal studies demonstrate that 1,1-DCE is rapidly absorbed following oral and inhalation exposures. There are no studies which address dermal absorption. However, the physical/chemical properties of 1,1-DCE indicate that dermal absorption is possible (ATSDR, 1988).

In animal studies, 1,1-DCE has been shown to affect the central nervous system, liver, kidney, and lungs, and possibly, the heart. Exposure to 1,1-DCE has been linked to kidney and liver toxicity in humans exposed to low concentrations of 1,1-DCE (ATSDR, 1988). Based on limited information from animal studies, USEPA classifies 1,1-DCE as a possible human carcinogen (Group C) (IRIS, 1995).

1,1,1-Trichloroethane (1,1,1-TCA)

1,1,1-TCA is readily absorbed via inhalation, but the extent of absorption decreases with the duration of exposure. 1,1,1-TCA is also absorbed from the gastrointestinal tract (oral exposure) and across the skin (dermal exposure) (ATSDR, 1989).

In studies on animals, liver damage and adverse effects on the central nervous system (depression) were observed, depending on the dose and duration of exposure. The available data for both humans and animals suggest that exposure to 1,1,1-TCA may cause effects on the central nervous system and liver in humans. 1,1,1-TCA is not classified as a carcinogen (ATSDR, 1989).

1,2-Dichloroethene (cis- and trans-)

Both the cis- and trans- isomers of 1,2-dichloroethene (1,2-DCE) are well absorbed upon inhalation (ATSDR, 1989). No studies regarding the rate and extent of absorption of 1,2-DCE via the oral and dermal routes were located.

There is no clear evidence of the potential effects of exposure to 1,2-DCE among humans. Pathological changes in the lung and liver have been observed following inhalation exposures of rats to trans-1,2-DCE (ATSDR, 1989). However, these changes were observed at lethal dose levels. Repeated exposure to lower levels of trans-1,2-DCE in drinking water for 90 days was tolerated by mice and did not result in liver pathology (ATSDR, 1989). Fibrous swelling of the myocardium and hyperemia have been observed in rats exposed to trans-1,2-DCE (ATSDR, 1989). 1,2-DCE is not considered to be carcinogenic.

2-Butanone

2-Butanone is well absorbed following inhalation and oral exposure (ATSDR, 1990). No studies were available regarding the rate or extent of absorption following dermal exposure in humans or animals (ATSDR, 1990).

Limited information is available concerning the toxicity of 2-butanone following chronic (long-term) exposure. Following inhalation exposure, 2-butanone may irritate the respiratory tract and may be neurotoxic. However, these effects are only observed following high, acute exposures (ATSDR, 1990). Kidney and liver effects have also been observed in animals exposed via inhalation (ATSDR, 1990). Some developmental effects have also been seen in animals exposed to 2-butanone via inhalation.

Very limited information is available concerning the toxicity of 2-butanone following oral exposure. Neurological effects have been observed in animals exposed orally to 2-butanone, however, exposure doses were high (ATSDR, 1990). Data regarding health effects following human exposure to 2-butanone are not available (ATSDR, 1990)

Acetone

Acetone is absorbed following inhalation or oral exposures. Small quantities may also be absorbed through the skin. Acetone is also produced in the body during the normal breakdown of fat (ATSDR, 1992).

Acetone is irritating to the eyes and skin. There is no evidence that prolonged, low-level exposure to acetone causes adverse effects in humans (ATSDR, 1992). Studies on animals suggest that acetone may cause adverse effects on the liver, kidney and developing fetus (ATSDR, 1992).

Benzene

Benzene is rapidly absorbed by humans following inhalation exposure, and animal data confirm that the chemical is rapidly absorbed through the lungs. Benzene is also absorbed via oral and dermal routes of exposure. Benzene is capable of crossing the human placenta and is present in cord blood in amounts equal to or in excess of levels found in maternal blood (ATSDR, 1993).

The hematopoietic system is a major target for benzene toxicity. Human studies show inhalation exposure to benzene for several months to several years results in a reduction in all three of the major types of red blood cells (pancytopenia) or other deficits in the relative numbers of circulating blood cells (ATSDR, 1993). Continued exposure to benzene can also result in aplastic anemia or leukemia. Aplastic anemia occurs when bone marrow ceases to function, and the bone marrow becomes necrotic and filled with fatty tissue. This condition may progress to a type of leukemia. Effects on both humoral and cellular immunity have been observed in both humans occupationally exposed and laboratory animals exposed to benzene (ATSDR, 1993). Chronic inhalation exposure to benzene has been reported to produce neurological abnormalities in humans. Fetal weight and increased skeletal variants have been seen in animal studies of inhalation exposure. Animal and human studies also suggest that benzene may impair fertility of females when exposed to relatively high levels via inhalation (ATSDR, 1993). Humans occupationally exposed exhibited benzene-induced genetic toxicity including chromosome breaks, rings, dicentrics, translocation, and exchange figures in peripheral lymphocytes (ATSDR, 1993). USEPA classifies benzene as a known human carcinogen (Group A), based on several studies of increased incidence of nonlymphocytic leukemia from occupational exposure, increased incidence of neoplasia in rats and mice exposed by inhalation and gavage, and other supporting data.

Bis(2-ethylhexyl)phthalate

Bis(2-ethylhexyl)phthalate (BEHP) is absorbed following oral and inhalation exposures. Studies on rats indicate that BEHP is poorly absorbed through the skin (ATSDR, 1993).

The primary target of BEHP toxicity is the liver. Studies of rats also indicate that BEHP might have effects on the kidney following long-term exposure (ATSDR, 1993). Chronic oral exposure to relatively high doses damaged the tests (ATSDR, 1993). In addition, BEHP has been demonstrated to cause developmental toxicity in both rats and mice (ATSDR, 1993). Several chronic feeding studies in rodents indicate that BEHP can cause liver tumors in rats and mice (ATSDR, 1993).

Humans absorb and break down BEHP differently than rats and mice. Therefore, the effects seen in rats and mice following exposure to BEHP may not occur in humans. There are no studies of workers exposed to BEHP which can be used to discern how BEHP might affect human health (ATSDR, 1993).

Carbon Disulfide

Inhalation is the primary route of exposure to carbon disulfide, but carbon disulfide can also be absorbed orally and through the skin (ATSDR, 1990).

The primary effects of inhaling carbon disulfide appear to involve the nervous system and the heart. There is no information on the potential human health effects associated with ingested carbon disulfide. Although carbon disulfide was shown to cause birth defects in the offspring of female rats exposed via inhalation to high concentrations of carbon disulfide, there is no evidence that work place exposures to carbon disulfide (around 4 ppm) has resulted in increased numbers of birth defects among children born to either exposed men or women. Carbon disulfide is not considered to be a carcinogen (ATSDR, 1990).

Chloroethane

Past use of chloroethane as in anaesthesia supports the contention that the compound is readily absorbed through the lungs. Chloroethane is expected to be easily absorbed from the skin of humans and animals, although no quantitative studies are available (ATSDR, 1988). Studies regarding the oral absorption of chloroethane are not available.

Inhalation of high concentrations of chloroethane may result in respiratory effects in animals and humans. Effects observed following exposure to concentrations of chloroethane vapor sufficient to cause anesthesia include cardiovascular effects, kidney toxicity, liver toxicity, and possibly autonomic nervous dysfunction (ATSDR, 1988). Dermally applied chloroethane is used as a local anesthetic in humans, since the rapid evaporation of the compound causes the skin to freeze which in turn, produces a numbing sensation (ATSDR, 1988). Chloroethane is not considered to be carcinogenic.

Chloroform

The absorption of chloroform via inhalation depends on the concentration in inhaled air, the duration of exposure, the blood/air partition coefficient, the solubility in various tissues, and the state of physical activity which influences the ventilation rate and cardiac output (ATSDR, 1993). Absorption of chloroform following ingestion is rapid in humans and animals. Dermal absorption of chloroform is expected based on studies of experimental animals.

Chloroform affects the liver, kidneys, and central nervous system in humans following inhalation or ingestion of high doses. There are no epidemiological studies of the carcinogenicity of chloroform itself. However, chloroform is one compound of many which are formed from the interaction of chlorine with organic material found in water. Several epidemiological studies suggest an association between cancer of the large intestine, rectum, and/or bladder in humans and the constituents of chlorinated drinking water, of which chloroform is one (ATSDR, 1993). Based on evidence from animal studies, USEPA classifies chloroform as a probable human carcinogen (Group B2).

Dichlorobenzene

The available toxicological information is for 1,4- or para-dichlorobenzene. 1,4-dichlorobenzene is primarily absorbed by inhalation, but can also enter the body via ingestion. Scientists do not know whether 1,4-dichlorobenzene is absorbed through the skin (ATSDR, 1993).

1,4-Dichlorobenzene is a component of household products including moth balls and toilet deodorizers. Moderate use of these products has not been associated with adverse health effects. However, some sensitive individuals have developed headaches, dizziness and liver effects following use of these products. Studies of people who have eaten moth balls for months or years show that ingestion of 1,4-dichlorobenzene can cause anemia and skin blotches. There is no evidence that 1,4-dichlorobenzene causes cancer, reproductive, or developmental effects in humans. USEPA classifies 1,4-dichlorobenzene as a possible human carcinogen (Group C) due to the observation of an increased incidence of tumors in mice and rats fed 1,4-dichlorobenzene for life (ATSDR, 1993).

Di-n-butylphthalate

Studies of laboratory animals indicate that di-n-butylphthalate (DBP) is rapidly and extensively absorbed by the oral route (ATSDR, 1989). Data suggest that DBP is reasonably well absorbed at a constant rate across the skin. Effects following inhalation exposure suggest absorption via this route (ATSDR, 1989).

Adverse effects on humans following exposure to DBP are not available. Rats exposed to DBP via inhalation for 6 months were reported to have a decreased body weight gain and increased lung weight relative to body weight (ATSDR, 1989). DBP has been shown to be fetotoxic in a number of animal studies. Limited animal data suggest that DBP may also be teratogenic (cause birth defects) (ATSDR, 1989). Sperm production is decreased in animals following ingestion of high doses of DBP. There is no evidence that any of these effects occur in humans. There is no evidence that DBP causes cancer (ATSDR, 1989).

Diethyl Phthalate

Diethyl phthalate can be absorbed following oral, dermal or inhalation exposures. There is no information on the effects of exposure to diethyl phthalate among humans. In animal studies, long-term exposure to high doses of diethyl phthalate caused a decrease in weight gain due to lower ingestion of food. No other effects were observed. Diethyl phthalate is not known to cause cancer in animals or humans. Unlike some other phthalates, diethyl phthalate does not produce a decrease in sperm production among exposed male animals. Studies on pregnant rats suggest that exposure to high doses (3 g/kg) during pregnancy might cause an increased incidence of birth defects. Lifetime exposure to diethyl phthalate caused a reduction in the number of live offspring born to female rodents over the course of their life span (ATSDR, 1992).

Ethylbenzene

Human studies demonstrates that ethylbenzene is rapidly and efficiently absorbed via inhalation. Studies in animals show similar results. Animal studies indicate that ethylbenzene is quickly and effectively absorbed following oral exposure. Neat ethylbenzene is rapidly absorbed through human skin (ATSDR, 1989).

There are no reliable data on the effects of human exposure to ethylbenzene by any route. Two reports suggest that liquid ethylbenzene can irritate the eyes and skin upon direct contact. There is limited evidence from short-term inhalation studies on animals that high concentrations may cause liver, kidney, and central nervous system damage. There is no evidence that ethylbenzene causes birth defects or cancer (ATSDR, 1989).

Methylene Chloride

Methylene chloride can enter the body following inhalation, oral and dermal exposures. Inhalation is the primary route of exposure. Approximately 70% of the methylene chloride taken into the lungs is absorbed. Dermal absorption is low (ATSDR, 1993).

The primary effect of methylene chloride is on the nervous system. Air concentrations in excess of 300 ppm have been associated with slight vision and hearing impairment. Concentrations in excess of 800 ppm have been associated with impaired movement, dizziness, numbness of fingers and toes, and drunken symptoms. Effects on the liver and kidneys have been observed in animal studies, but these effects have not been observed in humans. Methylene chloride has been shown to cause cancer in mice. An increased incidence of cancer has not been observed among workers exposed to methylene chloride in the work place (ATSDR, 1993). USEPA classifies methylene chloride as a probable human carcinogen (Group B2) based on evidence from the available animal studies.

Naphthalene/2-Methylnaphthalene

Limited information is available regarding the absorption and toxicity of 2-methylnaphthalene. Naphthalene and 2-methylnaphthalene have similar structures and chemical and physical characteristics, and the two compounds are discussed together in this profile. Based on the weight of evidence and presence of adverse effects, it is assumed that humans can absorb naphthalene and 2-methylnaphthalene by pulmonary, gastrointestinal, and cutaneous routes. However, the rate and extent of this absorption is unknown.

The most frequently reported symptom and the most common hematological effect in humans following the ingestion of naphthalene is hemolytic anemia (high exposure concentrations required) (ATSDR, 1989). Kidney disease has been reported in several individuals exposed to large numbers of mothballs (which presumably contained naphthalene) in their homes (ATSDR, 1989). Similarly exposed individuals have also reported neurological effects including nausea, headache, malaise, and confusion. Variable degrees of hepatotoxicity following oral exposure to naphthalene have been reported in humans, and limited evidence of hepatotoxic effects in laboratory animals exists (ATSDR, 1989).

PCBs (Aroclor 1254)

PCBs were widely used in industry for almost 40 years. Consequently, numerous epidemiologic studies evaluating the human health effects associated with long-term occupational exposure to relatively high levels of PCBs are available. The primary routes of worker exposure are inhalation and skin exposure. With direct contact, PCB oils and waxes can penetrate the skin or can vaporize and be inhaled, and subsequently enter the bloodstream, circulate through the body, and accumulate in fatty tissue and the liver. The only human health effect that has been documented to be associated with occupational exposure is chloracne, which is a rash on the skin following occupational exposure to PCB mixtures (Mather, 1987; ATSDR, 1993).

Current knowledge of PCB health effects is based on epidemiologic data and laboratory studies involving various PCB mixtures. The vast differences among these studies, and the congener distributions to which the study subjects were exposed, have resulted in much debate within the scientific community as to the actual health effects associated with PCBs. Additional confounding factors include the possible presence of other chemicals in commercial Aroclor mixtures, the question of appropriate biological measures of toxicity, the significance of variations in study design, the adequacy of analytical procedures, and the conservative nature of USEPA's methodology for deriving toxicity criteria. At present, the only adverse health effect that has ever been documented in exposed humans is skin irritation (chloracne).

The following general types of effects have received the most attention with respect to PCB exposure: 1) cancer; 2) developmental effects; 3) immunological effects; and 4) miscellaneous systemic effects. The key studies and issues in each of these areas are discussed in the following sections.

Cancer

USEPA's Human Health Assessment Group, the International Agency for Research on Cancer (IARC) and other scientists, have concluded that none of the available epidemiology studies support a relationship between PCB exposure and cancer in humans (ATSDR, 1993). Kimbrough (1987) stated: "No conclusive evidence thus far reported shows that occupational exposure to PCBs causes an increased incidence of cancer." However, USEPA has made the conservative policy decision to consider all PCBs to be potential human carcinogens on the basis of results from a few high dose laboratory animal studies.

The study by Norback and Weltman (1985) provides the basis for the current USEPA cancer slope factor for PCBs. In this study, rats were fed 100 mg/kg Aroclor 1260 in their diet for 16 months, 50 mg/kg for 8 months, then no PCBs for 5 months. Hepatocellular neoplasms (liver tumors) were present in 96 percent (45 of 47) of the treated females and 15 percent (7 of 46) of the treated males. However, the tumors did not spread or cause increased mortality relative to the unexposed controls. Statistical analysis of the experimental data using Fisher's exact test shows that the incidence of carcinoma in the exposed male rats was not significantly greater than that of control rats.

Evidence concerning whether lesser chlorinated Aroclors (1248, 1242, 1232, 1221, 1016) produce tumors (either benign or malignant) in experimental animals is inconclusive. Moreover, as indicated by several studies, there is strong reason to believe that substantial differences in systemic toxicity and cancer-causing potential exist between PCB congeners (Chase et al., 1989; Chrostowski et el., 1989; Moore et al., 1994). Chase et al. (1989) assert that the most compelling evidence for potency differences among the commercial PCB mixtures is derived from a study by Schaeffer et al. (1984) of Clophen A60 (a commercial PCB mixture containing 60 percent chlorine by weight, produced in Germany) and Clophen A30 (a commercial mixture containing 42 percent chlorine by weight, produced in Germany). These products were tested in experiments of identical design and yielded quite different outcomes. Specifically, the tumorigenic potency of Clophen A30 was shown to be 10 times less than that of Clophen A60.

More recently, Moore et al. (1994) gathered a national panel of experts to reevaluate slides from seven PCB studies in rodents, including the studies of Kimbrough et al. (1975), Norback and Weltman (1985), Schaeffer et al. (1984), Schaeffer et al. (1984) and NCI (1977). In essence, the tissue slides from these studies were reviewed and reclassified by a single panel of experts according to the National Toxicology Program's diagnostic criteria for the classification of proliferative hepatic lesions (Maronpot et al., 1986 as cited in Moore et al., 1994). This allowed the various studies to be evaluated in a consistent manner. Moore et al. (1994) concluded that studies where rodents were exposed to PCB mixtures with 60 percent chlorination consistently resulted in a statistically significant incidence of liver tumors, while studies in which rats were fed PCB mixtures with 54 or 42 percent chlorination resulted in no statistically significant increases in tumors. Moore et al. (1994) stated: "These data indicate that continuation of a science policy of assuming that all PCBs are probable human carcinogens with a potency equivalent to the mixture that contains 60% chlorine has no scientific foundation and should be reconsidered." However, at present USEPA still considers all PCB mixture to be potential human carcinogens, and quantifies potential PCB risks using the SF that is based on the Aroclor 1260 bioassay (Norback and Weltman, 1985). Additional discussion concerning PCB toxicity criteria is presented subsequently.

Developmental Effects

There are no studies to date which conclusively demonstrate that PCB exposure causes adverse developmental effects in humans. Several studies have been performed which purport to show such effects, but when viewed collectively, they fail to demonstrate clinically significant results or any consistent exposure related increases in effects.

There are three major studies cited in discussions of the purported effects of PCBs on human development. These are the studies of Jacobson et al. (Fein et al., 1984; Jacobson et al., 1984a, 1984b, 1985, 1989, 1990, 1993), Taylor et al. (1984, 1989), and Rogan and Gladden (Rogan et al., 1986; Gladden et al., 1988; Rogan and Gladden, 1991; Gladden and Rogan, 1991). The studies Jacobson and Rogan studies address non-occupational exposures, whereas Taylor's study focuses on occupational exposure.

In a critical review of these studies, Paneth (1991) points out limitations in these studies concerning how exposure was estimated and how confounding variables were controlled (or not controlled) which render the studies inconclusive. Upon reviewing these studies and citing Paneth (1991), ATSDR (1993) concludes: "Due to confounding factors including exposure to DDT and other organochlorine pesticides, the adverse developmental effects reported in the populations described above cannot be attributed specifically to PCB exposure."

Immunologic Effects

There are no studies to date which support the hypothesis that exposure to PCBs alters immune response in humans. Laboratory studies in mice, guinea pigs, and monkeys suggest that PCB exposure might have an impact on certain indicators of immune function, but when viewed individually, none of the studies demonstrates consistent dose-related clinically significant responses. The studies of Tryphonas et al. (1989, 1991a, 1991b) and Arnold et al. (1993a, 1993b) are the key studies often cited by others as evidence of PCB-induced impacts on the immune system. As discussed below, these studies fail to demonstrate exposure-related increases in disease outcome or deficits in primary indicators of immune function.

Immunologic effects were assessed as part of a general study conducted by Tryphonas, Arnold and others to assess potential effects of oral exposure to Aroclor 1254 among rhesus monkeys. Groups of 16 adult females were given gelatin capsules which contained Aroclor 1254 in glycerol/corn oil at doses of 0, 0.005, 0.02, 0.04 and 0.08 mg/kg-day for more than five years. Immune function was assessed after 23 and 55 months of exposure.

After 23 months of exposure there were no exposure-related effects on hydrocortisone levels, serum proteins, total serum immunoglobin levels, total T-lymphocytes or total B-lymphocytes. However, statistically significant reductions in IgG (all PCB doses) and IgM (all doses but 0.02 mg/kg-day) were observed in response to a challenge of injected sheep red blood cells. In addition, statistically significant reductions in the percentage of helper T-lymphocytes and increases in the percentage of suppressor T-lymphocytes were observed. Although these observations themselves have no bearing on disease outcome, they are used as surrogates of immunotoxicity in place of a challenge with a live pathogen. Anomalies in response to a challenge with sheep red blood cell are supposed to be indicative of interference in the normal interaction among macrophages, T-cells, B-cells etc. in responding to a challenge with an antigen, and hence, indicative of potential immune disfunction.

After 55 months of exposure there was a significant dose-related decrease in IgM, but not IgG, in response to injected sheep red blood cells. There were no statistically significant or dose-related associations between PCB exposure and challenge with a pneumococcus antigen, no significant and dose-related changes in any other immunologic assays and analyses, and no signs of microbial infection.

Both USEPA (USEPA, 1994 IRIS database) and ATSDR (1993) concluded that decreased immunoglobin levels in response to immunization with sheep red blood cells is indicative of potential exposure-related impacts on the immune system, and cite 0.005 mg/kg-day as the Lowest-Observed-Adverse-Effect-Level for immune system effects associated with Aroclor 1254 exposure. Other observations made in this study including ocular exudate, inflamed Meibomian glands, and distorted growth of finger and toe nails are also cited by USEPA in support of an overall LOAEL of 0.005 mg/kg-day for Aroclor 1254.

Miscellaneous Noncarcinogenic Effects

Attempts have been made to associate environmental and occupational exposure to PCBs with effects on the liver, blood, respiratory system, cardiovascular system, skin, eyes and thyroid gland.

Some occupational studies suggest that worker exposure to PCBs is associated with increases in serum enzymes which may be indicative of liver damage (ATSDR, 1993), but study results are not conclusive. Overall, the study results show inconsistent patterns, and the observed changes in enzyme levels are generally within the range considered to be normal. These changes have not been shown to be associated with actual hepatic (liver) dysfunction (ATSDR, 1993). In addition, although certain PCB congeners are known to bind to the Ah receptor and induce microsomal enzymes, it is generally acknowledged that liver damage is not necessarily a consequence of these events. Liver damage associated with PCB exposure has been observed in rodents and monkeys but not in highly-exposed humans (workers) (ATSDR, 1993).

Reported associations between PCB exposure and effects on the cardiovascular and respiratory systems are either negative or inconclusive. With respect to respiratory effects, ATSDR (1993) states, "These effects cannot be definitely attributed to PCBs due to study limitations such as lack of control data, exposure to other chemicals, insufficient corroboration, and lack of confirmation in follow-up evaluations." With respect to purported cardiovascular effects ATSDR (1993) states, "Evidence of increased blood pressure or an association between serum levels of PCBs and hypertension in populations with occupational or environmental exposure to PCBs is negative or inconclusive ..."

Neither animal nor human data are sufficient to determine whether exposure to PCBs causes hematological changes such as anemia. Although elevated serum triglycerides and cholesterol have been reported in some occupational exposure studies, not all studies report consistent results, and, the observed results are likely explained by partitioning to lipid (ATSDR, 1993).

PCB exposure in occupational settings has been associated with skin irritation, chloracne, pigmentation, eye irritation, conjunctivitis, and discharge from the eye. It is difficult to discern whether these effects are due to direct contact or systemic effects following absorption via inhalation. Pigmentation, swollen eyelids and swelling of the Meibomian gland (similar to chloracne in humans) have been observed in animal studies (ATSDR, 1993).

Studies conducted on monkeys and rats suggest that exposure to PCBs causes depression of neurotransmitters such as dopamine and serotonin in the brain, but the clinical significance of these effects is uncertain. These studies also suggest that the Ah receptor is not involved in the observed response because the PCB congeners detected in the brain following exposure were mostly mono- and di-ortho substituted congeners (Seegal et al., 1986a, 1986b, 1990, 1991, 1992. The relevance of these results to human health is unknown. Complaints of headache, dizziness and fatigue have been reported in some cases of occupational exposure, but none of these complaints could be linked definitively to PCB exposure, nor could be classified as neurological effects *per se* (ATSDR, 1993).

Tetrachloroethylene

The primary route of exposure to tetrachloroethene (PCE) is inhalation. PCE is readily absorbed through the lungs into the blood. Animal studies indicate that PCE is rapidly and virtually completely absorbed following oral administration. Although dermal absorption of PCE does occur, it is believed to be relatively insignificant compared to inhalation (ATSDR, 1993).

The health effects associated with ingestion or inhalation of low concentrations of PCE are unknown. Exposure to high concentrations in air can cause dizziness, headache, confusion and sleepiness. Animal studies have shown that high concentrations of PCE can cause liver and kidney damage, and liver and kidney cancers. There is no evidence that PCE causes cancer in humans (ATSDR, 1993).

Toluene

Toluene is readily absorbed from the respiratory and gastrointestinal tracts, and to a lesser extent through the skin. Chronic exposure to moderate-to-high concentrations of toluene is associated with reversible central nervous system disturbances, impaired neuromuscular function, and respiratory tract irritation. Animal studies suggest that inhaled, but not ingested Toluene may cause birth defects. Toluene is not considered to be carcinogenic (ATSDR, 1992).

Trichloroethylene (TCE)

TCE is readily absorbed following oral or inhalation exposures, and less readily absorbed following dermal exposure (ATSDR, 1993). Dizziness, drowsiness, and damage to facial nerves have been observed in people exposed to high concentrations of TCE in the work place. Effects such as headache and dizziness have also been reported at concentrations where the odor is detectable. Kidney and liver damage has been documented in animals exposed to TCE, but no such effects have been observed in humans (ATSDR, 1993).

Whether or not TCE causes birth defects or cancer in humans is uncertain. People who drank water from two different wells containing high concentrations of TCE had an elevated incidence of childhood leukemia than would normally be expected. They also had a greater number of children with heart abnormalities than would be expected. However, due to the presence of other chemicals in the well, scientists could not attribute these observations to TCE exposure. High doses of TCE are known to cause an increased incidence of cancer (lungs, liver, testicles) in mice (ATSDR, 1993). Based on the animal evidence, USEPA classifies TCE as a possible/probable human carcinogen (Group C-B2).

Vinyl Chloride

Vinyl chloride can enter the body following oral and inhalation exposure. Vinyl chloride is not appreciably absorbed through the skin (ATSDR, 1993).

Vinyl chloride is a known human carcinogen. Workers who breathed vinyl chloride for many years developed an increased incidence of liver cancer. Increased incidences of brain, lung, and certain blood cancers may also be associated with inhalation of vinyl chloride for several years (ATSDR, 1993).

Exposure to vinyl chloride has also been associated with damage to the liver, nervous and immune systems. It has also been associated with a lack of sex drive in men, and menstrual irregularities in women. Animals exposed via inhalation to high concentrations of vinyl chloride had an increased incidence of miscarriages and developmentally delayed offspring. However, studies of women living near vinyl chloride manufacturing facilities failed to detect any adverse effects on fetal development or survival (ATSDR, 1993).

Xylenes

Xylene is readily absorbed following oral, dermal and inhalation exposures. Inhalation is the primary route of exposure, with 50 to 75% of the exposure dose absorbed through the lungs (ATSDR, 1989).

A combination of human case studies and occupational studies suggest that short-term and long-term inhalation of xylenes or solvent mixtures which contain xylenes may be associated with effects on the nervous system. Effects on the liver have also been observed in animals and humans following intermediate duration exposures via inhalation. Liver and kidney damage have been observed in humans following short-term exposure to high concentrations of xylenes. Both mixed xylenes and individual isomers are harmful to fetuses in animal studies. These effects have not been observed in humans. Xylenes are not known to cause cancer (ATSDR, 1989).

4.2.4 Human Health Risk Characterization and Conclusions

Currently, there are no known exposures to chemicals of interest in ground water or subsurface soil associated with the Site, and hence, no current risks to human health associated with these media. Both carcinogenic and noncarcinogenic risks to human health would be elevated in the unlikely event that someone were to drink shallow ground water with the currently detected chemicals and concentrations. Workers engaged in excavation activities related to maintenance of utilities (sanitary sewer or electrical power lines) which pass through the Site would potentially be exposed for a short duration to low levels of volatile organic chemicals. However, risks associated with such exposures would be negligible.

4.3 Fish and Wildlife Impact Analysis

The NYSDEC FWIA evaluates fish and wildlife concerns associated with inactive hazardous waste sites. The FWIA for the Site has been conducted according to the RI/FS Work Plan the NYSDEC (1994) FWIA guidelines. The general ecological features of the Site and adjacent areas described in the report include: 1) physical characteristics, such as topography and land use; 2) identification of vegetative cover; 3) qualitative assessment of habitat value to wildlife; 4) identification of fish and wildlife species typical of the area; 5) identification of special resources, including surface waters, wetlands, critical habitats, and threatened and endangered species, and 6) evaluation of potential pathways for exposure of resources to site-related chemicals.

Topographic and regional maps were initially referenced to identify the general physical and ecological features of the Site and surrounding area. Information from the NYSDEC Natural Heritage Program (NYNHP) data base was also reviewed. More detailed information was gathered during a Site visit conducted by a qualified environmental biologist of BB&L on July 11, 1995.

4.3.1 Vegetative Covertype/Habitat Value Assessment

A list of vegetative species observed within 0.5 miles of the Site or typical of the area is presented in Table 4-3. General vegetative covertypes and habitat values for this area are indicated in Figure 13. The qualitative determination of habitat value relied on field observations, research, and professional judgement. Habitat values were assigned using the following classification system:

- No Value: paved areas, buildings and parking lots;
- Low to Moderate: areas with gradations of habitat quality from that marginally supporting a minimal number and diversity of low quality species to that which supports a variety of quality species with little or no stress related to human disturbance;
- High Value: critical habitats for rare species and/or extensive undeveloped habitat supporting a great diversity and abundance of wildlife without functional constraints imposed by human disturbance.

The assessment of habitat value, vegetative covertype, and associated fish and wildlife species within 0.5 mile of the Site is based on a walkover of the Site and adjacent areas completed on July 11, 1995, and thus reflects a "snapshot" evaluation. No areas of the Site were observed to exhibit stressed vegetation or evidence of negative effects on wildlife.

4.3.1.1 On-Site

The Site consists of the IRM treatment cell, surrounded by grassed areas, parking lots, and trees at the property edges. The IRM treatment cell is fenced and completely unvegetated. The cell is covered with gravel and black plastic. The area surrounding the IRM treatment cell consists of grassed areas and the vegetation consists primarily of grasses. The property edges near the IRM treatment cell are vegetated predominately by boxelder, with a few scattered black cherry, staghorn sumac, quaking aspen and basswood intermixed. The IRM treatment cell offers no value to wildlife, but the bordering hedgerows and lawns offer low to moderate value to wildlife.

4.3.1.2 Off-Site

Off-site areas in the vicinity of the Site support a variety of vegetative covertypes that differ according to land use. The area within 0.5 mile of the Site supports residential properties, commercial businesses, a school (reported owner is Union Free School District No. 4), undeveloped land and transportation routes including roads and railroad tracks. See Table 4.3 for a list of vegetation that was observed or is typical for the Site and surrounding area.

Sauquoit Creek is located within 0.5 mile west of the Site perimeter. The stream is fringed with both natural and disturbed vegetation within 2 miles of the Site. Natural vegetation growing along Sauquoit Creek includes trees, shrubs and herbaceous vegetation. The area that lies between Sauquoit Creek and the Site offers the least disturbed habitat within 0.5 mile of the Site. This area is primarily vegetated with trees, mostly quaking aspen and boxelder, with some large areas of open field. The open fields are primarily vegetated with goldenrods and asters. This area offers moderate value to wildlife. The area that lies to the north of the Site primarily consists of grassed areas for a school and businesses. The vegetation is predominately grasses, but some disturbance-tolerant vegetation is intermingled. This area offers low value to wildlife. The area to the east of the Site consists of the Martin Marietta French Road facility, as well as paved parking areas. To the south of the Site, running approximately east-west, lie NY Routes 5, 8 and 12 and a railroad track. The Martin Marietta French Road facility, as well as the transportation routes, offer no value to wildlife. Routes 5, 8 and 12 are a multi-lane, divided highway, built on an artificial embankment. As such, it functions as barrier to northerly or southerly wildlife travel. Land use to the south cf Routes 5, 8 and 12 is primarily residential areas, with some commercial areas intermixed. The vegetation in this area consists primarily of lawns and other cultivated vegetation. This area offers low value to wildlife.

4.3.2 Wildlife Species/Habitat Value Summary

A list of wildlife species observed within 0.5 mile of the Site or typical of the area is presented in Table 4-4. No Threatened/Endangered species or critical habitats were observed or have been documented by NYNHP at the Site or in the general vicinity. In general, the wildlife species inhabiting or using the Site are likely to consist of common species typical of upstate New York.

Based on the vegetative characteristics of the Site and general land use in the surrounding area, BB&L scientists have determined that the Site offers no value to low value as wildlife habitat. The surrounding areas offer no value to moderate value as wildlife habitat. The degree of man-made physical disturbance on- and off-site, proximity to transportation routes and the lack of continuous quality habitat in nearby adjacent areas restrict the diversity of wildlife species and extent of wildlife use. Results of the qualitative assessment of the value of the Site habitat and that of the surrounding area are summarized on Figure 14.

No areas of stress associated with chemical constituents were observed on- or off-site.

4.3.3 Identification of Significant Natural Resources

Significant natural resources for purposes of this report include surface waters, wetlands, and rare species/critical habitats within a 2-mile radius of the Site.

4.3.3.1 Surface Waters

The main surface water in the Site vicinity is Sauquoit Creek. Sauquoit Creek is a tributary to the Mohawk River in the Mohawk River drainage basin. The NYSDEC best usage classification for Sauquoit Creek is "Class CT" (S. Cook, 1995. personal communication). According to New York Regulations Title 6 Part 701.8, the best usage for "Class C" streams is fishing, and the waters shall also be suitable for fish propagation and survival, as well as for human recreation (NYSDEC, 1993). The "T" addition denotes that a stream can support trout. Sauquoit Creek has a width ranging from 20 to 40 feet in the observed regions, and supports rapids and pools with cobble and gravel bottom substrate. The creek can support fishing and other recreational activities.

4.3.3.2 Wetlands

Based on the New York State Freshwater Wetlands Map for the Utica West quadrangle, four New York State regulated wetlands are, at least in part, within the 2-mile radius of the Site. Wetlands UW-9 and UW-11 are completely within the 2-mile radius of the Site, and wetlands UW-12 and UW-15 are partially within the 2-mile radius. Draft NWI information indicates that wetlands UW-9 and UW-11 consist of emergent marsh, scrub-shrub and forested wetlands. Wetland UW-12 consists of forested wetland. These New York State regulated wetlands are on the west side of Sauquoit Creek, and are not likely to be affected by any Site related impacts.

4.3.3.3 Threatened/Endangered Species/Critical Habitat

No threatened/endangered species were observed during the Site visit. Information provided by the NYNHP (NYSDEC, 1995) indicate that there are no records of endangered, threatened or special concern wildlife species, rare plant, animal or natural community occurrences, or other significant habitats located in the Site vicinity.

4.3.4 Current and Future Potential Use of Fish and Wildlife Resources by Humans

Current human use of fish and wildlife resources in the Site vicinity probably includes hiking, jogging, wildlife observation and fishing along Sauquoit Creek. The current potential uses of fish and wildlife resources by humans in the Site vicinity are likely to remain consistent in the future. Resource uses in the Site vicinity are not likely to be affected by activities or conditions at the Site.

4.3.5 Potential Exposure Pathway Analysis

With respect to ecological impact, VOCs are the principal chemicals of concern. The historical source of impacts at the Site was the former burn pit. This burn pit has undergone an IRM, during which the contaminated soils were removed from the burn pit and are being treated with an soil vapor extraction system. With the removal of the soils from the burn pit, the primary source of contamination has been removed from the Site. The current contamination for the Site is residual VOCs in the soils and ground water outside of the burn pit area. VOCs that have been detected in soil samples are: acetone, benzene, 2-butanone, carbon disulfide, cloroethane, 1,2-dichloroethene, ethylbenzene, methylene chloride, tetrachloroethene, trichloroethene, 1,1,1-trichloroethane, toluene, vinyl chloride and total xylenes. VOCs that have been detected in ground water samples are: bromomethane, chloroform, chloromethane, cis-1,2-dichloroethene, ethylbenzene, 1,1-dichloroethane, 1,2-dichloroethane, freon-113, trichloroethene, 1,1,1-trichloroethane, trichlorofluoromethane, tetrachloroethene, toluene, vinyl chloride, and total xylenes. Aroclor 1254 was detected in only one ground water sample at a concentration of 0.70 ug/kg. Due to the low concentration and low frequency of detection, PCBs are not considered further in this assessment.

Possible resources/receptors that may be impacted from Site conditions are Sauquoit Creek, and fish and wildlife species listed in Table 4-4.

VOCs are detected in the greatest concentrations in ground water and soils in the area of the former burn pit. The ground water gradient slopes to the southwest, or generally towards Sauquoit Creek. VOC concentrations in ground water and soil decrease towards the soil surface, and downgradient of the Site.

Only one surface soil sample (0- to 2- foot depth) was obtained and analyzed; two VOCs were detected at extremely low concentrations (estimated concentrations of 0.002 and 0.004 ppm) in the surface soil sample. The ground water samples obtained farthest downgradient of the Site, but upgradient of Sauquoit Creek, exhibited no detections of any chemical of concern. VOCs are present in ground water samples.

Due to the low concentrations of VOCs in surface soils, there is no significant exposure pathway for non-burrowing mammals, birds and herptiles. Because the ground water samples directly upgradient of Sauquoit Creek do not exhibit any VOCs, the creek is unlikely to receive any chemical input from the Site, and thus there is no exposure pathway for aquatic biota, or any wildlife that rely on aquatic biota or aquatic habitats. Despite VOCs present in ground water samples, burrowing mammals and invertebrates are unlikely to burrow down to, or below the water table. Consequently, there is not a complete pathway for exposure to ground water. Due to the isolated nature of the contaminants of concern at the Site, there are no complete pathways of contaminant migration and exposure of wildlife or resources.

4.3.6 Conclusions

Since analyses of soil and ground water indicates that contaminants are effectively isolated from wildlife, and that contaminants are not entering Sauquoit Creek, it appears that there are no complete pathways of exposure to wildlife or resources. Based on this assessment, further biological investigations are not warranted.

Conclusions and Recommendations

5.1 Conclusions

Based on the activities performed and the analytical data collected during the RI activities and the findings of the Human Health RA and FWIA, the following conclusions have been identified regarding the Site:

Soil

- VOCs have been identified in the unsaturated soils up to a total concentration of 0.163 ppm. None of the VOCs identified in the unsaturated soil samples exceeds NYSDEC TAGM #4046 Determination of Soil Cleanup Objectives and Cleanup Levels.

- The human health RA has concluded that there are no known exposures to the chemicals identified in the subsurface soils at the Site. The human health RA recognizes that workers involved in excavation of soils at the Site would be potentially be exposed for a short duration to low levels of VOCs; however, risks associated with such exposures would be negligible.

- The FWIA has concluded that there are no apparent pathways of exposure to wildlife or resources from the chemicals identified in the subsurface soils at the Site.

Ground-Water

- VOCs have been identified in ground-water samples collected at the Site up to a total concentration of 83,600 ppb. The individual concentrations of VC, 1,2-DCE, 1,1,1-TCA, TCE, PCE, toluene, ethylbenzene and xylenes exceed NYS Ambient Water Quality Standards and Guidance Values for ground-water, at one or more of the sampled locations.

- Ground-water modeling conducted to predict the extent of the VOC-impacted ground-water (based on 1,2-DCE concentrations) has determined that the VOC plume sourced at the Site extends onto the NYSDOT property to a location approximately 600 feet downgradient of the Site.

- One VOC (1,2-DCE) has been identified in a ground-water sample collected from the adjacent NYSDOT property at a concentration of 28 ppb. The presence of 1,2-DCE at MW-1 on the NYSDOT property may be due to the past usage as the Town of New Hartford Dump.

- PCBs have been identified in one ground-water sample collected from the source area at an estimated concentration of 0.7 ppb. The identified PCB concentration exceeds New York State Ambient Water Quality Standards and Guidance Values for ground water.

- A ground-water sample collected on the NYSDOT property adjacent to Saquoiut Creek (i.e., MW-7) did not contain VOCs, indicating that VOC impacted ground-water does not extend to or discharge at the creek.

- The human health RA concluded that there are presently no exposure pathways associated with the chemicals identified in the ground-water and, hence, no risks associated with the ground-water under current exposure scenarios. However, the RA recognizes that carcinogenic and non-carcinogenic risks to human health would be elevated in the unlikely event that someone were to drink shallow ground water with the currently detected chemicals and concentrations.

- The FWIA has concluded that due to the isolated nature of the contaminants of concern at the Site, there are no complete pathways of contaminant migration and exposure of wildlife or resources.

5.2 Recommendations

The results of the RI, RA, and FWIA have provided sufficient data for preparation of a FS to determine appropriate remedial actions for implementation at the Site. Based on the conclusions of the RI, RA, and FWIA, it is recommended that remedial alternatives to address the impacts to on-site ground water be fully evaluated as part of the FS to identify a final remedy for the Site. At this time, the results of the RI, RA, and FWIA do not suggest that implementation of an IRM to address impacted media is necessary. Rather, a final remedy will be developed which will be consistent with the remedial action objectives (to be established as part of the FS) for the Site. The FS will be completed in accordance with the NYSDEC-approved RI/FS Work Plan and the Order on Consent for the Site.

References

ATSDR (Agency for Toxic Substances and Disease Registry), Chemical-specific Toxicological Profiles (U.S. Public Health Service, Atlanta, GA: 1989, 1990, 1991, 1992, 1993).

Arnold, D.L., F. Bryce, R. Stapley et al. 1993a. Toxicological consequences of Aroclor 1254 ingestion by female Rhesus (Macaca mulatta) monkeys, Part 1A: Prebreeding phase - clinical health findings. Food Chem. Toxicol. 31: 799-810. (As cited in ATSDR, 1993 and IRIS, 1994).

Arnold, D.L., F. Bryce, K. Karpinski et al. 1993b. Toxicological consequences of Aroclor 1254 ingestion by female Rhesus (Macaca mulatta) monkeys, Part 1B: Prebreeding phase -clinical and analytical laboratory findings. Food Chem. Toxicol. 31: 811-824. (As cited in ATSDR, 1993 and IRIS, 1994).

Chase, K.H., J. Doull, S. Friess, J.V. Rodericks, and S.H. Safe. 1989. Evaluation of the toxicology of PCBs. Prepared for Texas Eastern Gas Pipeline Co., Houston, TX.

Chrostowski, P.C., et al. 1989. Critical Review of Evaluation of the Toxicology of PCBs. Prepared for Pennsylvania Dept. of Environmental Resources by Clement Associates, Inc., April 10, 1989.

Cook, S. July 1995. Personal communication. NYSDEC.

Dunn Geoscience Corporation, Soil Gas Investigation, General Electric Company, French Road Site, City of Utica Area (Albany, New York: April 12, 1990).

ERM-Northeast, French Road Facility, Hydrogeological Investigation (Syracuse, New York: October 23, 1992).

Fein, G.G., J.L. Jacobson, S.W. Jacobson, P.M. Schwartz, and J.K. Dowler. 1984. Prenatal exposure to polychlorinated biphenyls: Effects of birth size and gestation age. J.Pediatr. 105:315-320.

Gladden, B.C. and W.J. Rogan. 1991. Effects of perinatal polychlorinated biphenyls and dichlorodiphenyl dichloroethene on later development. Journal of Pediatrics. 119: 58-63.

Gladden, B.L., W.J. Rogan, P. Hardy, J. Thullen, J. Tingelstad, and M. Tully. 1988. Development after exposure to polychlorinated biphenyls and dichlorodiphenyl dichloroethene transplacentally and through human milk. J. Pediatr. 113: 991-995.

Griffiths, Robert. 1995. Personal communication with Michele Anatra-Cordone (BB&L). June 14, 1995.

Jacobson, J.L. and S.W. Jacobson. 1993. A 4-Year followup study of children born to consumers of Great Lakes fish. Journal of Great Lakes Research. 19(4): 776-783.

Jacobson, S.W., G.G. Fein, J.L. Jacobson, P.M. Schwartz and J.K. Dowler. 1985. The effect of intrauterine PCB exposure on visual recognition memory. Child Dev. 56:856-860.

Jacobson J.L., S.W. Jacobson, P.M. Schwartz, G.G. Fein, and J.K. Dowler. 1984a. Prenatal exposure to an environmental toxin: A test of the multiple effects model. Dev. Psychobiol. 20:523-532.

Jacobson J.L., G.G. Fein, S.W. Jacobson, P.M. Schwartz and J.K. Dowler. 1984b. The transfer of polychlorinated biphenyls (PCBs) and polybrominated biphenyls (PBBs) across the human placenta and into maternal milk. Am. J. Public Health. 74:378-379.

Jacobson, J.L., S.W. Jacobson, and H.E.B. Humphrey. 1990a. Effects of in utero exposure to polychlorinated biphenyls and related contaminants on cognitive-functioning in young children. J. Pediatr. 116:38-45.

Jacobson, J.L., S.W. Jacobson, and H.E.B. Humphrey. 1990b. Effects of exposure to PCBs and related compounds on growth and activity in children. Neurotoxicol. Teratol. 12:319-326.

Kimbrough, R. 1987. Human health effects of polychlorinated biphenyls (PCBs) and polybrominated biphenyls (PBBs). Ann. Rev. Pharmacol. Toxicol. 27:89-111.

Mather, P.B. 1987. A preliminary assessment of risk associated with land disposal of sludge containing polychlorinated biphenyls. Prepared for the Madison (Wisconsin) Metropolitan Sewerage District.

Moore, J.A., J.F. Hardisty, D.A. Banas, and M.A. Smith. 1994. A comparison of liver tumor diagnoses from seven PCB studies in rats. Regulatory Toxicology and Pharmacology 20: 362-370.

NCI (National Cancer Institute). 1978. Bioassay of Aroclor 1254 for possible carcinogenicity. NCI-GC-TR-38. NTIS PB 279624.

Nielson, D.M., Practical Handbook of Ground-Water Monitoring (Lewis Publishing, Chelsea, Michigan: 1991.

Norback, D. and L. Weltman. 1985. Polychlorinated biphenyl induction of hepatocellular carcinoma in the Sprague-Dawley rat. Environ. Health Persp. 60: 97-105.

NYSDEC. 1993. Water quality regulations: Surface water and groundwater classifications and standards. New York State Codes, Rules and Regulations Title 6, Chapter X, Parts 700-705.

NYSDEC. 1994. Fish and wildlife impact analysis for inactive hazardous waste sites (FWIA). Division of fish and wildlife.

O'Brien & Gere Engineers, Inc., Site Assessment, General Electric Aerospace, West Lot, French Road Facility, Utica, New York (Syracuse, New York: May 1991).

O'Brien & Gere Engineers, Inc., Focused Remedial Investigation, General Electric Aerospace, West Lot Site, General Electric Company, Utica, New York (Syracuse, New York: July 1992).

O'Brien & Gere Engineers, Inc., West Lot Site, Additional Investigations (Syracuse, New York: April 16, 1993).

O'Brien & Gere Engineers, Inc., Work Plan - Interim Remedial Measure, West Lot Site, Martin Marietta Corporation, Utica, New York (Syracuse, New York: September 1993).

Paneth, N. 1991. Human reproduction after eating PCB-contaminated fish. Health and Environmental Digest 5: 4-6.

Reynolds, R.J., "Availability of Ground Water from Unconsolidated Deposits in the Mohawk River Basin," in U.S. Geological Survey Water Resources Investigation Report 88-4091 (U.S Department of the Interior, New York: 1990.)

Rogan, W.J., B.C. Gladen, J.D. McKinney, N. Carreras, P. Hardy, J. Thullen, J. Tinglestad, and M. Tully. 1986. Neonatal effects of transplacental exposure to PCBs and DDE. J. Pediatr. 109:335-341.

Rogan, W.J., and B.C. Gladden. 1991. PCBs, DDE and child development at 18 and 24 months. Annals of Epidemiology 1: 407-413.

Schaeffer, E., H. Greim, and W. Goessner. 1984. Pathology of chronic polychlorinated biphenyl (PCB) feeding in rats. Toxicol. Appl. Pharm. 75: 278-288.

Seegal, R.F., K.O. Brosch, and B. Bush. 1986a. Polychlorinated biphenyls produce regional alterations of dopamine metabolism in rat brain. Toxicol Lett. 30: 197-202. (As cited in ATSDR, 1993).

Seegal, R.F., K.O. Brosch, and R. Okoniewski. 1988b. Regional alerations in serotonin metabolism induced by oral exposure of rats to polychlorinated biphenyls. Neurotoxicology 7: 155-166. (As cited in ATSDR, 1993).

Seegal, R.F., B. Bush, and W. Shain. 1990. Lightly chlorinated ortho-substituted PCB congeners decrease dopamine in nonhuman primate brain and tissue culture. Toxicol. Appl. Pharmacol. 106: 136-144. (As cited in ATSDR, 1993).

Seegal, R.F., B. Bush, and K.O. Brosch. 1991. Comparison of effects of Aroclors 1016 and 1260 on non-human primate catecholamine function. Toxicology 66: 145-163. (As cited in ATSDR, 1993).

Seegal, R.F., B. Bush, and K.O. Brosch. 1992. PCBs induce long-term changes in dopaminergic function in the non-human primate. In: Organohalogen compounds, Vol. 10: 12th International Symposium on Dioxins and Related Compounds, August 24-28, Tampere, Finland, 319-322. (As cited in ATSDR, 1993).

Taylor, P.R., C.E. Lawrence, H.L. Hwang, and A.S. Paulson. 1984. Polychlorinated biphenyls: Influence on birthweight and gestation. Am. J. Public Health. 74:1153-1154.

Taylor, P.R., J.M. Stelma, I. Auger, and C. Lawrence, 1988. The relation of occupational polychlorinated biphenyl exposure to cancer and total mortality. Unpublished study funded by the National Cancer Institute.

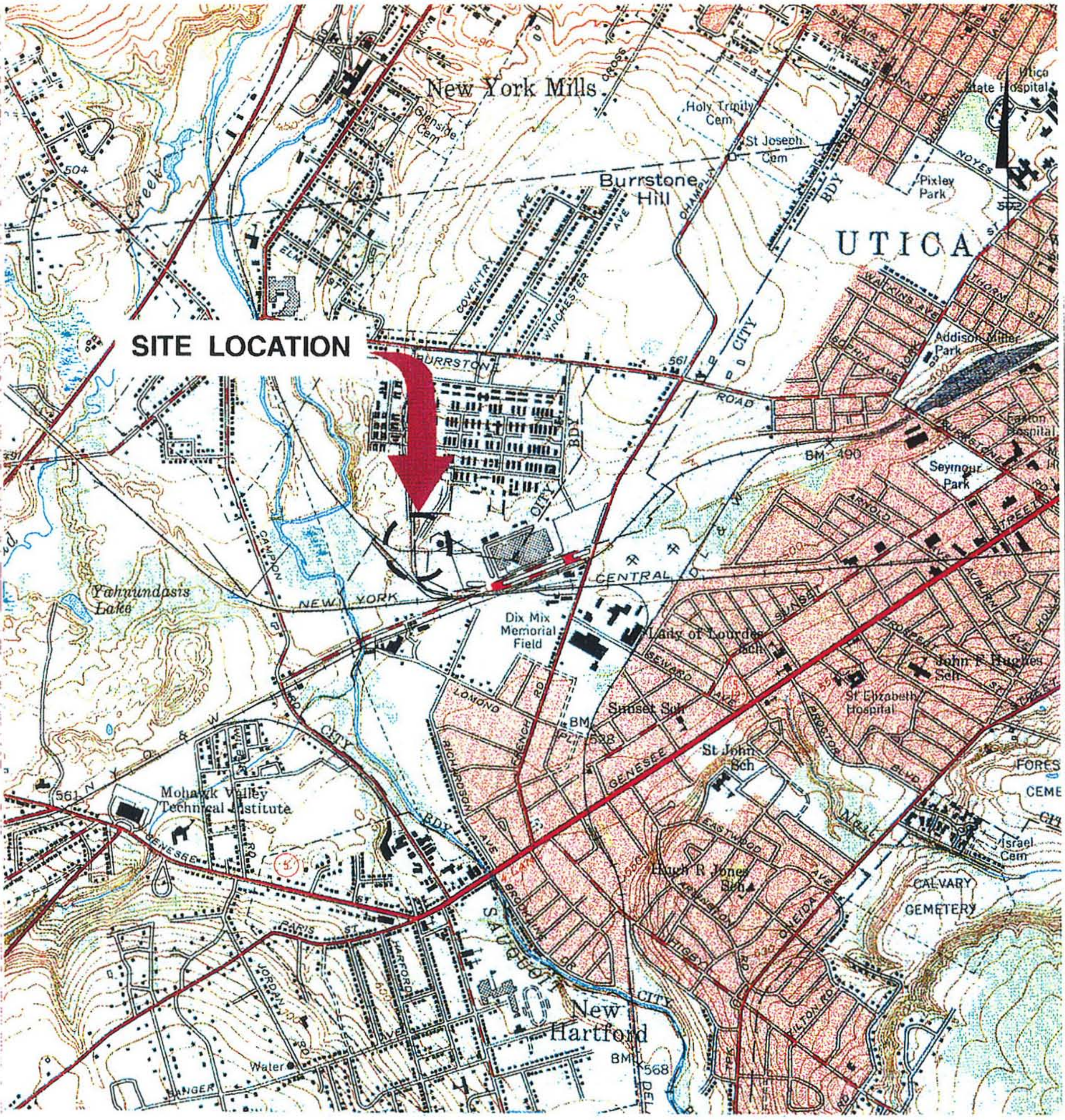
Tryphonas, H., S. Hayward, L. O'Grady et al. 1989. Immunotoxicitiy studies of PCB (Aroclor 1254) in the adult rhesus (Macaca mulatta) monkey -- preliminary report. Int. J. Immunopharmacol. 11: 199-206. (As cited in ATSDR, 1993 and IRIS, 1994).

Tryphonas, H., M.I. Luster, G. Schiffman et al. 1991a. Effects of chronic exposure of PCB (Aroclor 1254) on specific and nonspecific immune parameters in the rhesus (Macaca mulatta) monkey. Fund. Appl. Toxicol. 16(4): 773-786. (As cited in ATSDR, 1993 and IRIS, 1994).

Tryphonas, H., M.I. Luster, K.L. White et al. 1991b. Effects of PCB (Aroclor 1254) on non-specific immune parameters in Rhesus (Macaca mulatta) monkeys. Int. J. Immunopharmacol. 13: 639-648. (As cited in ATSDR, 1993 and IRIS, 1994).

Van Diver, B.B., Roadside Geology of New York (Mountain Press Publishing Company, Missoula, Montana: 1985.)

Figures



REFERENCE: UTICA WEST, N.Y. USGS QUAD. 1955

2000' 0 2000'

APPROX. SCALE: 1" = 2000'

7/95 D54-JVM
38068001/38068N01.CDR

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

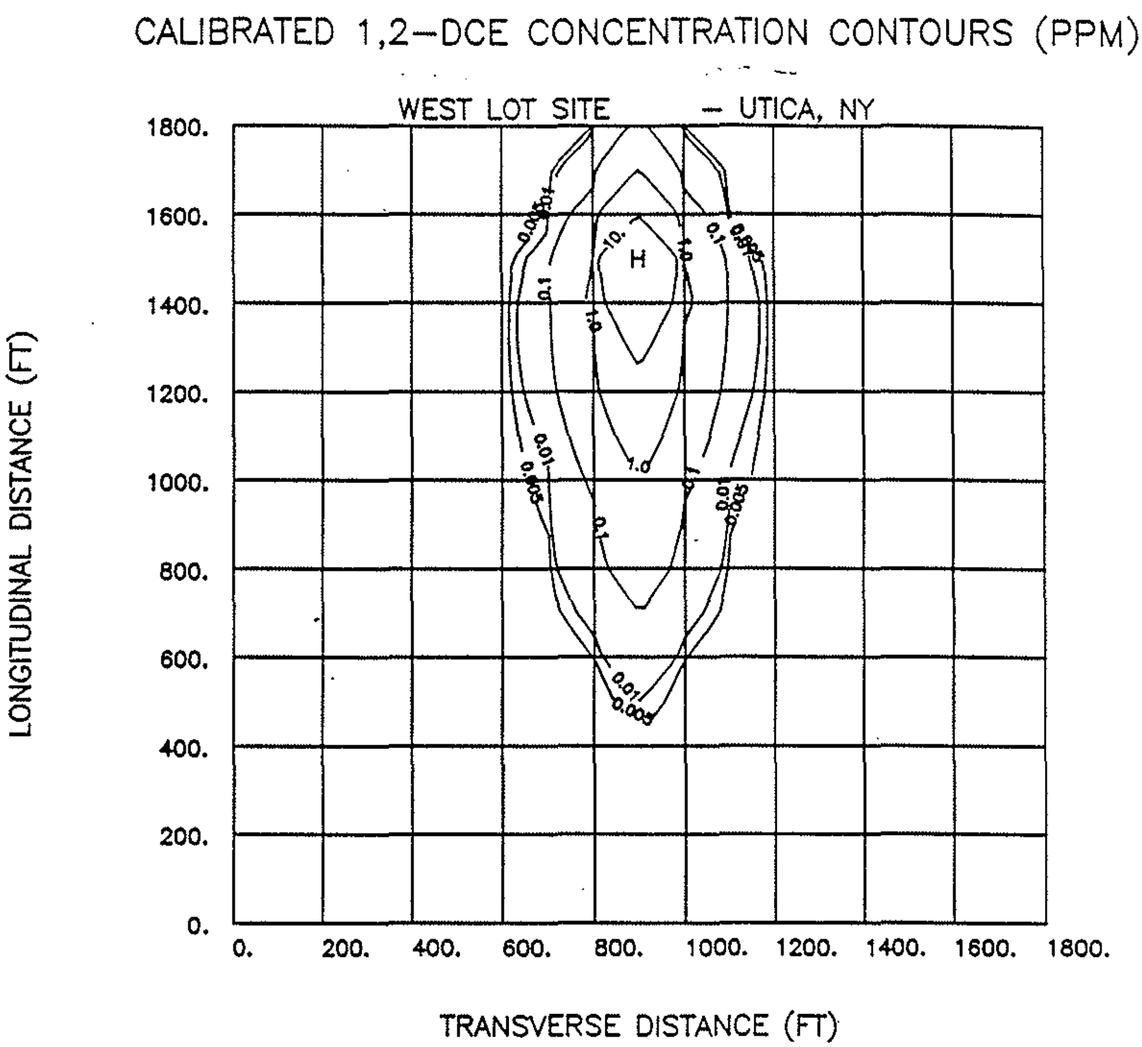
MARTIN MARIETTA CORPORATION
WEST LOT SITE - UTICA, NEW YORK

REMEDIAL INVESTIGATION REPORT

SITE LOCATION MAP

FIGURE 1

FIGURE 2



CALIBRATED 1,2-DCE CONCENTRATION CONTOURS (PPM)
WEST LOT SITE — UTICA, NY
LONGITUDINAL DISTANCE (FT)
TRANSVERSE DISTANCE (FT)
0.
200.
400.
600.
800.
1000.
1200.
1400.
1600.
1800.
H
10.
1.0
0.1
0.01
0.005

FIGURE 3

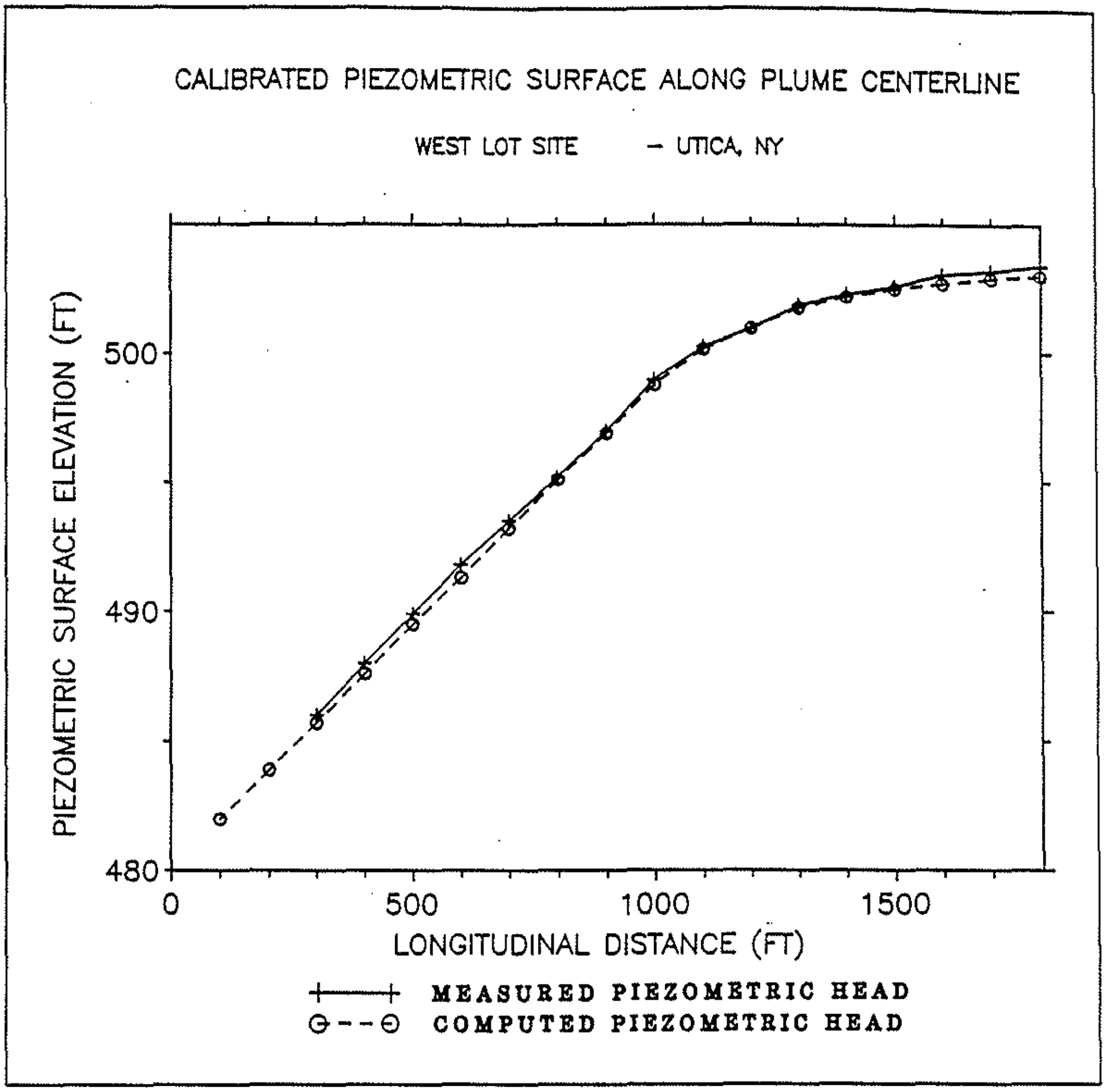

CALIBRATED PIEZOMETRIC SURFACE ALONG PLUME CENTERLINE
WEST LOT SITE - UTICA, NY
PIEZOMETRIC SURFACE ELEVATION (FT)
500
490
480
0
500
1000
1500
LONGITUDINAL DISTANCE (FT)
MEASURED PIEZOMETRIC HEAD
COMPUTED PIEZOMETRIC HEAD

TABLE 1

PARAMETERS USED IN 1,2−DCE SOLUTE TRANSPORT MODELING
MARTIN MARIETTA CORPORATION
WEST LOT SITE REMEDIAL INVESTIGATION − UTICA, NY

Parameter	Notation	Value	Source
Longitudinal dispersivity	beta	58 ft	Relationship from Gelhar (1986), with a scale of measurement of 575 ft.
Ratio of transverse to longitudinal dispersivity		0.08	Model calibration.
Hydraulic conductivity at plume source area	K1	0.030cm/s	Specific capacity and slug test data (ERM−Northeast, 1992.)
Hydraulic conductivity for area between West Lot and NYSDOT sites.	K2	0.015cm/s	Calibration of piezometric head in the area between the West Lot and NYDOT Sites.
Hydraulic conductivity at NYSDOT site.	K3	0.0075cm/s	YEC (1992) slug test data; model calibration.
Model flow zone thickness	H	10 ft	Upper third of sand and gravel aquifer; zone with highest concentrations.
Organic−carbon based partitioning coefficient for 1,2−DCE	Koc	49 cm^3/g	Howard, P. H. 1990. Handbook of Environmental Fate and Exposure Data, Lewis Publishers.
Fraction of organic carbon in saturated soil	foc	0.014	Calculated based on mean of TOC results from Phase I Ground−Water Studies.
Moisture content	%moist	0.16	Calculated based on % solids results from Phase I Ground−Water Studies: %moist=1−%solids (saturated).
Retardation factor	R	4.5	R=Kd*Bd/n.
Bulk density	Bd	1.76 g/cm^3	Calculated based on % solids results from Phase I Ground−Water Studies and assumed mineral density of 2.65 g/cm^3.
Porosity	n	0.34	Calculated based on % solids results from Phase I Ground−Water Studies and assumed mineral density of 2.65 g/cm^3.
Soil−water partition coefficient	Kd	0.68 cm^3/g	Kd=Koc*foc.
Biogenic half−life	t−1/2	8.6 yr	Model calibration.

TABLE 2

CALIBRATED CONCENTRATION RESULTS
MARTIN MARIETTA CORPORATION
WEST LOT SITE REMEDIAL INVESTIGATION – UTICA, NY

Calibration Target Well	Target Concentration (mg/L)	Computed Concentration (mg/L)
MW–G / MW–Ar/MW–Adr	60–70	69.
MW–D	3.0–4.0	3.4
MW–F	0.01	0.01
MW–5	ND (0.001)	0.003

Attachment D-1
Solute-Transport Model
Output File

U.S.G.S. METHOD-OF-CHARACTERISTICS MODEL FOR SOLUTE TRANSPORT IN GROUND WATER

LOCKHEED MARTIN CORPORATION, WEST LOT SITE SOLUTE-TRANSPORT MODEL, UTICA, NY

```
                     I N P U T    D A T A

                       GRID DESCRIPTORS

          NX     (NUMBER OF COLUMNS)   =    20
          NY     (NUMBER OF ROWS)      =    20
          XDEL   (X-DISTANCE)          =   100.0
          YDEL   (Y-DISTANCE)          =   100.0

                       TIME  PARAMETERS

          NTIM   (MAX. NO. OF TIME STEPS)          =      1
          NPMP   (NO. OF PUMPING PERIODS)          =      1
          PINT   (PUMPING PERIOD IN YEARS)         =    40.000
          TIMX   (TIME INCREMENT MULTIPLIER)       =       .00
          TINIT  (INITIAL TIME STEP IN SEC.)       =      0.

          HYDROLOGIC AND CHEMICAL PARAMETERS

          S        (STORAGE COEFFICIENT)          =        .000000
          POROS    (EFFECTIVE POROSITY)           =        .340
          BETA     (LONGITUDINAL DISPERSIVITY)    =      58.0
          DLTRAT   (RATIO OF TRANSVERSE TO
                   LONGITUDINAL DISPERSIVITY)     =        .08
          ANFCTR   (RATIO OF T-YY TO T-XX)        =       1.000000

                    EXECUTION PARAMETERS

          NITP    (NO. OF ITERATION PARAMETERS) =     4
          TOL     (CONVERGENCE CRITERIA - ADIP) =   .10E-01
          ITMAX   (MAX.NO.OF ITERATIONS - ADIP) =   200
          CELDIS  (MAX.CELL DISTANCE PER MOVE
                      OF PARTICLES - M.O.C.)    =      .400
          NPMAX   (MAX. NO. OF PARTICLES)       = 6400
          NPTPND  (NO. PARTICLES PER NODE)      =      5

                      PROGRAM OPTIONS

          NPNT    (TIME STEP INTERVAL FOR
                   COMPLETE PRINTOUT)          =      1
          NPNTMV  (MOVE INTERVAL FOR CHEM.
                   CONCENTRATION PRINTOUT)     =      0
          NPNTVL  (TIME STEP INTERVAL FOR
                   VELOCITY PRINTOUT; 0=NEVER;
                   -1=FIRST TIME STEP;
                   -2=LAST TIME STEP)          =      0
          NPNTD   (PRINT OPTION-DISP.COEF.
                   0=NO; 1=FIRST TIME STEP;
                   2=ALL TIME STEPS)           =      0
          NUMOBS  (NO. OF OBSERVATION WELLS
```

```
              FOR HYDROGRAPH PRINTOUT) =      5
        NREC   (NO. OF PUMPING WELLS)    =      0
        NCODES (FOR NODE IDENT.)         =      2
        NPDELC (PRINT OPT.-CONC. CHANGE) =      0
        IREACT (REACTION SPECIFIER)      =      1


        REACTION - LINEAR SORPTION .


        RHOB     (BULK DENSITY)                  =  1.76000E+00
        DK       (DISTRIBUTION COEFFICIENT)      =  6.80000E-01
        RF       (RETARDATION FACTOR)            =  4.52000E+00

        THALF    (HALF LIFE OF DECAY,IN SEC)     =  2.70000E+08
        DECAY    (DECAY CONSTANT=LN 2/THALF)     =  2.56721E-09

   OPTIONS TO CREATE ADDITIONAL OUTPUT FILES


NOBSO      Write observation well data    (0: do not write; 1: write)       =  1

NHEADO     Write head data (0: do not write; -1: write initial head only;
           1: write final head only;  2: write initial and final head)     =  1

NPNCHV     Write velocity data (0: do not write; 1: write final velocity)  =  0

NCONCO     Write concentration data (0: do not write; -1: write initial
           conc.; 1: write final conc.; 2: write initial and final conc.) =  1

NPARMO     Write transmissivity, sat. thickness, diffuse recharge/dis-
           charge, & hydraulic conductivity data to separate files using
           values from input data  (0: do not write any; 1: write all)     =  0


  THE FOLLOWING ADDITIONAL OUTPUT FILES WILL BE CREATED:

 observation well data ............ f14.obs
 final hydraulic head data ........ f14.hd1
 final concentration data ......... f14.cn1


           STEADY-STATE FLOW

   TIME INTERVALS (IN SEC) FOR SOLUTE-TRANSPORT SIMULATION
   .12623E+10


      LOCATION OF OBSERVATION WELLS

             NO.      X      Y

              1      10      5
              2      10      8
              3       9      8
              4      12      9
              5       7      7
```

AREA OF ONE CELL = .1000E+05

X-Y SPACING:
100.00
100.00

TRANSMISSIVITY MAP (L**2/SEC)

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
0.00E+00	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
0.00E+00	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
0.00E+00	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
0.00E+00	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-0
0.00E+00	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-0
5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-0
0.00E+00	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-0
5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-0
0.00E+00	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-0
5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-04	5.70E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-04	2.85E-0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0

AQUIFER THICKNESS (L)

.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1

.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1
.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	

HYDRAULIC CONDUCTIVITY MAP (L/SEC)

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
0.00E+00	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
0.00E+00	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
0.00E+00	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
0.00E+00	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-0
0.00E+00	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-0
5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-0
0.00E+00	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-0
5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-0
0.00E+00	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-0
5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-05	5.70E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-05	2.85E-0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0

0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+0

NO. OF FINITE-DIFFERENCE CELLS IN AQUIFER = 324

AREA OF AQUIFER IN MODEL = .32400E+07 (L**2)

NZCRIT (MAX. NO. OF CELLS THAT CAN BE VOID OF PARTICLES; IF EXCEEDED, PARTICLES ARE REGENERATED) = 6

NODE IDENTIFICATION MAP

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NO. OF NODE IDENT. CODES SPECIFIED = 2

THE FOLLOWING ASSIGNMENTS HAVE BEEN MADE:

CODE NO.	LEAKANCE	SOURCE CONC.	RECHARGE
1	.100E+01	.00	.000E+00
2	.000E+00	1130.00	

LEAKANCE COEF. = VERTICAL HYDRAULIC COND./THICKNESS (L/(L*SEC))

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+0
1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+0
1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0

DIFFUSE RECHARGE AND DISCHARGE (L/SEC)

0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+0
0.00E+00	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
0.00E+00	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
0.00E+00	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
0.00E+00	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
0.00E+00	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0
0.00E+00	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-09	-5.68E-0

```
-5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-0
 0.00E+00 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-0
-5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-09 -5.68E-0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
 0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+00  0.00E+0
```

INITIAL HEADS AND SPECIFIED BOUNDARY HEADS

```
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0. 503. 503. 503. 503. 503. 503. 503. 503. 503. 503. 503. 503. 503. 503. 503
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
  0. 482. 482. 482. 482. 482. 482. 482. 482. 482. 482. 482. 482. 482. 482. 482
  0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0.   0
```

HEAD DISTRIBUTION (BY ROW)

```
NUMBER OF TIME STEPS =       0
       TIME(SECONDS)  =    .00000
       TIME(DAYS)     =    .00000E+00
       TIME(YEARS)    =    .00000E+00

   .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
```

```
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000  503.0000000  503.0000000  503.0000000  503.0000000  503.0000000  503.00
  503.0000000  503.0000000  503.0000000  503.0000000  503.0000000  503.0000000  503.00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000  482.0000000  482.0000000  482.0000000  482.0000000  482.0000000  482.00
  482.0000000  482.0000000  482.0000000  482.0000000  482.0000000  482.0000000  482.00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00
     .0000000     .0000000     .0000000     .0000000     .0000000     .0000000     .00


CONCENTRATION

NUMBER OF TIME STEPS =      0
       TIME(SECONDS) =    .00000
  CHEM.TIME(SECONDS) =    .00000E+00
  CHEM.TIME(DAYS)    =    .00000E+00
       TIME(YEARS)   =    .00000E+00
  CHEM.TIME(YEARS)   =    .00000E+00
 NO. MOVES COMPLETED =      0

    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0

    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
```

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

N = 1
NUMBER OF ITERATIONS = 20

HEAD DISTRIBUTION (BY ROW)

NUMBER OF TIME STEPS = 1
TIME(SECONDS) = .12623E+10
TIME(DAYS) = .14610E+05
TIME(YEARS) = .40000E+02

.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.00
.0000000	.0000000	.0000000	.0000000	.0000000	.0000000	.00
.0000000	503.0000000	503.0000000	503.0000000	503.0000000	503.0000000	503.00
503.0000000	503.0000000	503.0000000	503.0000000	503.0000000	503.0000000	503.00
.0000000	502.8914091	502.8929865	502.8934790	502.8932425	502.8931556	502.89
502.8932491	502.8932256	502.8931873	502.8931532	502.8931556	502.8932425	502.89
.0000000	502.7257921	502.7265458	502.7265401	502.7260833	502.7259656	502.72
502.7263311	502.7262644	502.7261487	502.7260251	502.7259656	502.7260833	502.72
.0000000	502.5095421	502.5093119	502.5088827	502.5083550	502.5082894	502.50
502.5089667	502.5088601	502.5086693	502.5084468	502.5082894	502.5083550	502.50
.0000000	502.2499053	502.2504750	502.2505114	502.2500347	502.2500421	502.25
502.2509088	502.2507826	502.2505523	502.2502714	502.2500421	502.2500347	502.25
.0000000	501.7881744	501.7907355	501.7912621	501.7907872	501.7908660	501.79
501.7919760	501.7918227	501.7915389	501.7911822	501.7908660	501.7907872	501.79

```
    .0000000 501.0654752 501.0680815 501.0687322 501.0682273 501.0683853 501.06
 501.0698463 501.0696510 501.0692862 501.0688189 501.0683853 501.0682273 501.06
    .0000000 500.2363467 500.2381283 500.2386901 500.2382451 500.2385134 500.23
 500.2402818 500.2400543 500.2396250 500.2390626 500.2385134 500.2382451 500.23
    .0000000 498.8405685 498.8427810 498.8432965 498.8429736 498.8433799 498.84
 498.8454228 498.8451721 498.8446920 498.8440462 498.8433799 498.8429736 498.84
    .0000000 496.9793220 496.9819155 496.9826527 496.9822554 496.9826489 496.98
 496.9847918 496.9845258 496.9840180 496.9833388 496.9826489 496.9822554 496.98
    .0000000 495.1149873 495.1179912 495.1186947 495.1180044 495.1182360 495.11
 495.1202852 495.1200155 495.1195085 495.1188526 495.1182360 495.1180044 495.11
    .0000000 493.2459889 493.2493100 493.2499811 493.2490368 493.2490824 493.24
 493.2508929 493.2506373 493.2501656 493.2495789 493.2490824 493.2490368 493.24
    .0000000 491.3705841 491.3734896 491.3739914 491.3729655 491.3728959 491.37
 491.3744280 491.3741999 491.3737845 491.3732833 491.3728959 491.3729655 491.37
    .0000000 489.4906280 489.4919317 489.4918200 489.4907878 489.4906456 489.49
 489.4919233 489.4917238 489.4913646 489.4909429 489.4906456 489.4907878 489.49
    .0000000 487.6143743 487.6146225 487.6140759 487.6130634 487.6128460 487.61
 487.6138145 487.6136510 487.6133621 487.6130376 487.6128460 487.6130634 487.61
    .0000000 485.7458524 485.7470568 485.7470019 485.7461752 485.7459309 485.74
 485.7464763 485.7463709 485.7461898 485.7460017 485.7459309 485.7461752 485.74
    .0000000 483.8766671 483.8785286 483.8790025 483.8785595 483.8783974 483.87
 483.8785745 483.8785313 483.8784601 483.8783953 483.8783974 483.8785595 483.87
    .0000000 482.0000001 482.0000001 482.0000001 482.0000001 482.0000001 482.00
 482.0000001 482.0000001 482.0000001 482.0000001 482.0000001 482.0000001 482.00
    .0000000     .0000000    .0000000    .0000000    .0000000    .0000000    .00
    .0000000     .0000000    .0000000    .0000000    .0000000    .0000000    .00
```

```
HEAD DISTRIBUTION (BY ROW)

NUMBER OF TIME STEPS =      1
       TIME(SECONDS) =   .12623E+10
       TIME(DAYS)    =   .14610E+05
       TIME(YEARS)   =   .40000E+02

   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0

   0 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503

   0 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503

   0 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503

   0 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503 503

   0 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502

   0 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502 502

   0 501 501 501 501 501 501 501 501 501 501 501 501 501 501 501 501 501 501

   0 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500 500

   0 499 499 499 499 499 499 499 499 499 499 499 499 499 499 499 499 499 499

   0 497 497 497 497 497 497 497 497 497 497 497 497 497 497 497 497 497 497

   0 495 495 495 495 495 495 495 495 495 495 495 495 495 495 495 495 495 495
```

0	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493
0	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491	491
0	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
0	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488	488
0	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486
0	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484	484
0	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482	482
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CUMULATIVE MASS BALANCE -- (IN L**3)

```
RECHARGE AND INJECTION      =  -.90341E+07
PUMPAGE AND E-T WITHDRAWAL  =   .00000E+00
CUMULATIVE  NET  PUMPAGE    =  -.90341E+07
WATER RELEASE FROM STORAGE  =   .00000E+00
LEAKAGE INTO AQUIFER        =   .27713E+07
LEAKAGE OUT OF AQUIFER      =  -.12163E+08
CUMULATIVE  NET  LEAKAGE    =  -.93921E+07

    MASS BALANCE RESIDUAL   =  -.35808E+06
    ERROR  (AS PERCENT)     =  -2.9879
```

RATE MASS BALANCE -- (IN L**3/SEC)

```
LEAKAGE INTO AQUIFER        =   .21954E-02
LEAKAGE OUT OF AQUIFER      =  -.96359E-02
NET LEAKAGE     (QNET)      =  -.74405E-02
RECHARGE AND INJECTION      =  -.71568E-02
PUMPAGE AND E-T WITHDRAWAL  =   .00000E+00
NET WITHDRAWAL    (TPUM)    =  -.71568E-02
```

STABILITY CRITERIA --- M.O.C.

```
MAXIMUM FLUID VELOCITIES (L/T):  X-VEL =  5.29E-09     Y-VEL =  1.58E-06

MAXIMUM EFFECTIVE SOLUTE VELOCITIES:  X-VEL =  1.17E-09     Y-VEL =  3.49E-

TMV (MAX. INJ.) =   .12414E+10
TIMV (CELDIS)   =   .11458E+09

TIMV =  1.15E+08     NTIMV =     11     NMOV =    12
```

```
TIM (N)  =   .12623E+10
TIMEVELO =   .10519E+09
TIMEDISP =   .22972E+09

TIMV =  1.05E+08     NTIMD =      5     NMOV =     12

        THE LIMITING STABILITY CRITERION IS CELDIS
  MAX. Y-VEL. IS CONSTRAINT AND OCCURS BETWEEN NODES (10,14) AND (10,15)

        NO. OF PARTICLE MOVES REQUIRED TO COMPLETE THIS TIME STEP  =   12


NP       =         1620        IMOV    =          1
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          2
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          3
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          4
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          5
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          6
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          7
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          8
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =          9
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =         10
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =         11
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =

NP       =         1620        IMOV    =         12
TIM(N)   =   .12623E+10        TIMV    =   .10519E+09        SUMTCH =


CONCENTRATION

NUMBER OF TIME STEPS =      1
       DELTA T       =   .12623E+10
       TIME(SECONDS) =   .12623E+10
  CHEM.TIME(SECONDS) =   .12623E+10
  CHEM.TIME(DAYS)    =   .14610E+05
       TIME(YEARS)   =   .40000E+02
  CHEM.TIME(YEARS)   =   .40000E+02
 NO. MOVES COMPLETED =    12
```

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	12	0	0	0	0	0
0	0	0	0	0	0	0	0	1	69	1	0	0	0	0
0	0	0	0	0	0	0	0	1	37	1	0	0	0	0
0	0	0	0	0	0	0	0	1	13	1	0	0	0	0
0	0	0	0	0	0	0	0	0	5	0	0	0	0	0
0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

```
CHEMICAL MASS BALANCE

       MASS IN BOUNDARIES      =   .00000E+00
       MASS OUT BOUNDARIES     =  -.14048E+00
       MASS PUMPED IN          =   .81020E+08
       MASS PUMPED OUT         =   .00000E+00
       MASS LOST BY DECAY      =  -.56590E+08
       MASS ADSORBED ON SOLIDS=    .18013E+08
       INITIAL MASS ADSORBED   =   .00000E+00
       INFLOW MINUS OUTFLOW    =   .81020E+08
       INITIAL MASS DISSOLVED =    .00000E+00
       PRESENT MASS DISSOLVED =    .51174E+07
       CHANGE MASS DISSOLVED   =   .51174E+07
       CHANGE TOTL.MASS STORED=    .23130E+08
     COMPARE RESIDUAL WITH NET FLUX AND MASS ACCUMULATION:
       MASS BALANCE RESIDUAL   =   .12994E+07
       ERROR  (AS PERCENT)     =   .16038E+01
```

LOCKHEED MARTIN CORPORATION, WEST LOT SITE, UTICA, NY

TIME VERSUS HEAD AND CONCENTRATION AT SELECTED OBSERVATION POINTS

PUMPING PERIOD NO. 1

STEADY-STATE SOLUTION

OBS.WELL NO.	X	Y	N	HEAD	CONCENTRATION	TIME (YEARS)
1	10	5				
			0	.0	.0	.000
			1	502.5	38.4	3.333
			2	502.5	49.2	6.667
			3	502.5	64.4	10.000
			4	502.5	67.5	13.333
			5	502.5	70.4	16.667
			6	502.5	64.5	20.000
			7	502.5	66.5	23.333
			8	502.5	78.3	26.667
			9	502.5	61.3	30.000
			10	502.5	75.6	33.333
			11	502.5	71.7	36.667
			12	502.5	69.1	40.000

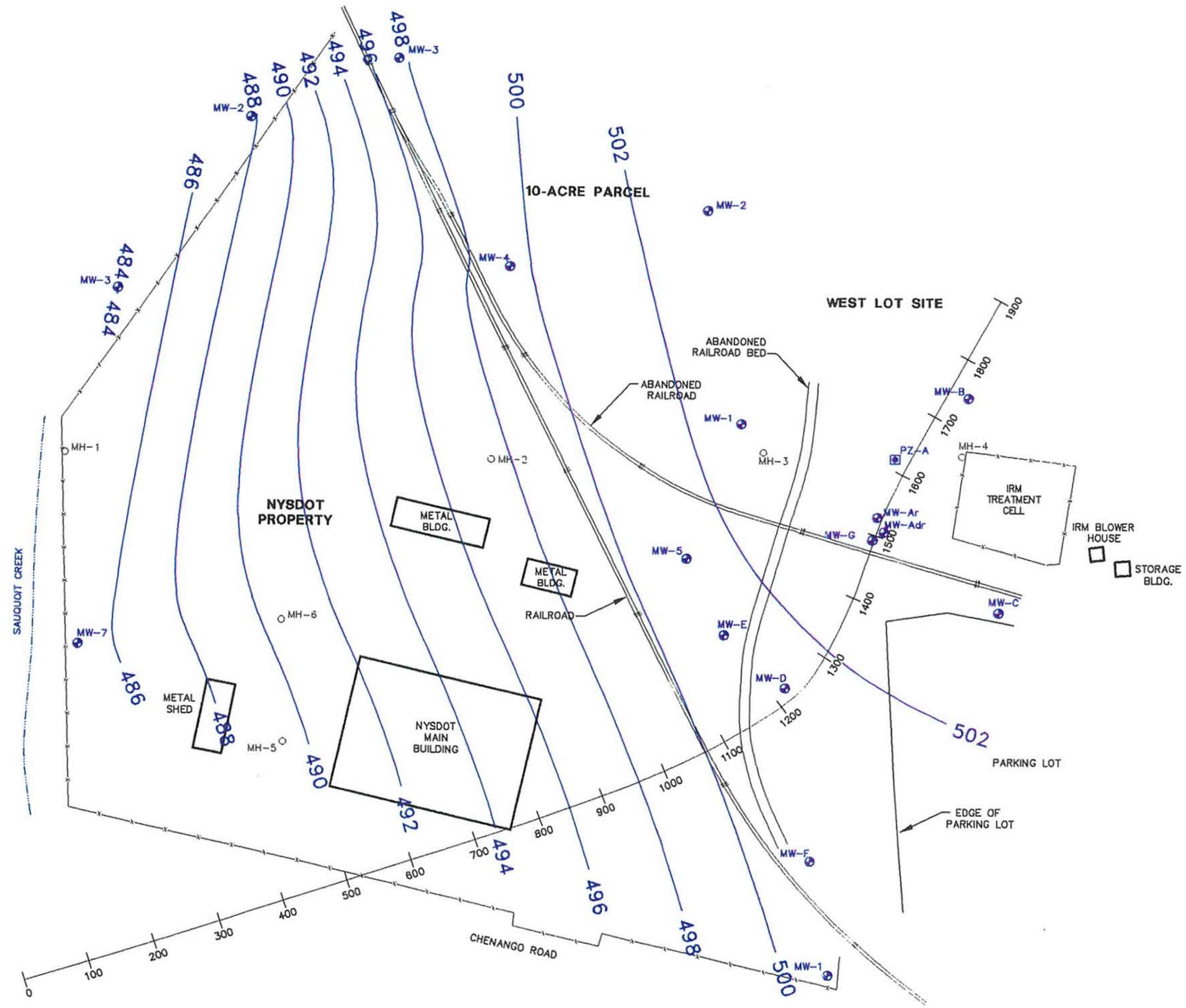
OBS.WELL NO.	X	Y	N	HEAD	CONCENTRATION	TIME (YEARS)
2	10	8				
			0	.0	.0	.000
			1	501.1	.0	3.333
			2	501.1	.0	6.667
			3	501.1	.1	10.000
			4	501.1	1.0	13.333
			5	501.1	1.9	16.667
			6	501.1	2.1	20.000
			7	501.1	3.8	23.333
			8	501.1	4.3	26.667
			9	501.1	4.7	30.000
			10	501.1	6.1	33.333
			11	501.1	5.9	36.667
			12	501.1	5.2	40.000

OBS.WELL NO.	X	Y	N	HEAD	CONCENTRATION	TIME (YEARS)

OBS.WELL NO.	X	Y	N	HEAD	CONCENTRATION	TIME (YEARS)
3	9	8				
			0	.0	.0	.000
			1	501.1	.0	3.333
			2	501.1	.0	6.667
			3	501.1	.0	10.000
			4	501.1	.0	13.333
			5	501.1	.1	16.667
			6	501.1	.1	20.000
			7	501.1	.1	23.333
			8	501.1	.2	26.667
			9	501.1	.3	30.000
			10	501.1	.4	33.333
			11	501.1	.4	36.667
			12	501.1	.4	40.000

OBS.WELL NO.	X	Y	N	HEAD	CONCENTRATION	TIME (YEARS)
4	12	9				
			0	.0	.0	.000
			1	500.2	.0	3.333
			2	500.2	.0	6.667
			3	500.2	.0	10.000
			4	500.2	.0	13.333
			5	500.2	.0	16.667
			6	500.2	.0	20.000
			7	500.2	.0	23.333
			8	500.2	.0	26.667
			9	500.2	.0	30.000
			10	500.2	.0	33.333
			11	500.2	.0	36.667
			12	500.2	.0	40.000

OBS.WELL NO.	X	Y	N	HEAD	CONCENTRATION	TIME (YEARS)
5	7	7				
			0	.0	.0	.000
			1	501.8	.0	3.333
			2	501.8	.0	6.667
			3	501.8	.0	10.000
			4	501.8	.0	13.333
			5	501.8	.0	16.667
			6	501.8	.0	20.000
			7	501.8	.0	23.333
			8	501.8	.0	26.667
			9	501.8	.0	30.000
			10	501.8	.0	33.333
			11	501.8	.0	36.667
			12	501.8	.0	40.000



LEGEND

○ MH-6 MANHOLE

MW-F EXISTING GROUND-WATER MONITORING WELL

PZ-A PIEZOMETER

502 —— GROUND-WATER ELEVATION CONTOUR LINE (FEET)

NOTES:

1. BASE MAP FROM BB&L SURVEY, MAY 1995.
2. GROUND-WATER ELEVATION CONTOURS BASED ON MARCH 13, 1995, DATA.

SCALE:

200' 0 200'

BLASLAND, BOUCK & LEE, INC.

ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION

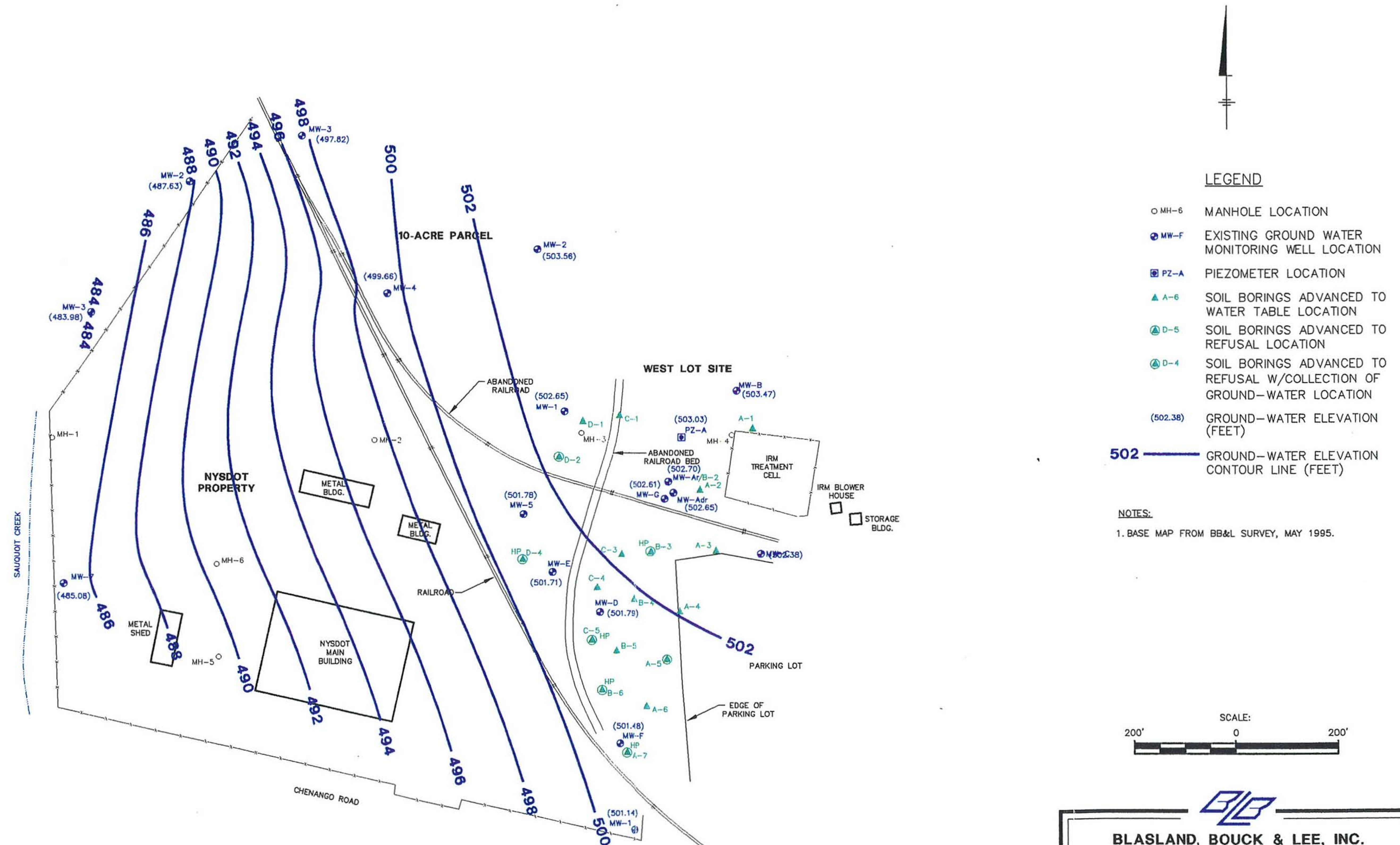
WEST LOT SITE – UTICA, NY

REMEDIAL INVESTIGATION REPORT

SITE PLAN

FIGURE 1

OFF: 05-BL,REF,SB-95,V*,Y,DCE
8/22/95 54-DMW, PGL NES
38034017/38034SM1.DWG



NOTES:

1. BASE MAP FROM BB&L SURVEY, MAY 1995.

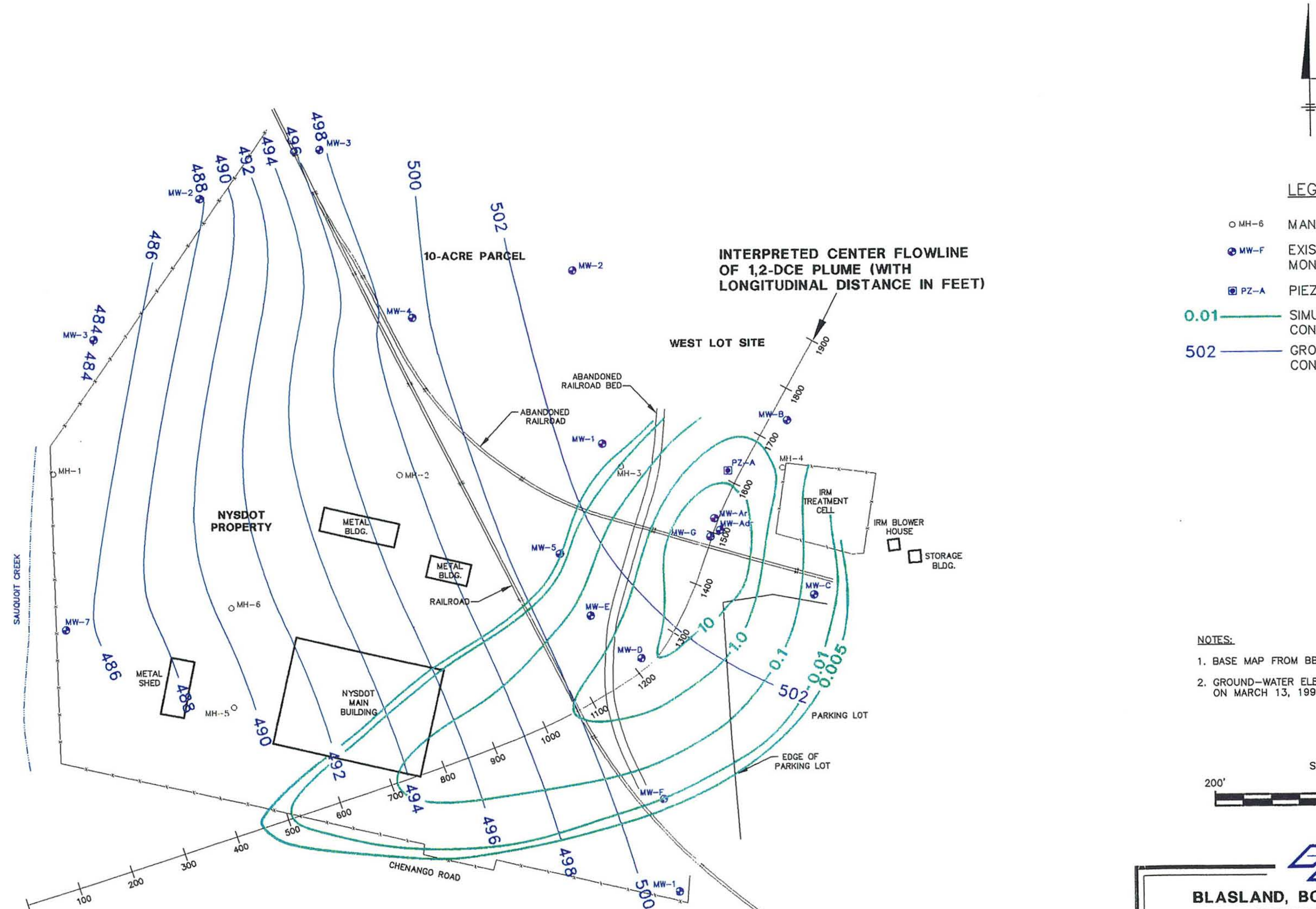
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY
REMEDIAL INVESTIGATION REPORT

GROUND-WATER ELEVATION CONTOUR MAP MARCH 13, 1995

FIGURE 3

GW1,GW1T
7/25/95 54-DMW, PGL, NES
38034017/38034G04.DWG



LEGEND

○ MH-6	MANHOLE
⊕ MW-F	EXISTING GROUND-WATER MONITORING WELL
⊡ PZ-A	PIEZOMETER
0.01 ———	SIMULATED 1,2-DCE PLUME CONTOUR (mg/L)
502 ———	GROUND-WATER ELEVATION CONTOUR LINE (FEET)

NOTES:

1. BASE MAP FROM BB&L SURVEY, MAY 1995.
2. GROUND-WATER ELEVATION CONTOURS BASED ON MARCH 13, 1995, DATA.

SCALE:

200' 0 200'

BLASLAND, BOUCK & LEE, INC.

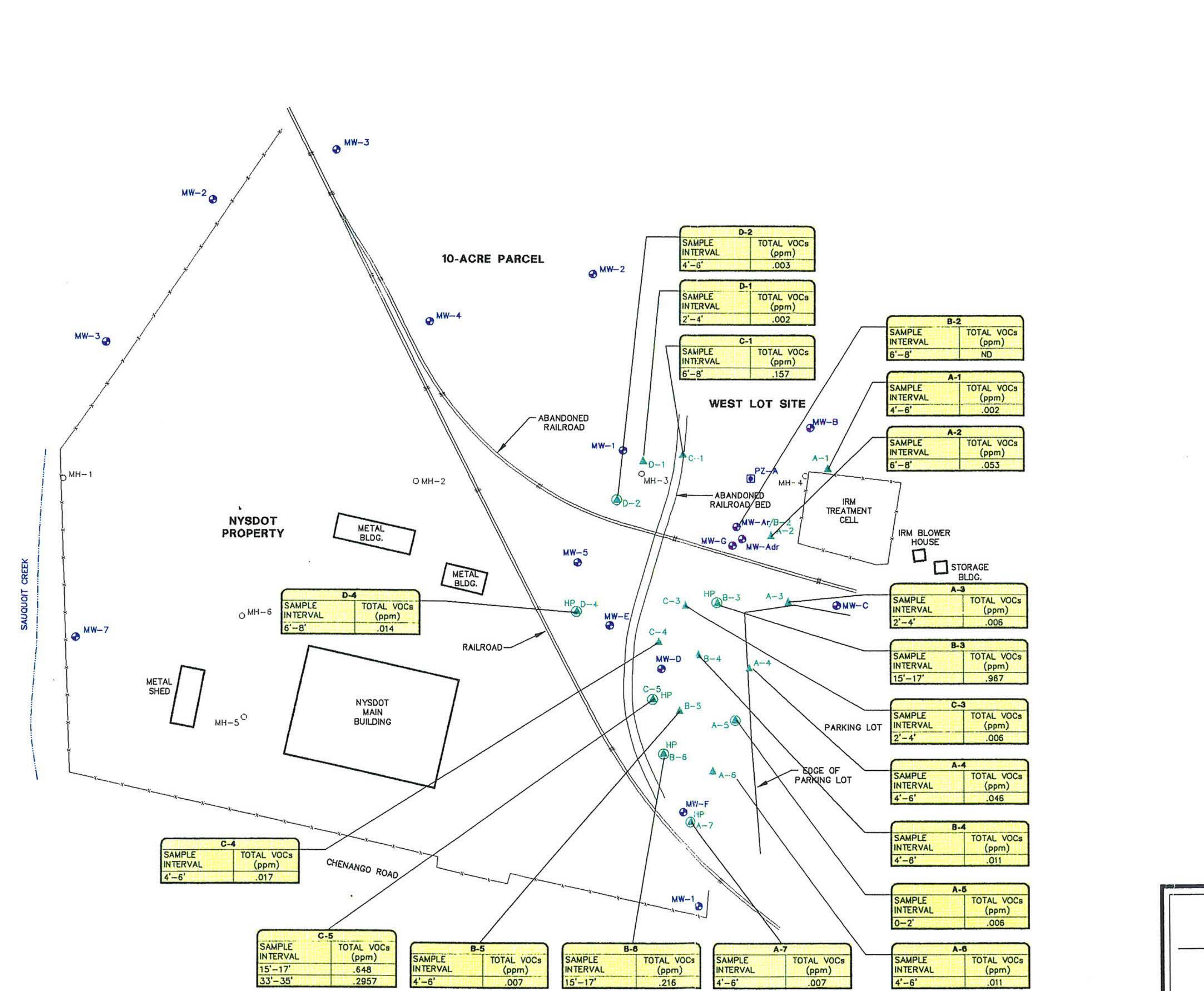
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY
REMEDIAL INVESTIGATION REPORT

SIMULATED 1,2-DCE CONCENTRATION CONTOUR MAP

FIGURE 4

OFF: 05-BL,REF,SB-95,V+,Y, SITEPLAN
8/22/95 54-DMW, PGL NES
38034017/38034SM1.DWG



LEGEND

- MH-6 MANHOLE LOCATION
- MW-F EXISTING GROUND WATER MONITORING WELL LOCATION
- PZ-A PIEZOMETER LOCATION
- A-6 SOIL BORINGS ADVANCED TO WATER TABLE LOCATION
- HP D-5 SOIL BORINGS ADVANCED TO REFUSAL LOCATION
- D-4 SOIL BORINGS ADVANCED TO REFUSAL W/COLLECTION OF GROUND-WATER LOCATION

NOTES:

1. BASE MAP FROM BB&L SURVEY, MAY 1995.
2. SOIL BORINGS B-3, B-6, AND C-5 TAKEN FROM SATURATED SOILS; ALL OTHER SAMPLES TAKEN FROM UNSATURATED SOILS.
3. ND- NOT DETECTED
4. ALL RESULTS ARE REPORTED IN mg/kg (ppm)

SCALE:
200' 0 200'

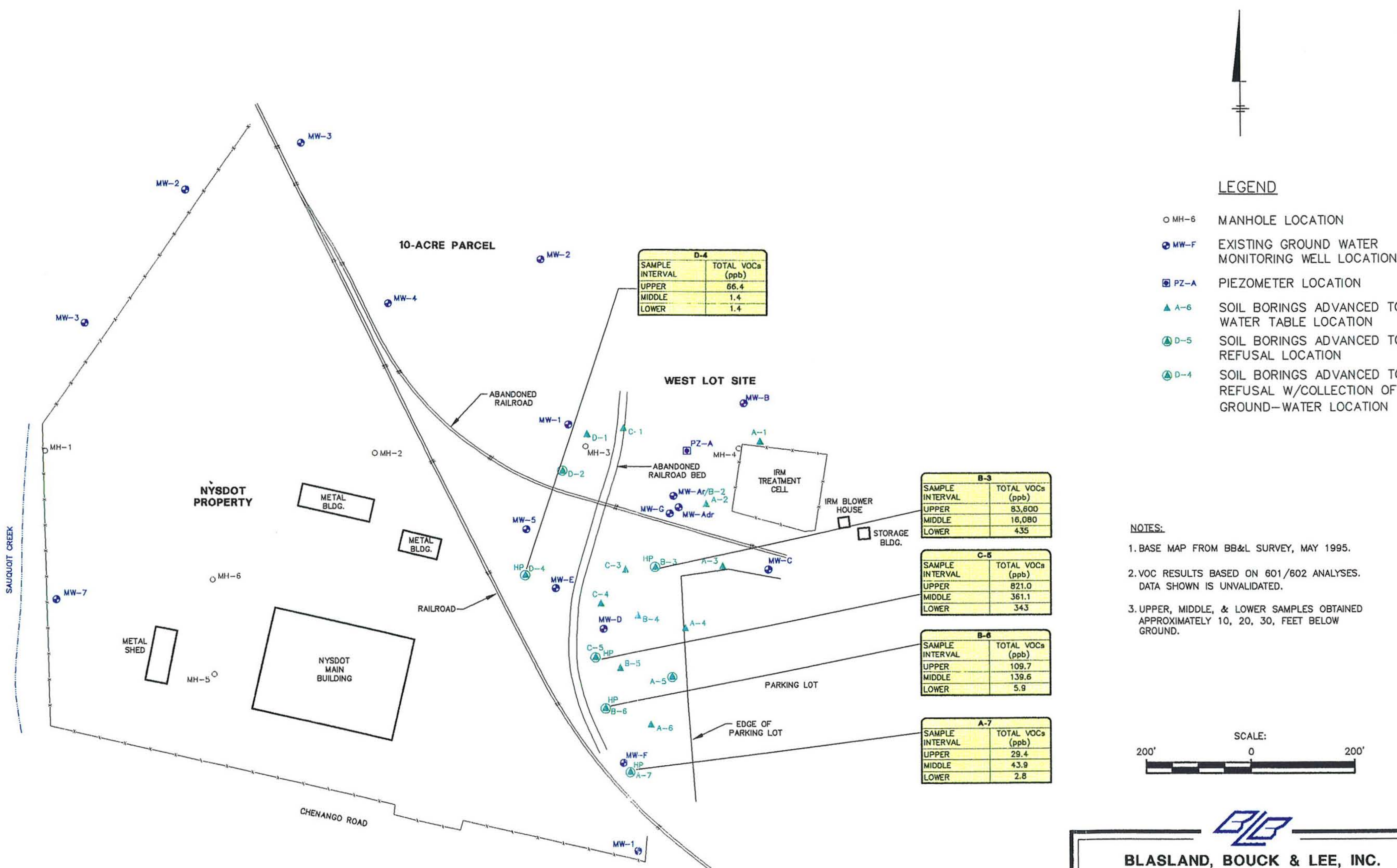
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY
REMEDIAL INVESTIGATION REPORT

SOIL ANALYTICAL RESULTS TOTAL VOCs (ppm)

FIGURE 4

VOCs
7/25/95 54-DMW, PGL, NES
38034017/38034G04.DWG



D-4

SAMPLE INTERVAL	TOTAL VOCs (ppb)
UPPER	66.4
MIDDLE	1.4
LOWER	1.4

B-3

SAMPLE INTERVAL	TOTAL VOCs (ppb)
UPPER	83,600
MIDDLE	16,080
LOWER	435

C-5

SAMPLE INTERVAL	TOTAL VOCs (ppb)
UPPER	821.0
MIDDLE	361.1
LOWER	343

B-6

SAMPLE INTERVAL	TOTAL VOCs (ppb)
UPPER	109.7
MIDDLE	139.6
LOWER	5.9

A-7

SAMPLE INTERVAL	TOTAL VOCs (ppb)
UPPER	29.4
MIDDLE	43.9
LOWER	2.8

NOTES:

1. BASE MAP FROM BB&L SURVEY, MAY 1995.
2. VOC RESULTS BASED ON 601/602 ANALYSES. DATA SHOWN IS UNVALIDATED.
3. UPPER, MIDDLE, & LOWER SAMPLES OBTAINED APPROXIMATELY 10, 20, 30, FEET BELOW GROUND.

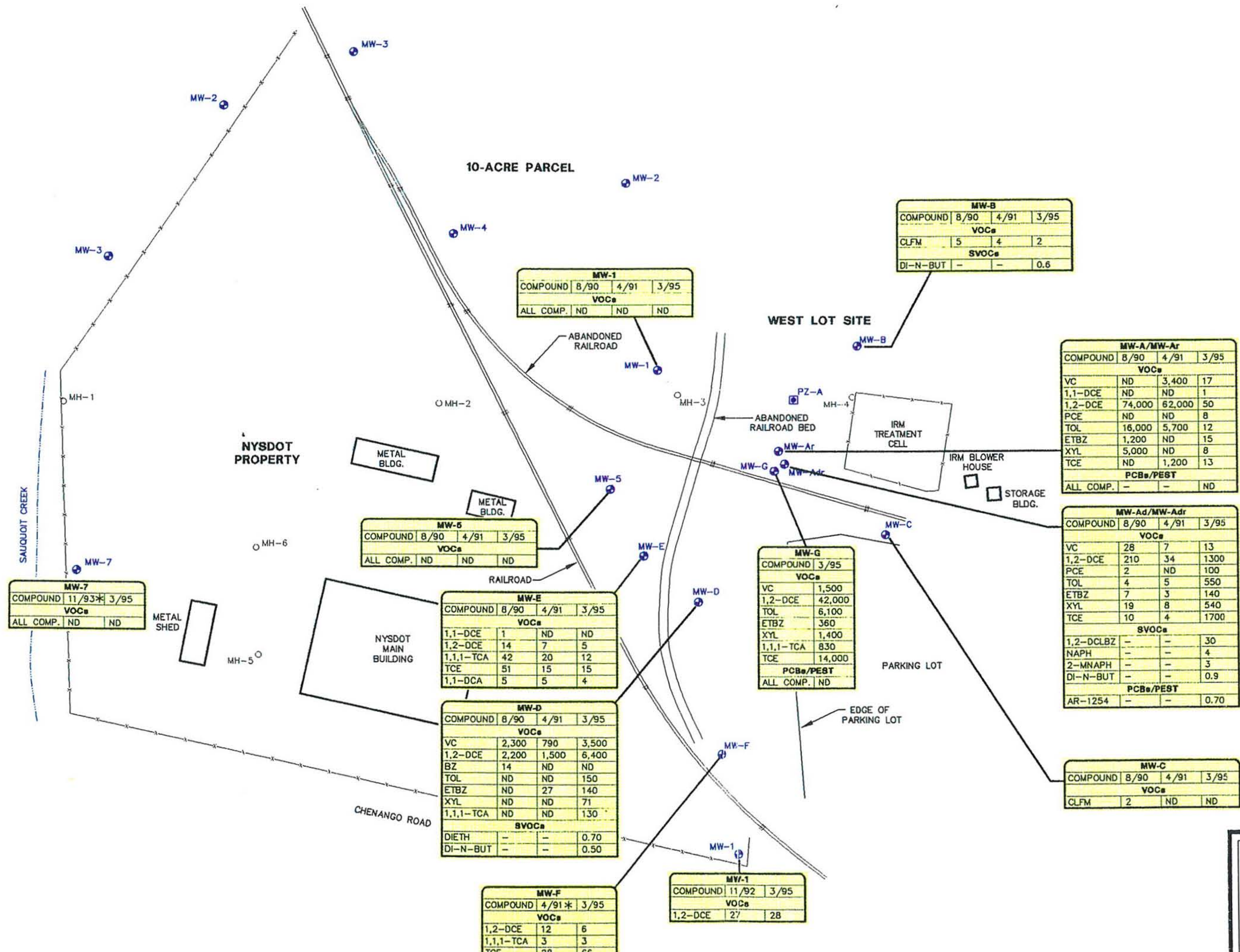
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY
REMEDIAL INVESTIGATION REPORT

PHASE 1 GROUND-WATER ANALYTICAL RESULTS

FIGURE 8

GWRESULTS
7/25/95 54-DMW, PGL, NES
38034017/38034G04.DWG



MW-1			
COMPOUND	8/90	4/91	3/95
VOCs			
ALL COMP.	ND	ND	ND

MW-B			
COMPOUND	8/90	4/91	3/95
VOCs			
CLFM	5	4	2
SVOCs			
DI-N-BUT	–	–	0.6

MW-A/MW-Ar			
COMPOUND	8/90	4/91	3/95
VOCs			
VC	ND	3,400	17
1,1-DCE	ND	ND	1
1,2-DCE	74,000	62,000	50
PCE	ND	ND	8
TOL	16,000	5,700	12
ETBZ	1,200	ND	15
XYL	5,000	ND	8
TCE	ND	1,200	13
PCBs/PEST			
ALL COMP.	–	–	ND

MW-Ad/MW-Adr			
COMPOUND	8/90	4/91	3/95
VOCs			
VC	28	7	13
1,2-DCE	210	34	1300
PCE	2	ND	100
TOL	4	5	550
ETBZ	7	3	140
XYL	19	8	540
TCE	10	4	1700
SVOCs			
1,2-DCLBZ	–	–	30
NAPH	–	–	4
2-MNAPH	–	–	3
DI-N-BUT	–	–	0.9
PCBs/PEST			
AR-1254	–	–	0.70

MW-5			
COMPOUND	8/90	4/91	3/95
VOCs			
ALL COMP.	ND	ND	ND

MW-7		
COMPOUND	11/93*	3/95
VOCs		
ALL COMP.	ND	ND

MW-E			
COMPOUND	8/90	4/91	3/95
VOCs			
1,1-DCE	1	ND	ND
1,2-DCE	14	7	5
1,1,1-TCA	42	20	12
TCE	51	15	15
1,1-DCA	5	5	4

MW-D			
COMPOUND	8/90	4/91	3/95
VOCs			
VC	2,300	790	3,500
1,2-DCE	2,200	1,500	6,400
BZ	14	ND	ND
TOL	ND	ND	150
ETBZ	ND	27	140
XYL	ND	ND	71
1,1,1-TCA	ND	ND	130
SVOCs			
DIETH	–	–	0.70
DI-N-BUT	–	–	0.50

MW-G	
COMPOUND	3/95
VOCs	
VC	1,500
1,2-DCE	42,000
TOL	6,100
ETBZ	360
XYL	1,400
1,1,1-TCA	830
TCE	14,000
PCBs/PEST	
ALL COMP.	ND

MW-F		
COMPOUND	4/91*	3/95
VOCs		
1,2-DCE	12	6
1,1,1-TCA	3	3
TCE	28	66

MW-1		
COMPOUND	11/92	3/95
VOCs		
1,2-DCE	27	28

MW-C			
COMPOUND	8/90	4/91	3/95
VOCs			
CLFM	2	ND	ND

LEGEND

MH-6 MANHOLE LOCATION

MW-F EXISTING GROUND WATER MONITORING WELL LOCATION

PZ-A PIEZOMETER LOCATION

VOLATILE ORGANIC COMPOUNDS DETECTED IN GROUND WATER IN ug/L (ppb):

MW-		
COMPOUND	3/95	WELL DESIGNATION / SAMPLE DATE
VOCs		VOLATILE ORGANIC COMPOUNDS
VC	ND	VINYL CHLORIDE
1,1-DCE	ND	1,1-DICHLOROETHENE
1,2-DCE	ND	1,2-DICHLOROETHENE (TOTAL)
BZ	ND	BENZENE
PCE	ND	TETRACHLOROETHENE
TOL	ND	TOLUENE
CLBZ	ND	CHLOROBENZENE
ETBZ	ND	ETHYLBENZENE
XYL	ND	XYLENES (TOTAL)
CLFM	ND	CHLOROFORM
1,1,1-TCA	ND	1,1,1-TRICHLOROETHANE
TCE	ND	TRICHLOROETHENE
1,1-DCA	ND	1,1-DICHLOROETHANE
SVOCs		SEMI-VOLATILE ORGANIC COMPOUNDS
1,2-DCLBZ	ND	1,2-DICHLOROBENZENE
NAPH	ND	NAPHTHALENE
2-MNAPH	ND	2-METHYLNAPHTHALENE
DIETH	ND	DIETHYLPHTHALATE
DI-N-BUT	ND	DI-N-BUTYLPHTHALATE
PCBs/PEST		POLYCHLORINATED BIPHENYLS/PESTICIDES
AR-1254	ND	AROCLOR-1254

NOTES: ND NOT DETECTED

1. BASE MAP FROM BB&L SURVEY, MAY 1995.

* - 4/91 AND 11/93 GROUND-WATER SAMPLING RESULTS AT NYSDOT PROPERTY BASED ON SAMPLES OBTAINED BY NYSDEC.

SCALE:
200' 0 200'

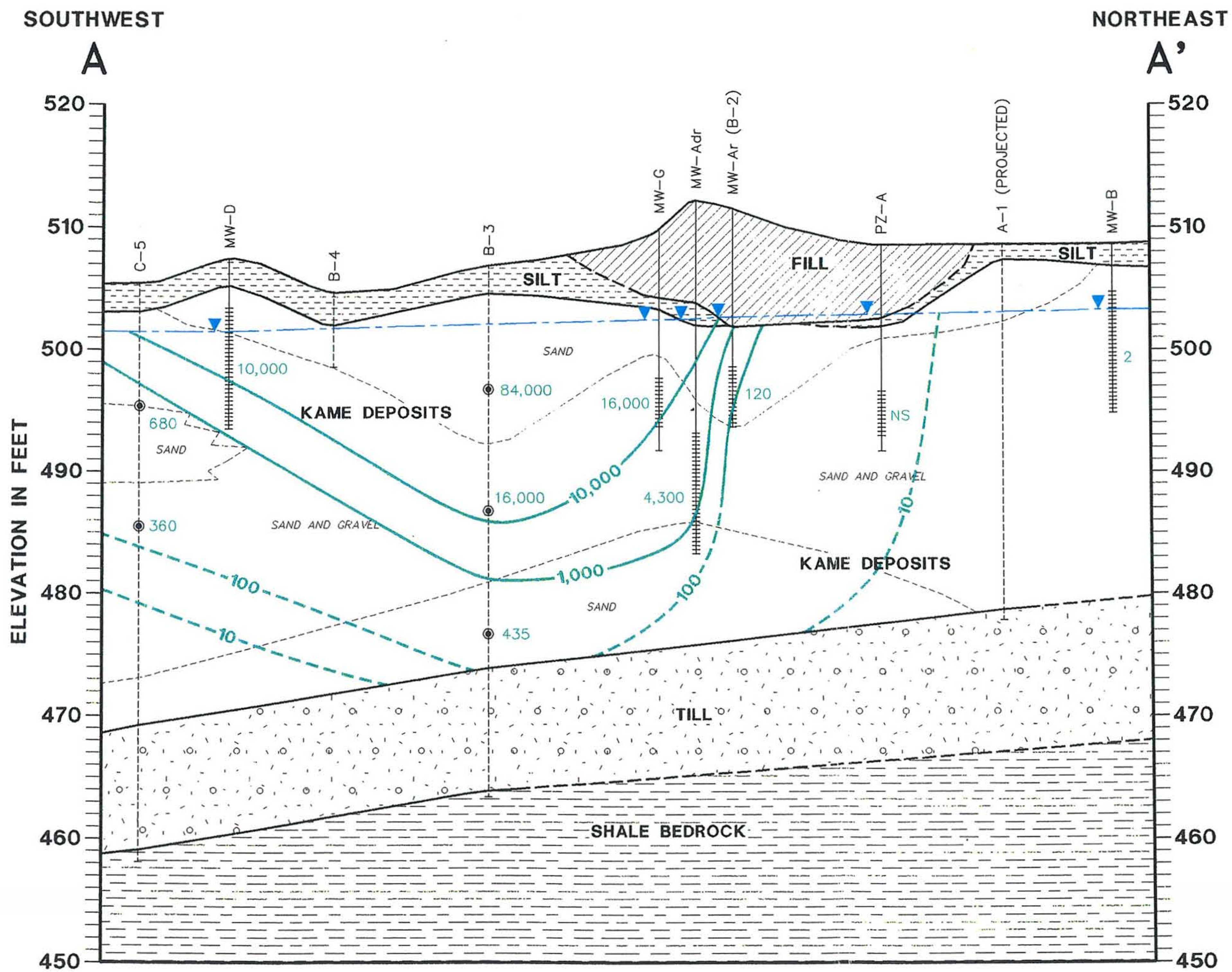
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY
REMEDIAL INVESTIGATION REPORT

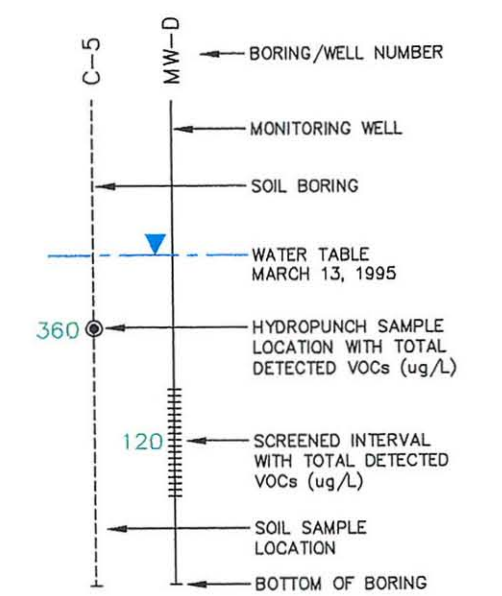
PHASE II GROUND-WATER ANALYTICAL RESULTS

FIGURE 9

VOC,VOCH
7/25/95 54-DMW, PGL, RCB
38034017/38034G05.DWG



LEGEND



NOTES:

1. ANALYTICAL DATA POSTED AT HYDROPUNCHES AND MONITORING WELLS INDICATE TOTAL VOCs DETECTED DURING PHASE I AND PHASE II GROUND-WATER STUDIES, RESPECTIVELY (ug/L).
2. NS = NOT SAMPLED.

HORIZONTAL SCALE:

80' 0 80'

BLASLAND, BOUCK & LEE, INC.

ENGINEERS & SCIENTISTS

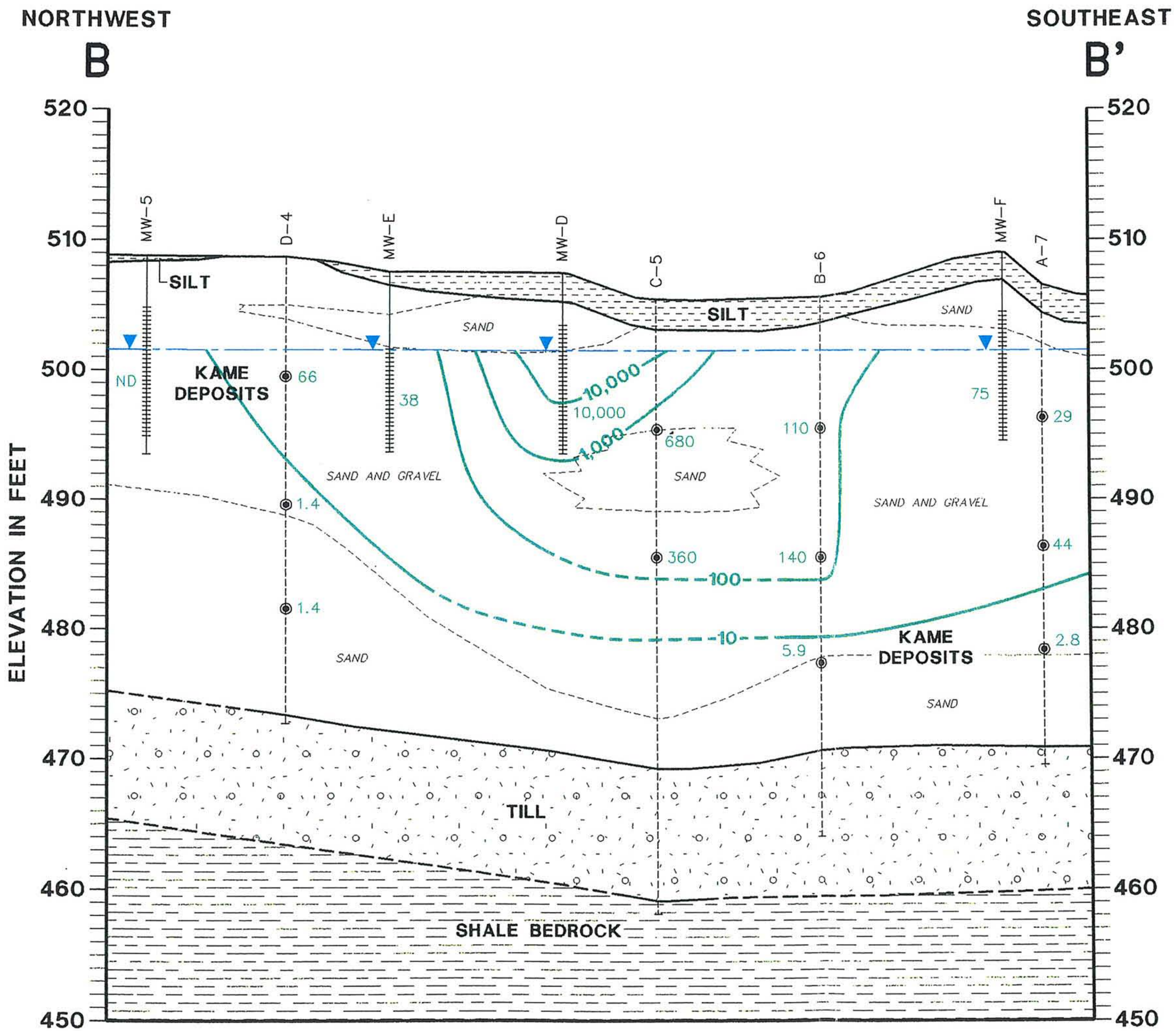
MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY

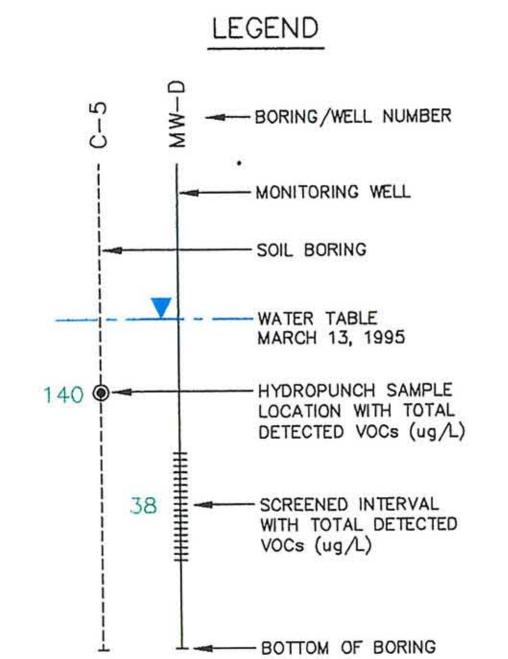
REMEDIAL INVESTIGATION REPORT

CROSS SECTION A-A' WITH TOTAL VOCs (ug/L)

FIGURE **10**

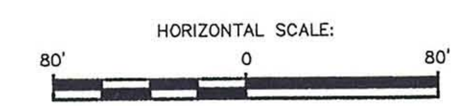
DJBCOLOR.PCP
7/28/95 54-DMW RCB
38034017/38034CAR.DWG





NOTES:

1. ANALYTICAL DATA POSTED AT HYDROPUNCHES AND MONITORING WELLS INDICATE TOTAL VOCs DETECTED DURING PHASE I AND PHASE II GROUND-WATER STUDIES, RESPECTIVELY (ug/L).
2. NS = NOT SAMPLED.



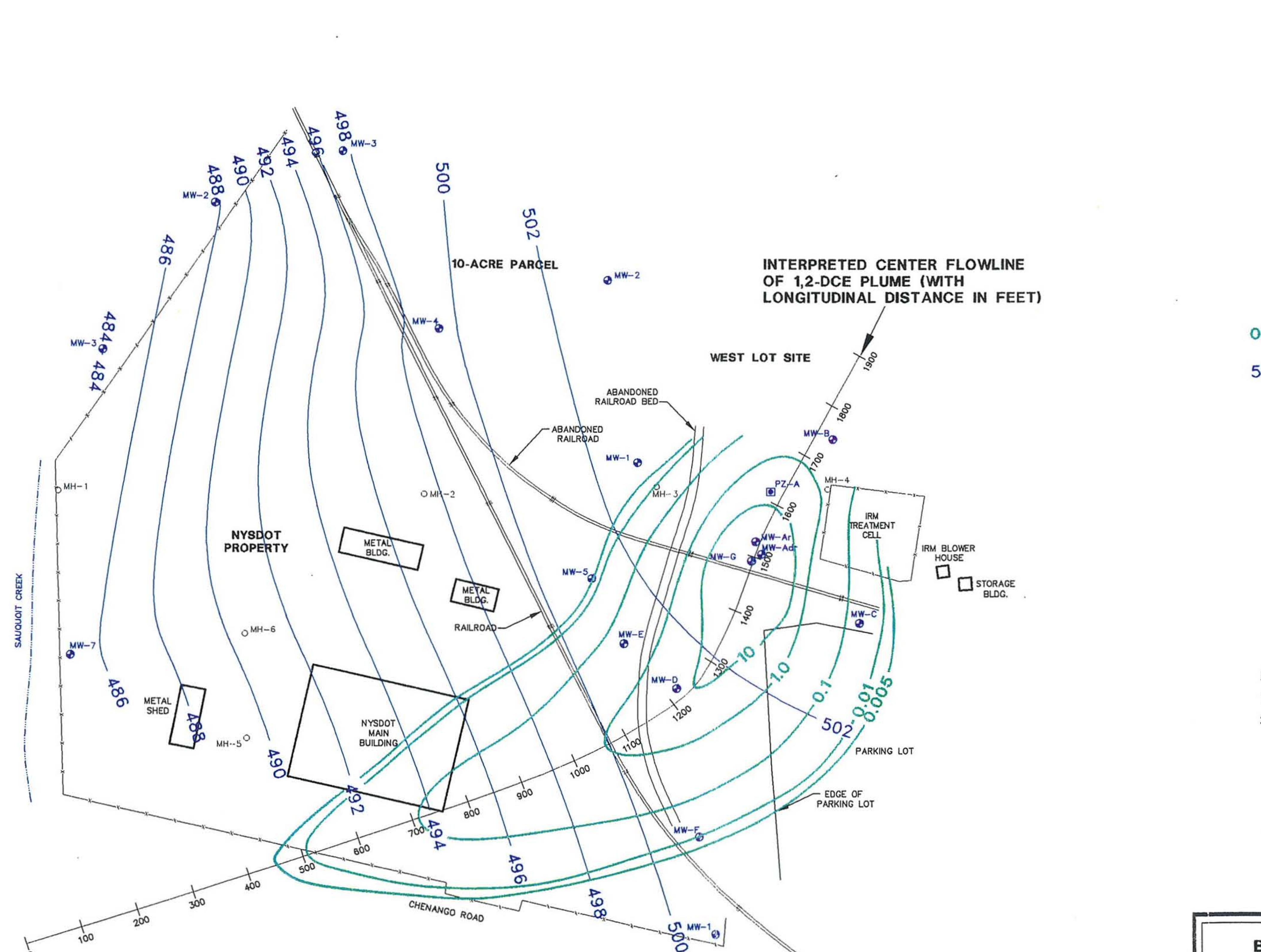
BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY
REMEDIAL INVESTIGATION REPORT

CROSS SECTION B-B' WITH TOTAL VOCs (ug/L)

FIGURE **11**

DJBCOLOR.PCP
726/95 54-DMW RCB
38034017/38034CBR.DWG



LEGEND

○ MH-6	MANHOLE
MW-F	EXISTING GROUND-WATER MONITORING WELL
PZ-A	PIEZOMETER
0.01	SIMULATED 1,2-DCE PLUME CONTOUR (mg/L)
502	GROUND-WATER ELEVATION CONTOUR LINE (FEET)

NOTES:

1. BASE MAP FROM BB&L SURVEY, MAY 1995.
2. GROUND-WATER ELEVATION CONTOURS BASED ON MARCH 13, 1995, DATA.

SCALE: 200' 0 200'

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NY
REMEDIAL INVESTIGATION REPORT

SIMULATED 1,2-DCE CONCENTRATION CONTOUR MAP

FIGURE 12

OFF: 05-BL,REF,SB-95,V+,Y, SITEPLAN
8/22/95 54-DMW, PGL NES
38034017/38034SM1.DWG

LEGEND:

HABITAT VALUE:

- NO VALUE
- LOW VALUE
- MEDIUM VALUE

COVER TYPES:

- H HEDGEROW/FORESTED
- F FIELD

NOTES:

1. LOCATIONS ARE APPROXIMATE.
2. SOURCE: ADAPTED FROM NEW YORK STATE FRESHWATER WETLANDS MAP, ONEIDA COUNTY, MAP 30 OF 38 REVISED 3/8/95.

SCALE:
600' 0 600'

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NEW YORK

REMEDIAL INVESTIGATION REPORT

GENERAL VEGETATIVE COVER-TYPE AND HABITAT VALUES WITHIN 0.5 MILE RADIUS

FIGURE **13**

7/28/95 54-PGL RCB
38034018/38034SM2.DWG

NOTES:

1. LOCATIONS ARE APPROXIMATE.
2. SOURCE: ADAPTED FROM NEW YORK STATE FRESHWATER WETLANDS MAP, ONEIDA COUNTY, MAP 30 OF 38 REVISED 3/8/95.

7/28/95 54-PGLN RCB
38034018/38034SM1.DWG

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

MARTIN MARIETTA CORPORATION
WEST LOT SITE – UTICA, NEW YORK
REMEDIAL INVESTIGATION REPORT

SITE LOCATION AND LAND USE/NATURAL RESOURCES WITHIN 2-MILE RADIUS

FIGURE **14**

Tables

Table 2-1

Martin Marietta Corporation
West Lot Site
Utica, New York

Well Evaluation

Well	Protective Casing	Drain Hole	Cap	Lock	Surface Seal	Ground-Surface Depression	Grout Between Riser and Casing	Turbidity (Ntu)	Measured Depth	Reported Depth	Recommended Action
MW-1	Intact	No	Missing	Missing	Intact	No	Yes	>1,000	13.49	13.5	Replace cap and lock; redevelop; add drain hole
MW-5	Intact	No	Missing	Missing	Cracked, but Casing Not Loose	No	Uncertain	1,000	14.14	14.0	Replace cap and lock; place new grout between riser and protective casing; redevelop; add drain hole; retrofit surface seal
MW-AD	Casing Bent, Tilted	No	OK	Missing	None Visible	No	Uncertain	28.3	29.67	29.0	Remove well; install replacement well MW-ADR
MW-B	Intact	No	OK	Rusty	Intact	No	Uncertain	433	14.45	14.0	Replace lock; place new grout between riser and protective casing; redevelop; add drain hole
MW-C	Intact	No	OK	Rusty	Intact	No	Yes	910	14.05	14.1	Replace lock; redevelop; add drain hole
MW-D	Intact	No	OK	Rusty	Intact	No	Yes	>1,000	14.23	14.1	Replace lock; redevelop; add drain hole
MW-E	Intact	No	OK	Rusty	Intact	No	Yes	537	14.05	14.0	Replace lock; redevelop; add drain hole
MW-F	Intact	No	OK	Rusty	Cracked, but Casing Not Loose	No	Uncertain	>1,000	14.03	14.5	Replace cap and lock; place new grout between riser and protective casing; redevelop; add drain hole; retrofit surface seal

Notes:

1. Well evaluation performed August 23, 1994.
2. Well depth data are in feet below ground surface.
3. Reported well depth data from O'Brien & Gere Engineers, Inc., July 1992.

Table 2-2

Martin Marietta Corporation
West Lot Site
Utica, New York

Analytical Sample Summary

Location	Sample ID	Interval (feet)	Analyses				
			VOCs (601/602)	VOCs (ASP 91-1)	SVOCs (ASP 91-2)	PCBs (ASP 91-3)	TOC
Soil							
A-1	SSA14-6	4-6		X			
A-2	SSA2S6-8	6-8		X			
A-3	SSA3S2-4	2-4		X			
A-4	SSA44-6	4-6		X			
A-5	SSA50-2	0-2		X			
A-6	SSA6S4-6	4-6		X			
A-7	SSA7S4-6	4-6		X			
A-7	SSA7S20-22	20-22					X
A-7	SSA7S28-30	28-30					X
B-2	SSB2S6-8	6-8		X			
B-3	SSB3S10-12	10-12					X
B-3	SSB3S15-17	15-17		X			
B-3	SSB320-22	20-22					X
B-3	SSB332-34	32-34					X
B-4	SSB4S4-6	4-6		X			
B-5	SSB5S4-6	4-6		X			
B-6	SSB6S10	10-12					X
B-6	SSB6S15-17	15-17		X			
B-6	SSB6S20	20-22					X
B-6	SSB6S28	28-30					X
C-1	SSC1S6-8	6-8		X			
C-3	SSC3S2-4 RE	2-4		X			
C-4	SSC4S4-6	4-6		X			
C-5	SSC5S10-12	10-12					X
C-5	SSC5S15-17	15-17		X			
C-5	SSC5S15-17D	15-17		X			

Table 2-2
(Cont'd)
Martin Marietta Corporation
West Lot Site
Utica, New York

Analytical Sample Summary

Location	Sample ID	Interval (feet)	Analyses				
			VOCs (601/602)	VOCs (ASP 91-1)	SVOCs (ASP 91-2)	PCBs (ASP 91-3)	TOC
C-5	SSC5S20-22	20-22					X
C-5	SSC5S34-36	34-36					X
C-5	SSC5S33-35	33-35	X				
D-1	SSD1S2-4	2-4		X			
D-2	SSD24-6 RE	4-6		X			
D-4	SSD4S6-8	6-8		X			
D-4	SSD4S10	10-12					X
D-4	SSD4S20	20-22					X
D-4	SSD4S28	28-30					X
Ground Water							
A-7	GWA7S10	10	X				
A-7	GWA7S20	20	X				
A-7	GWA7S28	28	X				
B-3	GWB310-12	10-12	X				
B-3	GWB320	20	X				
B-3	GWB330	30	X				
B-6	GWB6S10	10	X				
B-6	GWB6S20	20	X				
B-6	GWB6S28	28	X				
C-5	GWC5S10	10	X				
C-5	GWC5S10D	10	X				
C-5	GWC5S20	20	X				
D-4	GWD4S10	10	X				
D-4	GWD4S20	20	X				
D-4	GWD4S28	28	X				
MW-ADR	GWADS	--		X	X	X	
MW-AR	GWARS	--		X		X	

Table 2-2
(Cont'd)
Martin Marietta Corporation
West Lot Site
Utica, New York

Analytical Sample Summary

Location	Sample ID	Interval (feet)	Analyses				
			VOCs (601/602)	VOCs (ASP 91-1)	SVOCs (ASP 91-2)	PCBs (ASP 91-3)	TOC
MW-B	GW-BS	--		X	X		
MW-C	GW-CS	--		X			
MW-D	GW-DS	--		X	X		
MW-E	GW-ES	--		X			
MW-F	GW-FS	--		X			
MW-G	GW-GS	--		X		X	
MW-G	GW-GS-D	--		X		X	
MW-1	GW-1S	--		X			
MW-5	GW-5S	--		X			
MW-1 (DOT)	GWD1S	--		X			
MW-7 (DOT)	GWD7S	--		X			

Table 3-1

Martin Marietta Corporation
West Lot Site
Utica, New York

Soil and Phase I Ground-Water Studies
Volatile Organic Compound Field Screening Results

Boring Location	Interval (Feet)	PID Reading (ppm)	Sample Basis
A-1	0-2	0	Collected just above water table.
	2-4	0.4	
	4-6	0.4	
	6-8	0.8	
	10-12	0.6	
	15-17	0.8	
	20-22	0.4	
	25-27	0.6	
	30-32	0.6	
	35-35.5	0.6	
A-2	0-2	1.3	
	2-4	4.0	
	4-6	1.6	
	6-8	130.0	Highest PID reading.
A-3	0-2	1.2	
	2-4	4.0	Highest PID reading.
A-4	0-2	3.2	
	4-6	11.0	Highest PID reading.
A-5	0-2	170.0	Highest PID reading.
	2-4	28.0	
	4-6	17.0	
	10-12	18.0	
	15-17	70.0	
	20-22	13.0	
	25-27	17.0	
	30-32	32.0	
	35-37	20.0	
	40-42	90.0	
	45-47	15.0	

Table 3-1
(Cont'd)
Martin Marietta Corporation
West Lot Site
Utica, New York

Soil and Phase I Ground-Water Studies
Volatile Organic Compound Field Screening Results

Boring Location	Interval (Feet)	PID Reading (ppm)	Sample Basis
A-6	0-2	0.8	
	2-4	0.8	
	4-6	1.0	Highest PID reading.
A-7	0-2	0.8	
	2-4	0.4	
	4-6	0.4	
	6-8	0.6	Highest PID reading.
B-2	0-2	90.0	
	2-4	17.3	
	4-6	116.0	
	6-8	120	Highest PID reading.
	8-10	84.0	
B-3	0-2	0.1	
	2-4	0.1	
	4-6	0.1	
	10-12	0.4	
	15-17	17.0	Highest PID reading.
	20-22	3.2	
	25-27	0.2	
	32-34	0.4	
	35-37	1.0	
	40-42	0.6	
	43-43.5	1.0	
B-4	0-2	0.8	
	2-4	0.6	
	4-6	0.2	Collected just above water table.
B-6	0-2	0.6	
	2-4	0.4	
	4-6	0.4	

Table 3-1
(Cont'd)
Martin Marietta Corporation
West Lot Site
Utica, New York

Soil and Phase I Ground-Water Studies
Volatile Organic Compound Field Screening Results

Boring Location	Interval (Feet)	PID Reading (ppm)	Sample Basis
B-6 (Cont'd)	15-17	2.0	Highest PID reading
	25-27	0.8	
	28-30	1.0	
	30-32	0.4	
	35-37	0.8	
	40-42	0.6	
C-1	0-2	0.6	
	2-4	0.4	
	4-6	0.6	
	6-8	0.8	Highest PID reading.
	8-10	0.2	
C-3	0-2	0.4	
	2-4	0.6	Highest PID reading.
C-4	0-2	0.4	
	2-4	0.8	
	4-6	0.8	Highest PID reading.
C-5	0-2	30.0	
	2-4	40.0	
	4-6	16.0	
	10-12	56.0	
	15-17	54.0	High PID reading/depth.
	20-22	5.6	
	25-27	24.0	
	30-32	0.6	
	35-37	0.8	
	40-42	0.6	
	44-46	0.6	
D-1	0-2	0.6	
	2-4	1.0	Highest PID reading.
	4-6	0.8	

Table 3-1
(Cont'd)
Martin Marietta Corporation
West Lot Site
Utica, New York

Soil and Phase I Ground-Water Studies
Volatile Organic Compound Field Screening Results

Boring Location	Interval (Feet)	PID Reading (ppm)	Sample Basis
D-2	0-2	1.0	
	2-4	0.8	
	4-6	50.0	Highest PID reading.
D-4	0-2	0.2	
	2-4	10.2	
	4-6	10.6	
	6-8	15.4	Highest PID reading.

Table 3-2

Martin Marietta Corporation
West Lot Site
Utica, New York

Unsaturated Soil Analytical Results
Identified Volatile Organic Compounds

Location Depth (ft) Sample No. Data Sampled	CRQL (mg/kg)	A1 4-6 SSA14-6 8/30/94	A2 6-8 SSA2S6-8 9/7/94	A3 2-4 SSA3S2-4 9/9/94	A4 4-6 SSA44-6 8/29/94	Soil Cleanup Objectives (mg/kg)
Vinyl chloride	0.010	U	U	UJ	U	0.2
Methylene chloride	0.010	U	U	U	**0.003 J**	0.1
Acetone	0.010	0.011 U	0.011 U	0.012 U	0.010 U	0.2
Carbon Disulfide	0.010	U	U	U	**0.001 J**	2.7
1,2-Dichloroethene (total)	0.010	U	U	U	**0.001 J**	0.3
2-Butanone	0.010	UJ	UJ	U	U	0.3
1,1,1-Trichloroethane	0.010	U	U	UJ	U	0.8
Trichloroethene	0.010	U	**0.012**	U	**0.003 J**	0.7
Benzene	0.010	U	U	U	U	0.06
Tetrachloroethene	0.010	U	**0.038**	U	**0.026**	1.4
Toluene	0.010	**0.002 J**	**0.003 J**	**0.006 J**	U	1.5
Ethylbenzene	0.010	U	U	U	U	5.5
Total xylenes	0.010	U	U	U	**0.012**	1.2

Table 3-2
(Cont'd)
Martin Marietta Corporation
West Lot Site
Utica, New York

Unsaturated Soil Analytical Results
<u>Identified Volatile Organic Compounds</u>

Location Depth (ft) Sample No. Data Sampled	**CRQL (mg/kg)**	**A5 0-2 SSA50-2 8/29/94**	**A6 4-6 SSA6S4-6 9/9/94**	**A7 4-6 SSA7S4-6 9/9/94**	**B2 6-8 SSB2S6-8 9/12/94**	**B4 4-6 SSB4S4-6 9/9/94**	**B5 4-6 SSB5S4-6 9/9/94**	**Soil Cleanup Objectives (mg/kg)**
Vinyl chloride	0.010	U	U	U	U	U	U	0.2
Methylene chloride	0.010	**0.002 J**	U	U	U	U	U	0.1
Acetone	0.010	0.010 U	0.012 U	0.011 U	UJ	0.011 U	0.012 U	0.2
Carbon Disulfide	0.010	U	U	U	U	U	U	2.7
1,2-Dichloroethene (total)	0.010	U	U	U	U	U	U	0.3
2-Butanone	0.010	U	U	U	U	U	U	0.3
1,1,1-Trichloroethane	0.010	U	U	U	U	U	U	0.8
Trichloroethene	0.010	U	U	U	U	U	U	0.7
Benzene	0.010	U	U	U	U	U	U	0.06
Tetrachloroethene	0.010	U	U	U	U	U	U	1.4
Toluene	0.010	**0.004 J**	**0.011 J**	**0.007 J**	U	**0.011 J**	**0.007 J**	1.5
Ethylbenzene	0.010	U	U	U	U	U	U	5.5
Total xylenes	0.010	U	U	U	U	U	U	1.2

Table 3-2
(Cont'd)
Martin Marietta Corporation
West Lot Site
Utica, New York

Unsaturated Soil Analytical Results
<u>Identified Volatile Organic Compounds</u>

Location Depth (ft) Sample No. Data Sampled	**CRQL (mg/kg)**	**C1 6-8 SSC1S6-8 9/8/94**	**C3 2-4 SSC3S2-4 RE 9/9/94**	**C4 4-6 SSC4S4-6 9/12/94**	**D1 2-4 SSD1S2-4 9/7/94**	**D2 4-6 SSD2S4-6 RE 9/7/94**	**D4 6-8 SSD4S6-8 9/13/94**	**Soil Cleanup Objectives (mg/kg)**
Vinyl chloride	0.010	U	U	U	U	U	U	0.2
Methylene chloride	0.010	U	U	U	U	**0.002 J**	U	0.1
Acetone	0.010	**0.120 J**	0.012 U	0.012 U	0.011 U	0.012 U	0.016 U	0.2
Carbon Disulfide	0.010	U	U	U	U	U	U	2.7
1,2-Dichloroethene (total)	0.010	U	U	U	U	U	U	0.3
2-Butanone	0.010	**0.029**	U	U	UJ	UJ	0.011 U	0.3
1,1,1-Trichloroethane	0.010	U	U	U	U	U	U	0.8
[illegible]oroethene	0.010	U	U	U	U	U	**0.001 J**	0.7
Benzene	0.010	U	U	U	U	U	U	0.06
Tetra-chloroethene	0.010	U	UJ	U	U	UJ	U	1.4
Toluene	0.010	**0.008 J**	**0.006 J**	**0.017**	**0.002 J**	**0.001 J**	**0.013**	1.5
Ethylbenzene	0.010	U	UJ	U	U	UJ	U	5.5
Total Xylenes	0.010	**0.006 J**	UJ	U	U	UJ	U	1.2

<u>Notes</u>:

. All results in milligrams per kilogram (mg/kg) equivalent to parts per million (ppm).
. Analysis by ASP Method 91-1.
3. U = compound not detected above CRQL.
J = analyte was positively identified. Reported value may not be accurate or precise.
UJ = analyte was not detected above CRQL. The reported quantitation limit is qualified estimate.
. Soil cleanup objectives from NYSDEC TAGM 4046.
6. Bolded values have been positively identified. Shaded values exceed soil cleanup objectives.

Table 3-3

Martin Marietta Corporation
West Lot Site
Utica, New York

Saturated Soil Analytical Results
Identified Volatile Organic Compounds

Location Depth (ft) Sample No. Data Sampled	**CRQL (mg/kg)**	**B3 15-17 SSB315-17 8/30/94**	**B6 15-17 SSB6S15-17 9/8/94**	**C5 15-17 SSC5S15-17 9/7/94**	**C5 15-17 SSC5S15-17D 9/7/94**	**C5 33-35 SSC5S33-35 9/8/94**	**Soil Cleanup Objectives (mg/kg)**
Vinyl chloride	0.010	**0.011 J**	U	**0.034 J**	**0.026 J**	**0.021 J**	0.2
Methylene chloride	0.010	U	U	U	U	U	0.1
Acetone	0.010	0.033 U	0.018 U	0.038 U	0.057 U	U	0.2
Carbon Disulfide	0.010	U	U	U	U	U	2.7
1,2-Dichloroethene (total)	0.010	**0.56**	**0.011 J**	**0.49**	**0.87**	**0.23 J**	0.3
2-Butanone	0.010	UJ	UJ	UJ	UJ	U	0.3
1,1,1-Trichloroethane	0.010	**0.011 J**	U	**0.012 J**	**0.020 J**	U	0.8
Trichloroethene	0.010	**0.052**	**0.2**	**0.074**	**0.19**	**0.033 J**	0.7
Benzene	0.010	U	U	**0.016 J**	**0.019 J**	**0.0031 J**	0.06
etrachloroethene	0.010	**0.003 J**	U	U	U	U	1.4
Toluene	0.010	**0.2**	**0.005 J**	**0.013 J**	**0.012 J**	**0.0021 J**	1.5
Ethylbenzene	0.010	**0.034**	U	U	U	U	5.5
Total xylenes	0.010	**0.096**	U	**0.009 J**	**0.015 J**	**0.0065 J**	1.2

Notes:

1. All results in milligrams per kilogram (mg/kg) equivalent to parts per million (ppm).
2. Analysis by ASP Method 91-1, except sample No. SSC5S33-35, which was analyzed by USEPA Methods 601/602.
3. U = compound not detected above CRQL.
   J = analyte was positively identified. Reported value may not be accurate or precise.
   UJ = analyte was not detected above CRQL. The reported quantitation limit is qualified estimate.
5. Soil cleanup objectives from NYSDEC TAGM 4046.
6. Bolded values have been positively identified. Shaded values exceed soil cleanup objectives.

Table 3-4

Martin Marietta Corporation
West Lot Site
Utica, New York

Soil Analytical Results
Total Organic Carbon

Location	A7	B3	B6	C5	D4
Depth (ft) Sample No. Date Sampled	10-12 No Sample 9/7/94	10-12 SSB310-12 8/30/94	10-12 SSB6S10 9/8/94	10-12 SSC5S10-12 8/31/94	10-12 SSD4S10 9/13/94
Total Organic Carbon	No sample	**2.0**	**1.25**	**0.88**	**1.2**
Depth (ft) Sample No. Date Sampled.	20-22 SSA7S20-22 9/7/94	20-22 SSB320-22 8/30/94	20-22 SSB6S20 9/8/94	20-22 SSC5S20-22 8/31/94	20-22 SSD4S20 9/13/94
Total Organic Carbon	**0.73**	**1.42**	**1.3**	**1.34**	**1.24**
Depth (ft) Sample No. Date Sampled	28-30 SSA7S20-22 9/7/94	32-34 SSB332-34 8/30/94	28-30 SSB6S28 9/13/94	34-36 SSC534-36 9/8/94	28-30 SSD4S28 9/13/94
Total Organic Carbon	**0.86**	**2.1**	**1.78**	**1.3**	**0.99**

Notes:

1. All results reported in weight/weight percent for dry sample.
2. No sample was obtained at A7 (10-12) due to the lack of recovery of soil in the splitspoon samples at that interval.

Table 3-5

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase I Ground-Water Analytical Results
Hydropunch Samples

Identified Volatile Organic Compounds

Location Depth (ft) Sample No. Date Sampled	CRQL (µg/l)	A7 10 GWA7S10 9/7/94	A7 20 GWA7S20 9/7/94	A7 28 GWA7S28 9/7/94	B3 10 GWB310-12 8/30/94	B3 20 GWB320 8/30/94	B3 30 GWB330 8/30/94	B6 10 GWB6S10 9/8/94	B6 20 GWB6S20 9/8/94	B6 28 GWB6S28 9/9/94	Ground-Water Quality Standards
Chloromethane	0.5	**0.8**	**1.1**	**0.8**	UJ	UJ	UJ	U	U	U	5
Vinyl chloride	0.5	**0.8**	**1.4**	U	UJ	**770 J**	UJ	U	U	U	2
Bromomethane	0.5	U	**0.7**	U	**2,300 J**	UJ	UJ	U	U	U	5
Trichlorofluoromethane	0.5	**0.5**	U	U	UJ	UJ	UJ	U	U	U	5
Freon-113	0.5	**0.6**	**1.1**	U	UJ	**340 J**	UJ	**1.3**	**3.6**	U	5
1,1-Dichloroethane	0.5	U	U	**0.8**	UJ	UJ	UJ	U	U	U	5
cis-1,2-Dichloroethene	0.5	**16**	**27**	**1.2**	**65,000 J**	**13,000 J**	**410 J**	**40**	**52**	**1.6**	5
1,1,1-Trichloroethane	0.5	**0.9**	**2.8**	U	UJ	UJ	UJ	**1.1**	**4.5**	U	5
1,2-Dichloroethane	0.5	**1.5**	**2.1**	U	UJ	UJ	UJ	**1.4**	U	**1.9**	5
Trichloroethene	0.5	**8.3**	**7.7**	U	UJ	**400 J**	UJ	**67**	**84**	**2.4**	5
Benzene	0.5	U	U	U	UJ	UJ	UJ	U	U	U	0.7
Toluene	0.5	U	U	U	**14,000 J**	**880 J**	**25 J**	U	U	U	5
Ethylbenzene	0.5	U	U	U	UJ	**270 J**	UJ	U	U	U	5
Total-Xylenes	1.0	U	U	U	**2,300 J**	**420 J**	UJ	U	U	U	5

Table 3-5
(Cont'd)

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase I Ground-Water Analytical Results
Hydropunch Samples

Identified Volatile Organic Compounds

Location Depth (ft) Sample No. Date Sampled	**CRQL (μg/l)**	**C5 10 GWC5S10 8/31/94**	**C5 10 GWC5S10D 8/31/94**	**C5 20 GWC5S20 8/31/94**	**D4 10 GWD4S10 9/13/94**	**D4 20 GWD4S20 9/13/94**	**D4 28 GWD4S28 9/13/94**	**Ground-Water Quality Standards/ Guidance Values**
Chloromethane	0.5	UJ	UJ	UJ	U	UJ	U	5
Vinyl chloride	0.5	**320 J**	**180 J**	**120 J**	U	UJ	U	2
Bromomethane	0.5	UJ	UJ	UJ	U	UJ	U	5
Trichlorofluoromethane	0.5	UJ	UJ	UJ	U	UJ	U	5
Freon-113	0.5	UJ	UJ	UJ	U	UJ	U	5
1,1-Dichloroethane	0.5	UJ	UJ	UJ	U	UJ	U	5
cis-1,2-Dichloroethene	0.5	**440 J**	**430 J**	**210 J**	**2.4**	UJ	U	5
1,1,1-Trichloroethane	0.5	UJ	UJ	UJ	**19**	UJ	U	5
1,2-Dichloroethane	0.5	UJ	UJ	UJ	U	UJ	U	5
Trichloroethene	0.5	**61 J**	**73 J**	**26 J**	**52**	**1.4 J**	**1.4**	5
Benzene	0.5	UJ	UJ	**5.1 J**	U	UJ	U	0.7
Toluene	0.5	UJ	UJ	UJ	U	UJ	U	5
Ethylbenzene	0.5	UJ	UJ	UJ	U	UJ	U	5
Total-Xylenes	1.0	UJ	UJ	UJ	U	UJ	U	5

Table 3-5
(Cont'd)

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase I Ground-Water Analytical Results
Hydropunch Samples

Identified Volatile Organic Compounds

Notes:

1. All results in micrograms per liter (μg/l) equivalent to parts per billion (ppb).
2. Analysis by USEPA Method 601/602.
3. U = Compound not detected above CRQL.
   J = Analyte was positively identified. Reported value may not be accurate or precise.
   UJ = Analyte was not detected above CRQL. The reported quantitation limit is qualified estimate.
4. Ground-water quality standards from the NYSDEC Ambient Water Quality Standards and Guidance Values.
5. Bolded values have been positively identified. Shaded values exceed ground-water quality standards or guidance values.

Table 3-6

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase II Ground-Water Studies
Volatile Organic Compound Field Screening Results

Boring Location	Interval (Feet)	PID Reading (ppm)
MW-G	0-2	2.0
	2-4	7.0
	4-6	14.5
	6-8	33.0
	8-10	410.0
	10-12	995.0
	12-14	1,430
	14-16	48.0
	16-18	120.0
PZ-A	0-2	0.1
	2-4	0
	4-6	0
	6-8	0
	8-10	0
	10-12	0
	12-14	0
	14-16	0
	16-18	0

Table 3-7

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase II Ground-Water Analytical Results
Monitoring Well Samples

Identified Volatile Organic Compounds

Location Sample ID Date Sampled	CRQL (µg/l)	MW-ADR GWADS 3/14/95	MW-AR GWARS 3/14/95	MW-B GW-BS 3/14/95	MW-C GW-CS 3/14/95	MW-D GW-DS 3/14/95	MW-E GW-ES 3/14/95	MW-F GW-FS 3/14/95	Ground-Water Quality Standard
Vinyl chloride	10	**13 J**	**17**	U	U	**3,500 J**	U	U	2
1,1-Dichloroethene	10	UJ	**1 J**	U	U	UJ	U	U	5
1,1-Dichloroethane	10	UJ	U	U	U	UJ	**4 J**	U	5
1,2-Dichloroethene (total)	10	**1,300 J**	**50**	U	U	**6,400 J**	**5 J**	**6 J**	5
Chloroform	10	UJ	U	**2 J**	U	UJ	U	U	7
1,1,1-Trichloroethane	10	UJ	U	U	U	**130 J**	**12**	**3 J**	5
Trichloroethene	10	**1,700 J**	**13**	U	U	UJ	**15**	**66**	5
Tetrachloroethene	10	**100 J**	**8 J**	U	U	UJ	U	U	5
Toluene	10	**550 J**	**12**	U	U	**150 J**	U	U	5
Ethylbenzene	10	**140 J**	**15**	U	U	**140 J**	U	U	5
Total-Xylenes	10	**540 J**	**8 J**	U	U	**71 J**	U	U	5

T[illegible]3-7
(Cont'd)

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase II Ground-Water Analytical Results
Monitoring Well Samples

Identified Volatile Organic Compounds

Location Sample ID Date Sampled	CRQL (µg/l)	MW-G GW-GS 3/14/95	MW-G 9 (dup) GW-GS-D 3/14/95	MW-1 GW-1S 3/14/95	MW-5 GW-5S 3/14/95	MW-1 (DOT) GWD1S 3/13/95	MW-7 (DOT) GWD7S 3/13/95	Ground-Water Quality Standards/ Guidance Values
Vinyl chloride	10	**1,500 J**	**1,500 J**	U	U	U	U	2
1,1-Dichloroethene	10	UJ	UJ	U	U	U	U	5
1,1-Dichloroethane	10	UJ	UJ	U	U	U	U	5
1,2-Dichloroethene (total)	10	**42,000 J**	**42,000 J**	U	U	**28**	U	5
Chloroform	10	UJ	UJ	U	U	U	U	7
1,1,1-Trichloroethane	10	**830 J**	**820 J**	U	U	U	U	5
Trichloroethene	10	**14,000 J**	**14,000 J**	U	U	U	U	5
Tetrachloroethene	10	UJ	UJ	U	U	U	U	5
Toluene	10	**6,100 J**	**6,000 J**	U	U	U	U	5
Ethylbenzene	10	UJ	**360 J**	U	U	U	U	5
Total-Xylenes	10	**1,400 J**	**1,400 J**	U	U	U	U	5

Notes:

1. All results in micrograms per kilogram (µg/g) equivalent to parts per billion (ppb).
2. Samples collected March 13 and 14, 1995.
3. Samples analyzed by ASP Method 91-1.
4. U = Compound not detected above CRQL.
   J = Analyte was positively identified. Reported value may not be accurate or precise.
   UJ = Analyte was not detected above CRQL. The reported quantitation limit is qualified estimated.
5. Ground-water quality standards from the NYSDEC Ambient Water Quality Standards and Guidance Values.
6. Bolded values have been positively identified. Shaded values exceed ground-water quality standards or guidance values.

Table 3-8

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase II Ground-Water Analytical Results
Identified Semi-Volatile Organic Compounds

Location .Sample ID Date Sampled	**CRQL (µg/l)**	**MW-ADR GWADS 3/14/95**	**MW-B GW-BS 3/14/95**	**MW-D GW-DS 3/14/95**	**Ground-Water Quality Standards/ Guidance Values**
bis(2-Ethylhexyl)phthalate	10	10 U	210 U	16 U	50
Di-n-butyl phthalate	10	**0.9 J**	**0.6 J**	**0.5 J**	50
1,2-Dichlorobenzene	10	**30**	U	U	4.7
Diethyl phthalate	10	U	U	**0.7 J**	50
2-Methylnapthalene	10	**3 J**	U	U	*
Napthalene	10	**4 J**	U	U	10

Notes:

1. All results in micrograms per liter (µg/l) equivalent to parts per billion (ppb).
2. Sample collected on March 14, 1995.
3. Analyzed by ASP Method 91-2.
4. U = not detected substantially above the level reported in laboratory or field blanks.
   J = analyte was positively identified. Reported value may not be accurate or precise.
   UJ = analyte was not detected above CRQL. The reported quantitation limit is qualified estimate.
5. Ground-water cleanup objectives from the NYSDEC Ambient Water Quality Standards and Guidance Values.
6. * = not regulated by the principal organic contaminant ground-water standard.
7. Bolded values have been positively identified. Shaded values exceed ground-water quality standards or guidance values.

Table 3-9

Martin Marietta Corporation
West Lot Site
Utica, New York

Phase II Ground-Water Analytical Results
Identified PCBs

Location Sample ID Date Sampled	**CRQL (µg/l)**	**MW-ADR GWADS 3/14/95**	**MW-AR GWARS 3/14/95**	**MW-G GW-GS 3/14/95**	**MW-G GW-GS-D 3/14/95**	**Ground-Water Quality Standards/ Guidance Values**
Aroclor-1254	1	**0.7 J**	U	U	U	0.1

Notes:

1. All results in micrograms per liter (µg/l) equivalent to parts per billion (ppb).
2. Samples collected on March 14, 1995.
3. Analyzed by ASP Method 91-3.
4. U = compound not detected above CRQL.
   J = analyte was positively identified. Reported value may not be accurate or precise.
5. Ground-water quality standards / guidance values from the NYSDEC Ambient Water Quality Standards and Guidance Values.
6. Bolded values have been positively identified. Shaded values exceed ground-water quality standards or guidance values.

Table 4-1

Martin Marietta Corporation
West Lot Site
Utica, New York

Chemicals of Interest Detected in Ground Water

Volatile Organics
Vinyl Chloride
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethene (total)
Chloroform
1,1,1-Trichloroethane
Trichloroethene
Tetrachloroethene
Toluene
Ethylbenzene
Xylenes (total)
Semi-Volatile Organics
Bis-(2-ethylhexyl) phthalate
Di-n-butyl phthalate
Dichlorobenzene
Diethyl phthalate
2-Methyl napthalene
Napthalene
Pesticides/PCBs
Aroclor 1254

Table 3-10

Martin Marietta Corporation
West Lot Site
Utica, New York

Monitoring Well and Ground-Water Elevations

Description	Location	Monitoring Well Elevations			Ground-Water Elevation (ft) (3/13/95)
		Top of Protective Casing (ft)	Top of Well (ft)	Ground (ft)	
MW-Adr	West Lot Site	512.04	511.75	509.90	502.65
MW-Ar	West Lot Site	511.84	511.68	509.80	502.70
MW-B	West Lot Site	508.95	508.67	506.90	503.47
MW-C	West Lot Site	508.13	508.02	506.00	502.38
MW-D	West Lot Site	507.93	507.59	505.80	501.79
MW-E	West Lot Site	507.67	507.46	505.50	501.71
MW-F	West Lot Site	508.74	508.60	506.10	501.48
MW-G	West Lot Site	511.96	511.79	509.60	502.61
MW-1	NYSDOT Property	510.46	510.34	508.10	501.14
MW-2	NYSDOT Property	491.78	491.65	489.30	487.63
MW-3	NYSDOT Property	491.08	490.83	488.90	483.98
MW-7	NYSDOT Property	497.16	496.74	494.40	485.08
MW-1	10-Acre Parcel	507.82	507.44	505.50	502.65
MW-2	10-Acre Parcel	512.08	511.71	509.80	503.56
MW-3	10-Acre Parcel	502.48	502.26	500.30	497.82
MW-4	10-Acre Parcel	504.36	504.11	501.90	499.66
MW-5	10-Acre Parcel	508.87	508.67	507.00	501.78
PZ-A	Piezometer	511.41	511.15	508.90	503.03

Notes:

1. Elevations based on National Geodetic Vertical Datum of 1929.
2. Survey elevations established in March 1995 by BB&L.

Appendices

Appendix A

September 6, 1994 Letter to the NYSDEC

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS
6723 Towpath Road, P.O. Box 66, Syracuse, New York 13214-0066
(315) 446-9120 FAX: (315) 449-0017

September 6, 1994

Mr. William R. Jesmore
NYSDEC Region 6
State Office Building
317 Washington Street
Watertown, NY 13601

Re: Martin Marietta Corporation
West Lot Site
Utica, New York

File: 0380.38034 #2

Transmitted Via: *Federal Express*
Pages Sent: *2*

Dear Mr. Jesmore:

This letter serves as a followup to your September 6, 1994 telephone discussion with Michael Gefell of Blasland, Bouck & Lee, Inc. (BB&L) regarding the need to obtain additional samples at the Martin Marietta Corporation West Lot Site in Utica, New York. As Mr. Gefell informed you in that discussion, soil and ground-water samples shipped to the analytical laboratory (Aquatec, Inc.) on Friday, September 2, 1994, did not arrive at the laboratory until Tuesday, September 6, 1994. Due to the delay in sample delivery and the cooler temperature upon arrival at the lab, the QA/QC officer for the West Lot Remedial Investigation, Ms. Laurie Johnston of BB&L, judged that the samples would not be representative of site conditions and should not be analyzed.

As Mr. Gefell stated in your discussion with him today, BB&L will obtain soil and ground-water samples to replace those that had been shipped on Friday, September 2, 1994. To obtain replacement samples, soil borings will be performed approximately 3 feet from the previous boring locations. Soil and ground-water replacement samples will be obtained during the week of September 5, 1994 at the same sampling depths as those samples shipped on Friday, September 2, 1994. The replacement samples will be submitted for the same suite of analyses as those shipped on Friday, September 2, 1994.

The overall project schedule is not expected to change due to the proposed re-sampling effort which BB&L recognizes as necessary to provide representative and valid soil and ground-water quality data. Based on your response to Mr. Gefell regarding the proposed re-sampling plan, we understand that you agree with the proposed plan. Martin Marietta also has been informed of and agrees with the proposed course of action.

We trust this information satisfies your needs. Please do not hesitate to contact us with any further questions.

Very truly yours,

BLASLAND, BOUCK & LEE, INC.

Lowell W. McBurney, P.E.
Manager, Engineering

MJG/dmd
2494359J

cc: Mr. Brian Kent, Martin Marietta Corporation
Mr. Patrick Salvador, Martin Marietta Corporation
Mr. Michael J. Gefell, Blasland, Bouck & Lee, Inc.
Ms. Laurie Johnston, Blasland, Bouck & Lee, Inc.

Appendix B

Subsurface Boring Logs

Date Start/Finish: 8/30/94 - 8/31/94 **Drilling Company:** Parratt-Wolff, Inc. **Driller's Name:** Arnold Chappell/Jim Lansing **Drilling Method:** Hollow Stem Auger **Bit Size:** N/A **Auger Size** : 4.25-in. ID **Rig Type:** Truck-Mounted	**Well Casing Elev.:** NA **Borehole Depth:** 35.5 ft. **Ground Surface Elev.:** NA **Geologist:** C. A. Macys	**Boring No. A-1** **Site:** West Lot Site, Utica, NY **Client:** Lockheed Martin Corporation

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	Recovery (ft.)	PID (ppm) Headspace	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft	0							GROUND SURFACE	
		1		2 5 3 2	1.5	0.0		Light brown fine SAND, little silt, trace gravel.	Grouted to surface.
		2		4 5 5 4	2.0	0.4			
5	-5	3		4 4 12 13	1.5	0.4			
		4		7 4 8 10	1.5	0.8		Brown fine SAND, some silt, little fine to medium gravel, wet. Brown fine to medium SAND, little gravel, trace silt, wet.	
10	-10	5		8 8 9 7	2.0	0.8		Brown fine to coarse SAND and fine to medium GRAVEL, litttle silt, wet.	
15	-15								

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Water Levels		
Date / Time	Elevation	Depth
NA	NA	
NA	NA	
NA	NA	

Client:
Lockheed Martin Corporation

Site:
West Lot Site, Utica, NY

Boring No. A-1

Total Depth = 35.5 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	Recovery (ft.)	PID (ppm) Headspace	Geologic Column	Stratigraphic Description	Well Construction
		6		14 6 8 16	2.0	0.8		Same as above.	Grouted to surface.
20	-20	7		8 10 11 13	2.0	0.4		Dark brown fine to medium SAND, some fine to medium gravel, wet.	
25	-25	8		13 17 13 15	2.0	0.8		Dark brown fine to medium SAND, trace fine to medium gravel, wet. Gray brown fine to coarse SAND and SILT, trace fine to medium gravel, wet.	
30	-30	9		9 7 9 13	2.0	0.6		Dark brown medium SAND, little fine to medium gravel, wet. Gray brown fine to coarse SAND and SILT, little fine to medium gravel shale fragments. TILL.	
35	-35								

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Water Levels		
Date / Time	Elevation	Depth
NA	NA	
NA	NA	
NA	NA	

Client:
Lockheed Martin Corporation

Site:
West Lot Site, Utica, NY

Boring No. A-1

Total Depth = 35.5 ft.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	Recovery (ft.)	PID (ppm) Headspace	Geologic Column	Stratigraphic Description	Well Construction
		10		27 50/.2'	2.0	0.6		Gray brown fine to coarse SAND and SILT, little fine to medium gravel shale fragments. TILL.	Grouted to surface.
								Auger refusal; boring terminated at 35.5' BGS.	
40	-40								
45	-45								
50	-50								
55	-55								

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Water Levels

Date / Time	Elevation	Depth
NA	NA	
NA	NA	
NA	NA	

Project: 380.34

Script: FRbore
Date: 07/09/95

Date Start/Finish: 9/2/94 - 9/2/94 **Drilling Company:** Parratt-Wolff, Inc. **Driller's Name:** Arnold Chappell/Jim Lansing **Drilling Method:** Hollow Stem Auger **Bit Size:** N/A **Auger Size** : 4.25-in. ID **Rig Type:** Truck-Mounted	**Well Casing Elev.:** NA **Borehole Depth:** 8 ft. **Ground Surface Elev.:** 508.5 ft. **Geologist:** C. A. Macys	**Boring No.** A-2 **Site:** West Lot Site, Utica, NY **Client:** Lockheed Martin Corporation

gs elevation 508.5 ft

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	Recovery (ft.)	PID (ppm) Headspace	Geologic Column	Stratigraphic Description	Well Construction
								GROUND SURFACE	
		1		2 3 4 8	1.5	1.3		Brown fine SAND and fine GRAVEL, dry. Brown SILT and fine SAND. Brown fine SAND, some fine gravel, dry.	Grouted to surface.
	506	2		17 11 4 4	1.67	4.0		Brown fine to coarse SAND and fine to medium GRAVEL, dry Brown fine to coarse SAND and SILT, dry.	
5		3		8 10 10 8	1.125	1.6		Gray brown fine SAND, moist. Light brown fine SAND and SILT, moist. Brown fine SAND, trace fine to medium gravel, moist.	
		4		13 9 16 14	1.125	130.0		Brown fine SAND, little fine to medium gravel, wet.	
	500							Boring terminated at 8.0' BGS.	
10									
	495								
15									

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

Remarks:

Water Levels

Date / Time	Elevation	Depth
NA	NA	
NA	NA	
NA	NA	

Project: 380.34 Script: FRbore2 Date: 07/09/95

Table 4-2

Martin Marietta Corporation
West Lot Site
Utica, New York

<u>Chemicals of Interest Detected in Soils</u>

Volatile Organics
Vinyl Chloride
Chloroethane
Methylene Chloride
Acetone
Carbon Disulfide
1,2-Dichloroethene (total)
2-butanone
1,1,1-Trichloroethane
Trichloroethene
Benzene
Tetrachloroethene
Toluene
Ethylbenzene
Xylenes (total)

Table 4-1

Martin Marietta Corporation
West Lot Site
Utica, New York

Chemicals of Interest Detected in Ground Water

Volatile Organics
Vinyl Chloride
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethene (total)
Chloroform
1,1,1-Trichloroethane
Trichloroethene
Tetrachloroethene
Toluene
Ethylbenzene
Xylenes (total)
Semi-Volatile Organics
Bis-(2-ethylhexyl) phthalate
Di-n-butyl phthalate
Dichlorobenzene
Diethyl phthalate
2-Methyl napthalene
Napthalene
Pesticides/PCBs
Aroclor 1254

APPENDIX A

Appendix A - Table 1
New York State Standards, Criteria and Guidance Applications

U.S. Environmental Protection Agency (EPA)
- Toxic Substance Control Act (TSCA)
- USEPA Health Based Soil Criteria for Systemic Toxicant and Carcinogens

New York State Department of Environmental Conservation (NYSDEC)
NYSDEC - Division of Environmental Remediation
- 6NYCRR Part 375-Inactive Hazardous Waste Disposal Site Remedial Program

Hazardous Waste Technical and Administrative Guidance Memoranda (TAGMs)
- TAGM 4030 - Selection of Remedial Actions at Inactive Hazardous Waste Sites
- TAGM 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels
- TAGM 4031 - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites

NYSDEC - Division of Hazardous Substance Regulations
- 6NYCRR Part 370 - Hazardous Waste Management System - General
- 6NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporter, and Facilities
- 6NYCRR Part 376 - Land Disposal Restrictions

NYSDEC - Division of Solid Waste
- 6NYCRR Part 360 - Solid Waste Management Facilities
- 6NYCRR Part 364 - Waste Transporters Permits

NYSDEC - Division of Water
- 6NYCRR Part 700-705 - Water Quality Regulations for Surface Water and Groundwater
- 6NYCRR Part 750-757 - Implementation of NYPDES in New York State
- Technical and Operation Guidelines (TOGS) 1.1.1-Ambient Water Quality Standards and Guidance Values

NYSDEC - Division of Fish and Wildlife
- Technical Guidance for Screening Contaminated Sediments (Nov 1993)

Occupational Safety and Health Administration
- 29 CFR 1900-1999

Appendix A - Table 2
Representative Contamination Summary

Media	Class	Contaminant of Concern	Concentration Range	Frequency of Exceedances	SCG *
Groundwater Shallow	Volatile Organic Compounds	Tetrachloroethylene	Non Detect - 100 ppb	5 out of 26	5 ppb
		Trichloroethene	Non Detect - 14,000 ppb	8 out of 26	5 ppb
		1,1,1-Trichloroethane	Non Detect - 830 ppb	5 out of 26	5 ppb
		1,2-Dichloroethene	Non Detect - 420,000	13 out of 26	5 ppb
		Vinyl Chloride	Non-Detect - 3,500 ppb	9 out of 26	5 ppb
		Toluene	Non Detect -6,100 ppb	5 out of 26	5 ppb
		Ethylbenzene	Non Detect -340 ppb	7 out of 26	5 ppb
		Xylene	Non Detect - 1,400 ppb	7 out of 26	5 ppb
		Benzene	Non Detect - 14 ppb	1 out of 26	0.7 ppb
	PCBs	Total PCBs	Non Detect - 0.7 ppb	1 out of 26	0.1 ppb
Groundwater Deep	Volatile Organic Compounds	1,2-Dichloroethene	Non Detect -10 ppb	2 out of 3	5 ppb
		Trichloroethene	Non Detect - 33 ppb	1 out of 3	5 ppb
		Toluene	Non Detect - 130 ppb	1 out of 3	5 ppb
Soils	Polychlorinated Biphenyls	PCB	Non Detect - 340, 000 ppb	1 out of 20	10,000 ppb
	Volatile Organic Compounds	Tetrachloroethylene	Non Detect 16,000 ppb	1 out of 20	1,400 ppb
		Ethylbenzene	Non Detect - 150,000 ppb	1 out of 20	5,500 ppb
		Xylene	Non Detect -710,000	1 out of 20	1,200 ppb

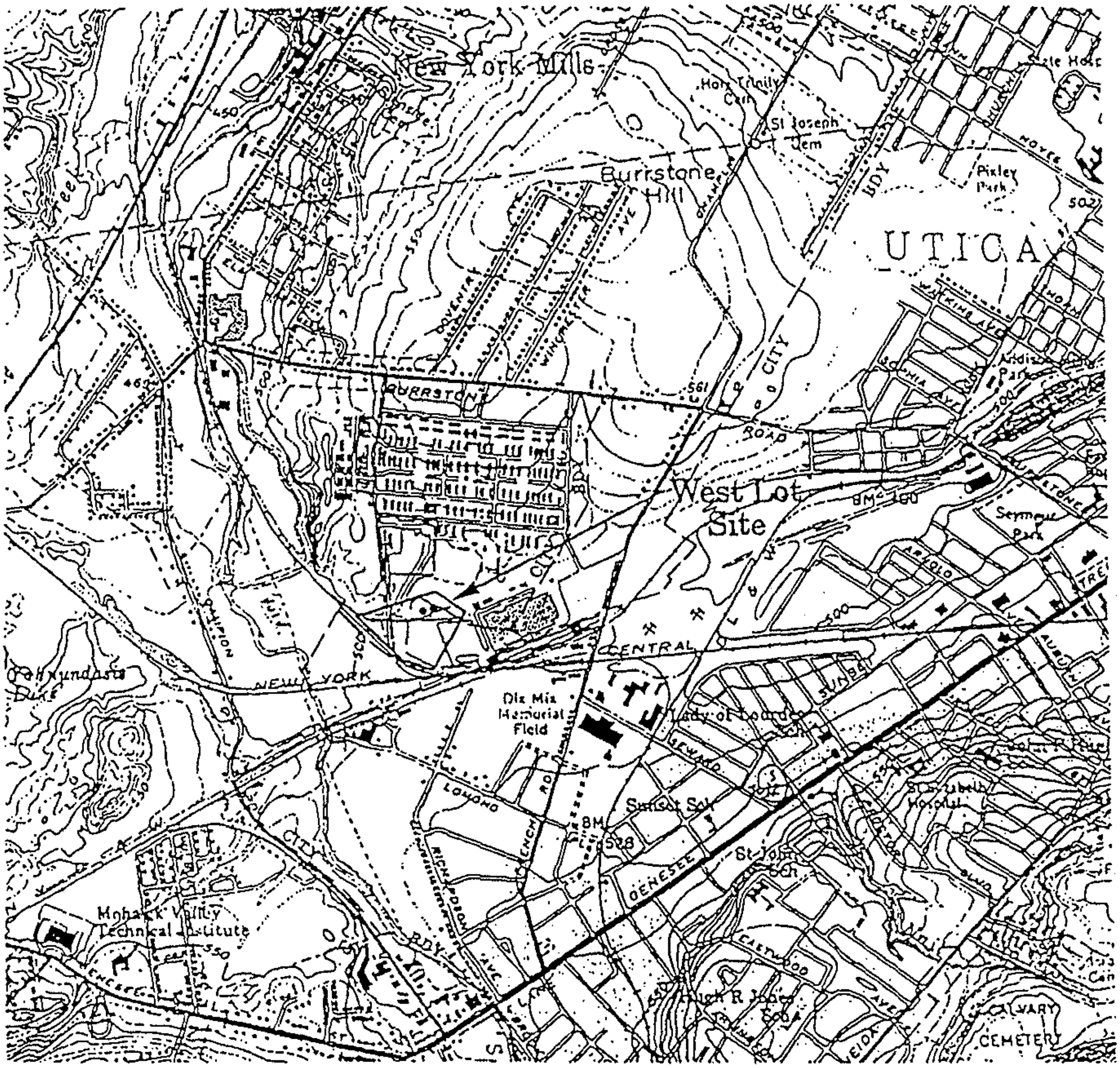
* SCG's for groundwater is standard 6 NYCRR Part 703
SCG's for soil is objectives in NYSDEC TAGM 4046

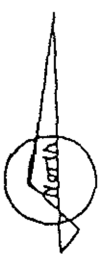
Appendix A - Table 3
G. E. West Lot Site
Remedial Alternatives Costs

Remedial Alternative	Capital Costs	Annual O&M	Total Present Worth
Alternative # 1 Limited Action	$ 0.00	$ 15,000 - 0 to 30 years	$ 181,541
Alternative # 2 Collect Treat/Discharge to POTW	$ 200,000 - Groundwater $ 710,200 - Soil	$ 60,000 - 0 to 10 years $ 15,000 - 11 to 15 years	$ 1,355,754
Alternative # 3 Collect Treat/Discharge on Site	$ 220,000 - Groundwater $ 710,200 - Soil	$ 60,000 - 0 to 8 years $ 15,000 - 9 to 13 years	$ 1,296,115
Alternative # 4 In-Situ Treatment - Air Sparging	$ 150,000 - Groundwater $ 710,200 - Soil	$ 60,000 - 0 to 5 years $ 15,000 - 6 to 10 years	$ 1,015,579
Alternative # 5 In-Situ Treatment - Chemical Oxidation	$ 110,000 - Groundwater $ 710,200- Soil	$ 60,000 - 0 to 2 years $ 15,000 - 3 to 6 years	$ 888,000
Alternative # 6 Supplemental Groundwater Alternative	$ 191,500 - Groundwater $ 710,200 - Soil	$ 59,800 - 0 to 4 years $ 15,000 - 5 to 10 years	$ 1,148,105

Notes: *Present Worth Value is based upon a 7 % Present Worth Factor using continuous compounding.*
Source removal of soils within the burn pit vicinity is part of every alternative, except the limited action alternative.

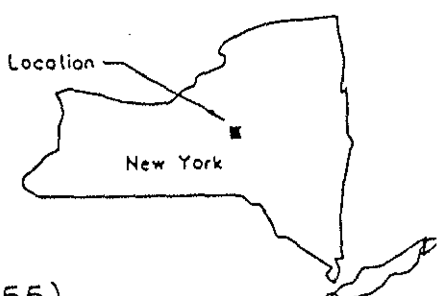
APPENDIX B





Scale: 1:24,000

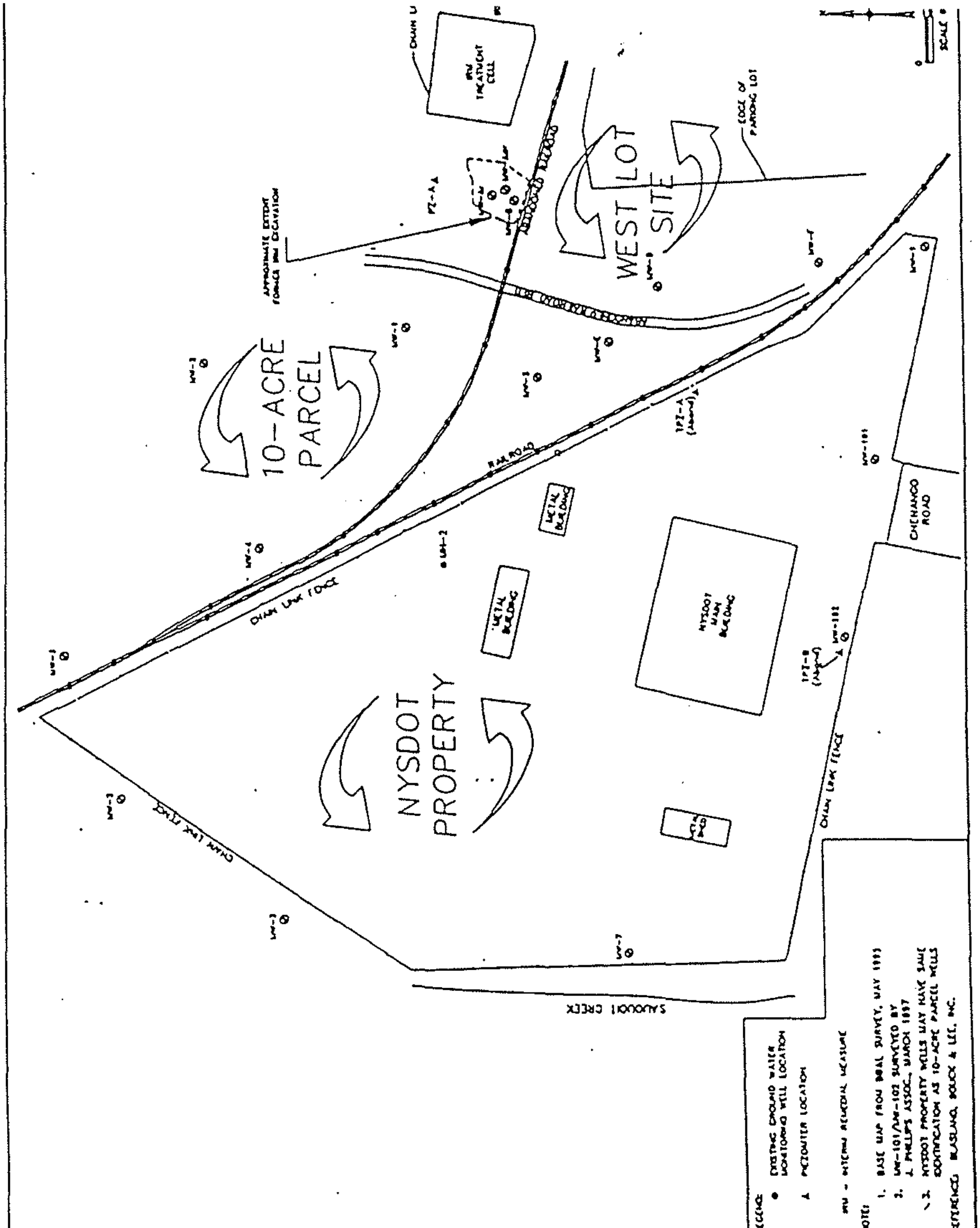
Miles			Feet	
1/2	1/4	0	1000	2000



Source:
United States Geological Survey
7.5-Minute Series (Topographic)
Quadrangle Map

Utica – West, NY (1955)

SECOR International, Inc.	Figure 1 – Site Location Map West Lot Project Area		LOCATION: Former Lockheed Martin Corp. Facility 525 French Road Utica, Oneida County, New York, 13502	
4914 West Genesee Street Camillus, New York 13031 (315) 484-7874	CLIENT: Burbank Program Office 2550 N. Hollywood Way Burbank, CA 91505	PROJECT NO.: 4G002-001-01	ASKTCH FILE: LMC-UTLOC.jps	DATE: 16 May 1997



SECOR

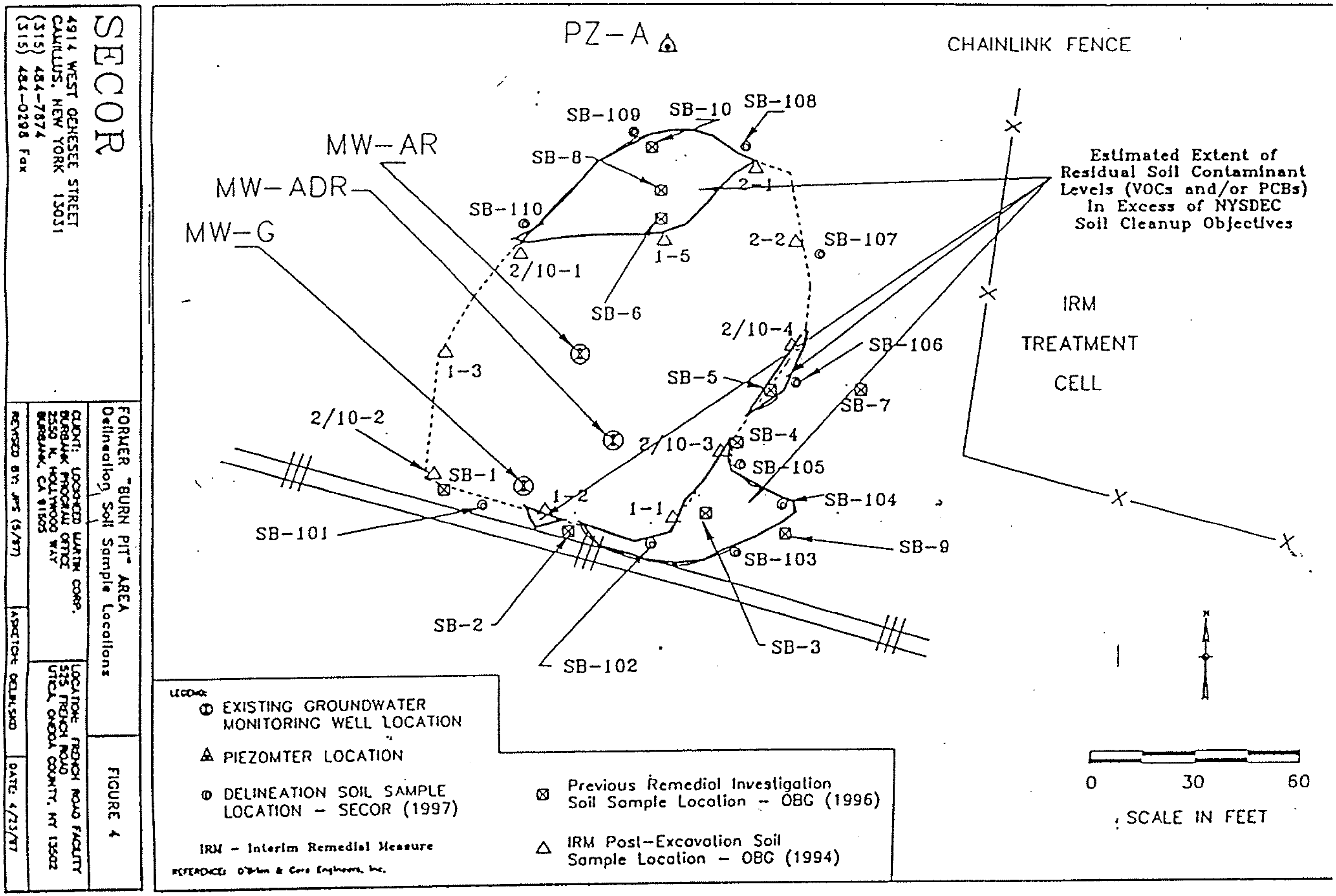
4914 WEST GENESEE ST.
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

WEST LOT PROJECT AREA
SITE PLAN

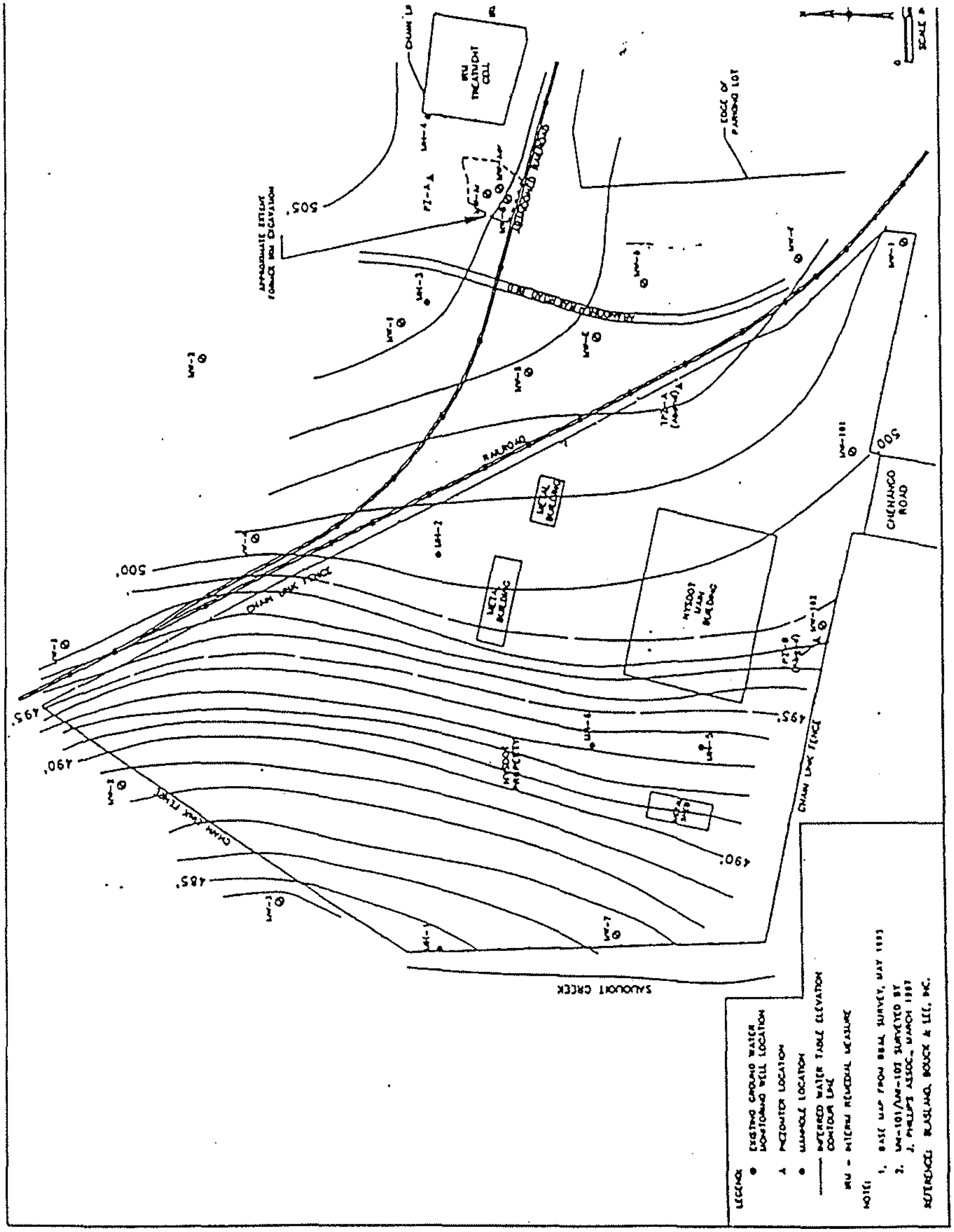
FIGURE 2

LOCKHEED MARTIN CORPORATION
BURBANK PROGRAM OFFICE
"WEST LOT PROJECT AREA"
UTICA, ONEIDA COUNTY, NEW YORK

PREPARED BY: CADD-PJ	FILE NAME: LOCKHEED	DATE: 4/23/97



SECOR
4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax
FORMER "BURN PIT" AREA
Delineation Soil Sample Locations
CLIENT: LOCKHEED MARTIN CORP.
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA 91505
LOCATION: FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502
FIGURE 4
REVISED BY: JPS (5/97)
DATE: 4/23/97
PZ-A
CHAINLINK FENCE
SB-109
SB-10
SB-108
MW-AR
SB-8
MW-ADR
2-1
Estimated Extent of Residual Soil Contaminant Levels (VOCs and/or PCBs) In Excess of NYSDEC Soil Cleanup Objectives
SB-110
MW-G
2-2
SB-107
1-5
2/10-1
SB-6
IRM
TREATMENT
CELL
2/10-4
SB-106
1-3
SB-5
SB-7
2/10-2
SB-4
2/10-3
SB-105
SB-1
1-2
SB-104
1-1
SB-101
SB-9
SB-103
SB-2
SB-3
SB-102
LEGEND:
EXISTING GROUNDWATER MONITORING WELL LOCATION
PIEZOMTER LOCATION
DELINEATION SOIL SAMPLE LOCATION - SECOR (1997)
IRM - Interim Remedial Measure
REFERENCE: O'Brien & Gere Engineers, Inc.
Previous Remedial Investigation Soil Sample Location - OBG (1996)
IRM Post-Excavation Soil Sample Location - OBG (1994)
0
30
60
SCALE IN FEET



SECOR 4914 WEST GENESEE ST. CAMILLUS, NEW YORK 13031 (315) 484-7874 (315) 484-0298 Fax	INFERRED WATER TABLE GRADIENT MAP 04 MARCH 1997	FIGURE 3
	LOCKHEED MARTIN CORPORATION BURBANK PROGRAM OFFICE "WEST LOT PROJECT AREA" UTICA, ONEIDA COUNTY, NEW YORK	
	PREPARED BY: CADD-PJ	FILE NAME: LOCKHEED · DATE: 4/23/97

SECOR
4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

WEST LOT PROJECT AREA
Till Layer Groundwater Sample Locations

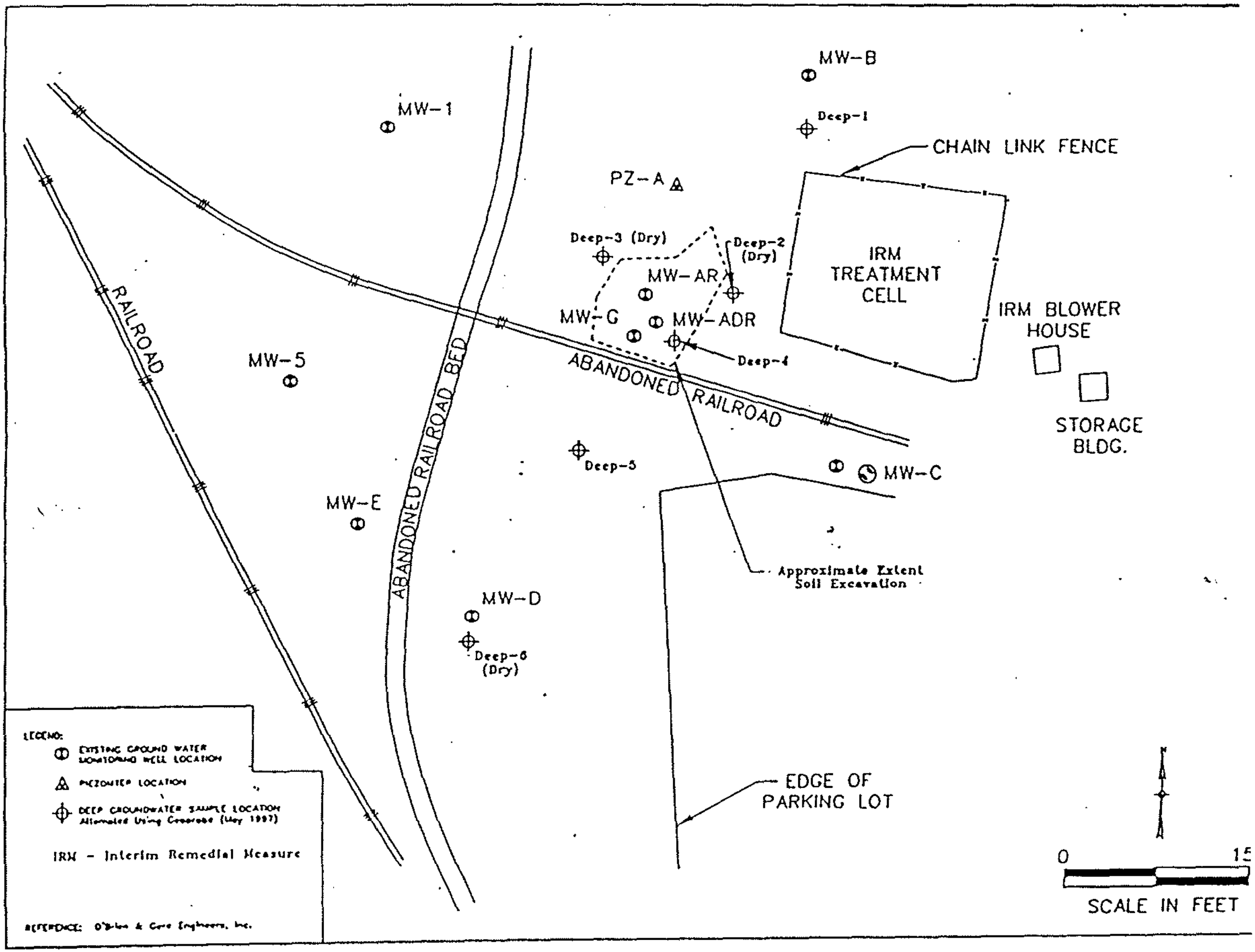
FIGURE 5

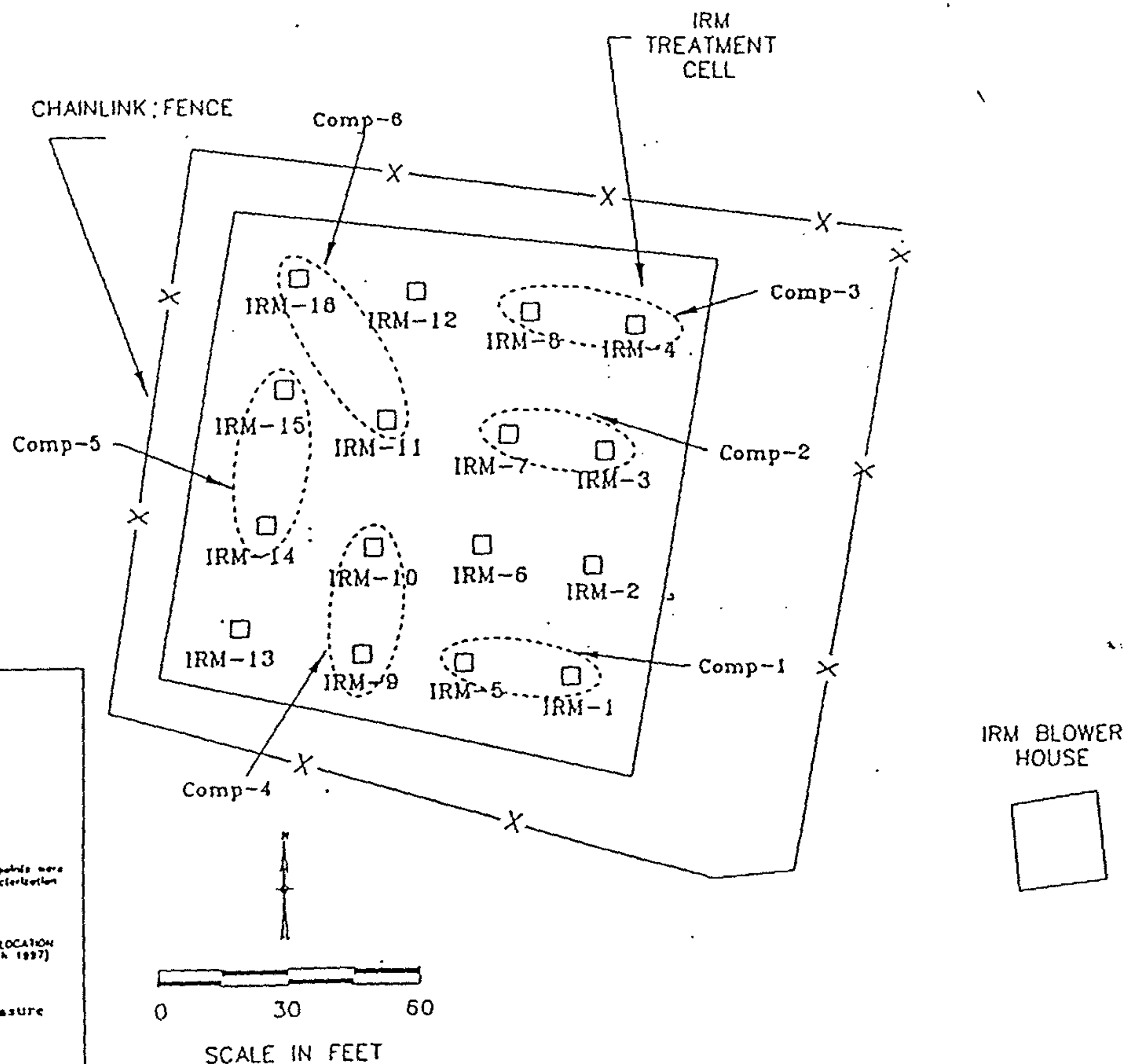
CLIENT: LOCKHEED MARTIN CORP.
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA 91505

LOCATION: FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502

REVISED BY: JPS (5/97)

DATE: 4/23/97





LEGEND:

Materials from two PCBs sample points were combined to produce waste characterization samples (Comp-1 to Comp-6).

□ PCBs SEGREGATION SOIL SAMPLE LOCATION Collected Using Hand-Auger (March 1997)

IRM - Interim Remedial Measure

REFERENCE: O'Brien & Gere Engineers, Inc.

SECOR
4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 fax

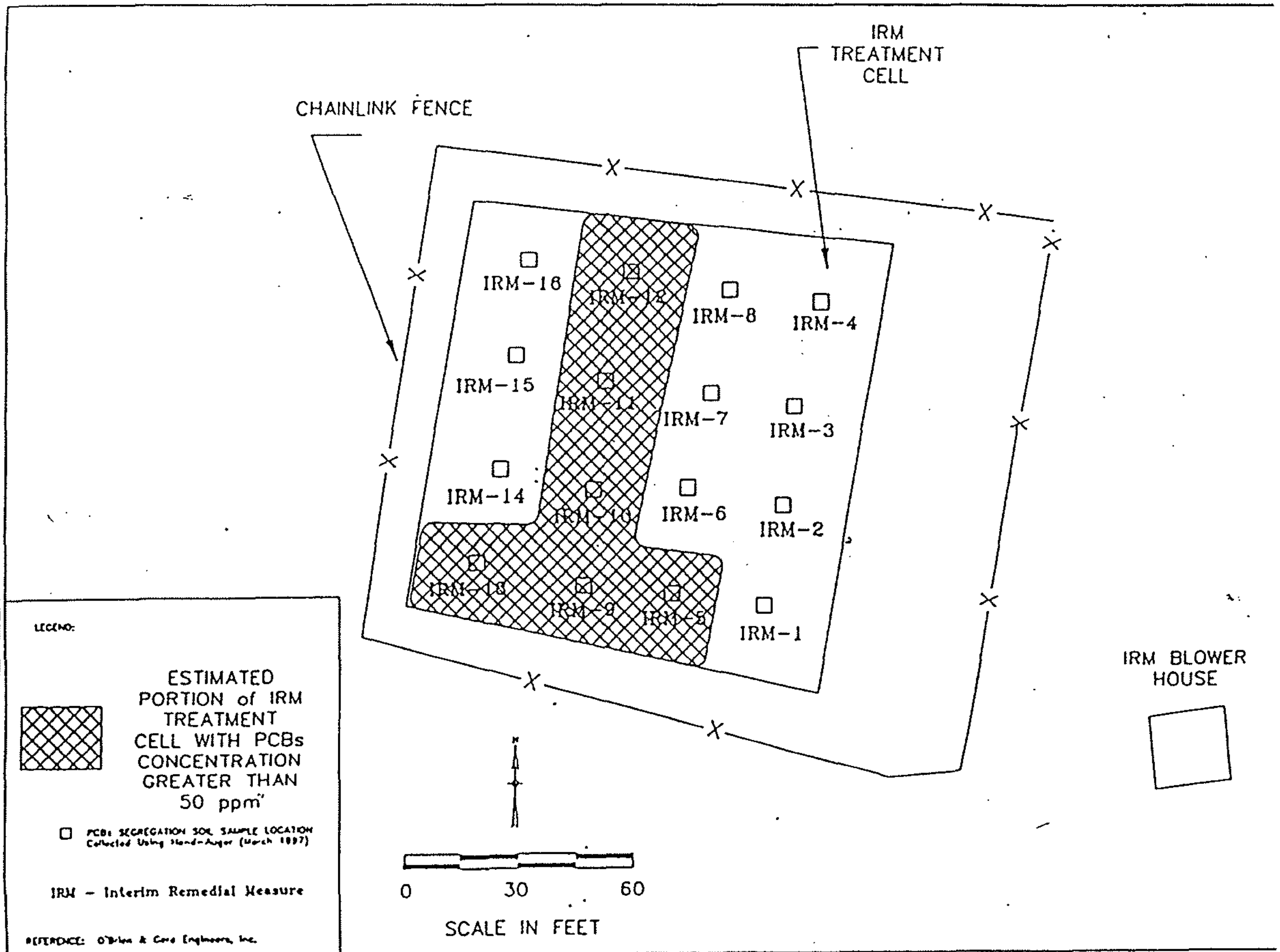
WEST LOT PROJECT AREA
Segregation/Waste Characterization
IRM Cell Soil Sample Locations

FIGURE 7

CLIENT: LOCKHEED MARTIN CORP.
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA 91505

LOCATION: FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502

PREPARED BY: JPS (5/97)
ASKETCH: PCBSEG.SKD
DATE: 4/23/97



SECOR
4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

WEST LOT PROJECT AREA
Estimated Portion of IRM Cell Requiring Disposal as "Hazardous Waste"

FIGURE 8

CLIENT: LOCKHEED MARTIN CORP.
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA 91505

LOCATION: FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502

PREPARED BY: JPS (5/97) | ASECTION: PCBSEG.SKD | DATE: 4/23/97

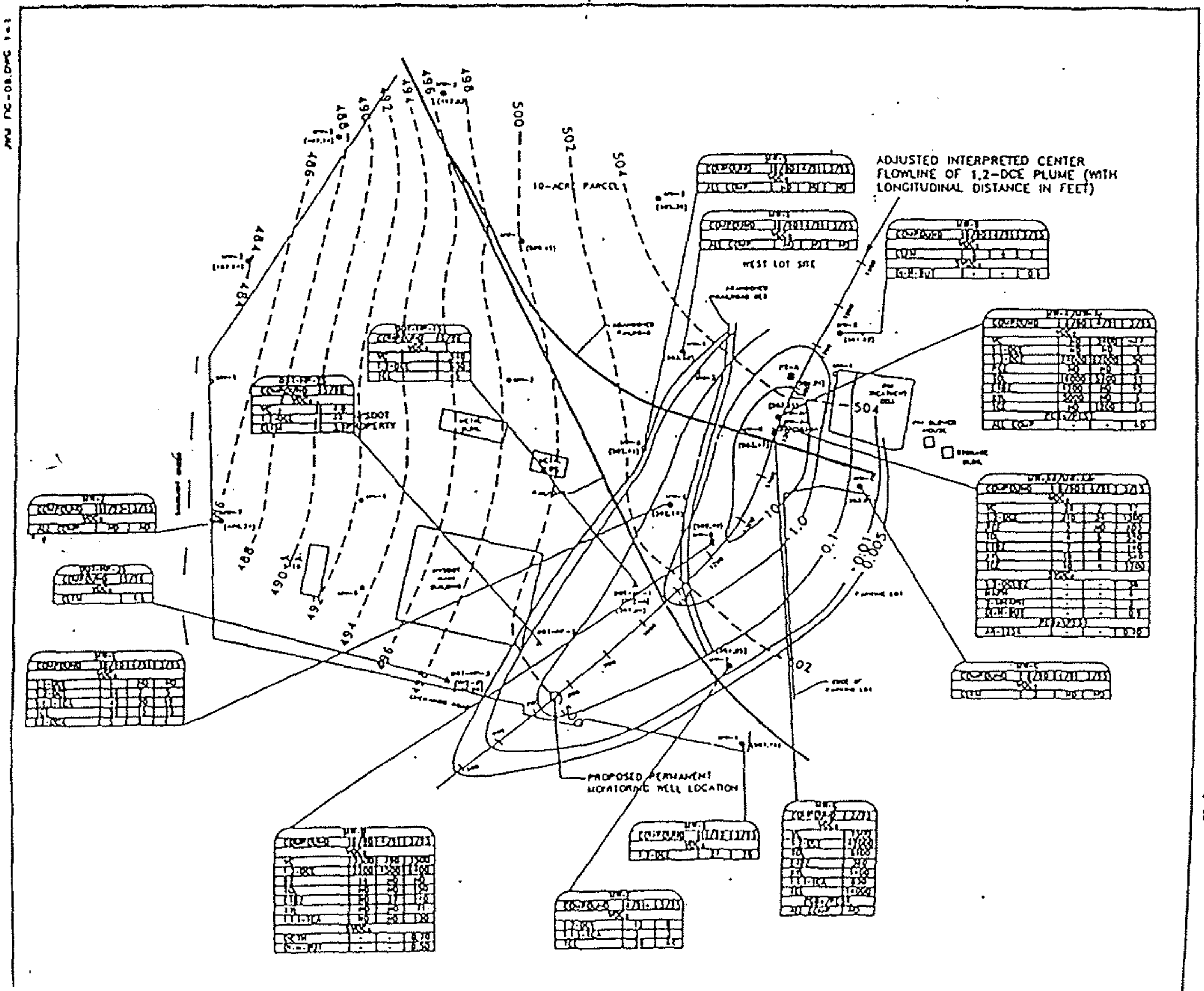


FIGURE 7

LEGEND

MANHOLE LOCATION

EXISTING GROUND-WATER MONITORING WELL

PIEZOMETER

HYDROPUNCH LOCATION

0.01 ——— SIMULATED 1,2-DCE PLUME CONTOUR (mg/L)

GROUND-WATER ELEVATION (FEET)(MAY 22, 1996)

502 — — — GROUND-WATER ELEVATION CONTOUR LINE (FEET)

NOTES:

1. FIGURE BASED ON MAP DEVELOPED BY BLASLAND, BOUCK & LEE, INC. (DWG. FILE - [illegible])

- - 4/91 AND 11/93 GROUND WATER SAMPLING RESULTS AT NYSDOT PROPERTY BASED ON SAMPLES OBTAINED BY NYSDEC.

ND - NOT DETECTED

LOCKHEED MARTIN CORP.
WEST LOT SITE-UTICA, N.Y.
REMEDIAL INVESTIGATION REPORT ADDENDUM

ADJUSTED SOLUTE-TRANSPORT MODEL PLUME AND PROPOSED MONITORING WELL LOCATION

200 0 200

SCALE

FILE NO. 5526.050-06F

TABLE 4-3

MARTIN MARIETTA CORPORATION
WEST LOT SITE
UTICA, NEW YORK

VEGETATIVE SPECIES OBSERVED OR TYPICAL OF THE AREA

Common Name	Scientific Name
Herbaceous vegetation	
Grasses	
Ragweed	Ambrosia artemisiifolia
Large flowered anenome	Anemone riparia
Indian hemp	Apocynum cannabinum
Milkweed	Asclepius syriaca
Aster	Aster spp.
Sedges	Carex spp.
Knappweed	Centauria spp.
Daisy	Chrysanthemum luecanthemum
Chickory	Cichorium intybus
Thistle	Cirsiuim spp.
Fleabane	Erigeron spp.
Strawberry	Fragaria virginiana
Bedstraw	Galium spp.
White avens	Geum canadense
Common St. John's wort	Hypericum perforatum
Birdfoot trefoil	Lotus corniculatus
Fringed loosestrife	Lysimachia ciliata
Moneywort	Lysimachia nummularia
White sweet clover	Melilotus alba
Yellow sweet clover	Melilotus officinalis
Evening primrose	Oenothera biennis
Virginia creeper	Parthenocissus quinquefolia
Wild parsnip	Pastinaca sativa
English plantain	Plantago lanceolata
Rough cinquefoil	Potentilla norvegica
Cinquefoil	Potentilla recta
Buttercup	Rannunculus spp.
Blackberry	Rubus allegheniensis
Red raspberry	Rubus ideaus
Black Raspberry	Rubus occidentalis
Black-eyed susan	Rudbeckia hirta
Goldenrod	Solidago spp.
Posion ivy	Toxicodendron radicans
Red clover	Trifolium pratense
Garden valerian	Valeriana officinalis
Mullein	Verbascum thapsus
Cow vetch	Vicia cracca
Grape	Vitis spp.
Shrubs and Trees	
Boxelder	Acer negundo
Speckled alder	Alnus rugosa
White ash	Fraxinus americana
Honeysuckle	Lonicera spp.
Cottonwood	Populus deltoides
Quaking aspen	Populus tremuloides
Pin cherry	Prunus pensylvanica
Black cherry	Prunus serotina
Staghorn sumac	Rhus typhina
Black willow	Salix nigra
Basswood	Tilia americana
American elm	Ulmus americana

TABLE 4-4

MARTIN MARIETTA CORPORATION
WEST LOT SITE
UTICA, NEW YORK

WILDLIFE SPECIES OBSERVED OR TYPICAL OF THE AREA

Common Name	Scientific Name
Mammals	
Raccoon	Procyon lotor
White-tailed deer	Odocoileus virginianus
Woodchuck	Marmota monax
Mice and voles	Zapus, Peromyscus, Microtus
Gray squirrel	Sciurus carolinensis
Shrews	Sorex spp.
Muskrat	Ondatra zibethicus
Eastern cottontail	Sylvilagus floridanus
Birds	
Crow	Corvus brachyrhynchos
Catbird	Dumetella carolinensis
Black capped chicadee	Parus atricapillus
Song sparrow	Melospize melodia
House sparrow	Passer domesticus
Red-wing blackbird	Agelaius phoeniceus
Cardinal	Richmondena cardinalis
American robin	Turdus migratorius
Blue jay	Cyanocitta cristata
Mourning dove	Zenaida macroura
Kingfisher	Megaceryle alcyon
Herptiles	
Snapping turtle	Chelydra serpentina
Green frog	Rana clamatans
American toad	Bufo americanus
Eastern garter snake	Thamnophis sirtalis
Fish	
Smallmouth bass	Micropterus dolomieui
Trout	Salmo spp., Salvelinus spp.
Minnows	Notropis spp., Rhinichthys spp., etc...
Darters	Percina spp., Etheostoma spp.

Appendix C

Validation Reports

Roy F. Weston, Inc.
1 Weston Way
West Chester, Pennsylvania 19380-1499
610-701-3000 • Fax 610-701-3186

MANAGERS DESIGNERS/CONSULTANTS

ORGANIC QUALITY ASSURANCE REVIEW

BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 95000 / SDG: 49977
ORGANICS

**REVIEW PERFORMED BY
THE ENVIRONMENTAL METRICS DIVISION
OF
ROY F. WESTON, INC.**

PREPARED BY: Kelly Muir Spittler 05-11-95
Kelly Muir Spittler **Date**
Unit Leader - Data Validation

VERIFIED BY: Zh/ h/ 5-11-95
Zohreh Hamid, Ph.D. **Date**
Section Manager - Data Validation

WESTON

BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 95000 / SDG: 49977
TCL ORGANICS

INTRODUCTION

This quality assurance review is based upon a review of all data generated from fifteen water samples collected on 03-13,14-95. The samples were analyzed according to criteria set forth in the NYSDEC Analytical Services Protocol ASP (September 1989, 12-91 Revision) for TCL Volatile, Base Neutral, and Pesticide/PCB Target Compounds.

All data have been validated with regard to usability according to the quality assurance set forth in the NYSDEC Contract Laboratory Program, Analytical Services Protocol (ASP). If you have any questions or comments on this data review, please call Zohreh Hamid at (610) 701-5315.

QUALITY ASSURANCE REVIEW

The analyses were performed by Inchscape Testing Services.

The finding offered in this report are based upon a rigorous of the following criteria:

- * Holding Time
- Blanks
- Surrogate Recoveries
- * Internal Standards
- * GC/MS Tuning
- Calibration
- * Matrix Spike/Spike Duplicate/Blank Spike
- Field Duplicate
- * Instrument Performance
- Sample Results
- Data Completeness

* All criteria were met; therefore, a narrative section is not provided for this classification.

BLANKS

Semivolatiles

The method blanks contained bis(2-ethylhexyl)phthalate at a level below the CRQL. The sample results are considered as laboratory artifacts and are qualified "U". (page E-79, 5.2.1)

SURROGATE RECOVERIES

Pesticide/PCBs

The following surrogate recoveries were outside the 60-150% advisory QC limits. Since the surrogate recoveries have advisory limits, the data usability was not affected and no qualification was applied. (page E-117, 2.2)

SAMPLE	SURROGATE	COLUMN	% RECOVERY
GW-GS	DCB	RTX-35/RTX-1701	43/44
GW-GS-D	DCB	RTX-35/RTX-1701	39/40
GWADS	DCB	RTX-35/RTX-1701	54/56
GWARS	DCB	RTX-35/RTX-1701	35/37
GWADSMS	DCB	RTX-35/RTX-1701	45/45
GWADSMSD	DCB	RTX-35/RTX-1701	37/39

CALIBRATION

Volatile

The RRFs and %RSDs were within the control limits. The following %Ds were outside the validation requirement limits of 25% in the continuing calibration.

COMPOUND NAME	CC 03-20-95
Bromoform	-37.6
4-Methyl-2-pentanone	-31.7
1,1,2,2-Tetrachloroethane	-36.5
Associated Samples:	VBLKP2, GWADS, GWADSMS, GWADSMSD, GW-GS, GW-GS-D, GW-DS, MSB, GWADR, GWARS, GW-BS, GW-CS, GWD1S, GWD7S, GW-ES

These compounds were not detected in the samples. All associated non-detects are qualified estimated. (page E-47, 2.4.3)

Semivolatiles

All %RSDs and RRFs were within the control limits. The following %Ds in the continuing calibrations were outside the 25% QC limit:

COMPOUND	CC 03-21-95	CC 03-22-95
2,6-Dinitrotoluene	-25.1	
2,4-Dinitrotoluene	-27.3	
Benzo(g,h,i)perylene		26.2
Associated samples:	SBLK3J, GWADR, GWADS, GWADS MS/MSD, GW-BS, GW-DS, MSB	GW-BS DL

These compounds were not detected in the samples; therefore all associated non-detects are qualified estimated and flagged "UJ" (page E-77,3.3).

FIELD DUPLICATE

Volatiles and Pesticides/PCBs

One set of field duplicate analyses (GW-GS/GW-GS-D) was provided with this batch. The sample result reproducibility was satisfactory for all results greater than the CRQL.

SAMPLE RESULTS

The results below the CRQLs are qualified "J",due to the uncertainty near the detection limits.

Volatiles

Samples GWADS (10-fold), GW-DS (50-fold), GW-GS (250-fold), and GW-GS-D (250-fold) were only provided as the diluted analyses. Sample results may be biased low; therefore, all positive results and non-detects are qualified estimated in these analyses.

Semivolatiles

The level of bis(2-ethylhexyl)phthalate exceeded the calibration range in the analysis of sample GW-BS. This sample was reanalyzed at a 2.9-fold dilution and the diluted result is reported for this compound only. All other results are reported from the original analysis. Qualification was not required based on this dilution.

DATA COMPLETENESS

Semivolatiles

Pages 000288-000303 were missing from the data package. The laboratory has been contacted for resubmission. (see attached)

ATTACHMENTS

1. Attachment I - Glossary of Data Qualifier Codes

2. Attachment II - Sample Result Summary. This includes:

    a) A summary of all positive results for the target analytes with the qualifier codes, if applicable;

    b) All qualified and usable detection limits.

3. Attachment III - Sample data (Form I) verified by the laboratory.

WESTON
MANAGERS DESIGNERS/CONSULTANTS

ATTACHMENT I
GLOSSARY OF DATA QUALIFIER CODES

GLOSSARY OF DATA QUALIFIERS

CODES RELATING TO IDENTIFICATION

(confidence concerning presence or absence of compounds):

U = NOT DETECTED SUBSTANTIALLY ABOVE THE LEVEL REPORTED IN LABORATORY OR FIELD BLANKS. [Substantially is equivalent to a result less than 10 times the blank level for common contaminants (methylene chloride, acetone and 2-butanone in the VOA analyses, and common phthalates in the BNA analyses, along with tentatively identified compounds) or less than 5 times the blank level for other target compounds.]

R = UNUSABLE RESULT. THE PRESENCE OR ABSENCE OF THIS ANALYTE CANNOT BE VERIFIED. SUPPORTING DATA NECESSARY TO CONFIRM RESULT.

N = NEGATED COMPOUND. THERE IS PRESUMPTIVE EVIDENCE TO MAKE A TENTATIVE IDENTIFICATION.

CODES RELATING TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = ANALYTE WAS POSITIVELY IDENTIFIED. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.

UJ = ANALYTE WAS NOT DETECTED ABOVE THE CRQL. THE REPORTED QUANTITATION LIMIT IS QUALIFIED ESTIMATED.

OTHER CODES

Q = NO ANALYTICAL RESULT.

ATTACHMENT II
SAMPLE RESULT SUMMARY

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE NO. 95000 / SDG NO. 49977

Client Sample ID:		GWADR	GWADS	GWARS	GW-BS	GW-CS	GWD1S	GWD7S
Matrix:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor:		1	10	1	1	1	1	1
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)							
Chloromethane	10		UJ					
Bromomethane	10		UJ					
Vinyl Chloride	10		13 J	17				
Chloroethane	10		UJ					
Methylene Chloride	10		UJ					
Acetone	10		UJ					
Carbon Disulfide	10		UJ					
1,1-Dichloroethene	10		UJ	1 J				
1,1-Dichloroethane	10		UJ					
1,2-Dichloroethene (total)	10		1300 J	50			28	
Chloroform	10		UJ		2 J			
1,2-Dichloroethane	10		UJ					
2-Butanone	10		UJ					
1,1,1-Trichloroethane	10		UJ					
Carbon Tetrachloride	10		UJ					
Bromodichloromethane	10		UJ					
1,2-Dichloropropane	10		UJ					
cis-1,3-Dichloropropene	10		UJ					
Trichloroethene	10		1700 J	13				
Dibromochloromethane	10		UJ					
1,1,2-Trichloroethane	10		UJ					
Benzene	10		UJ					
trans-1,3-Dichloropropene	10		UJ					
Bromoform	10	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Methyl-2-Pentanone	10	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Hexanone	10		UJ					
Tetrachloroethene	10		100 J	8 J				
1,1,2,2-Tetrachloroethane	10	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toluene	10		550 J	12				
Chlorobenzene	10		UJ					
Ethylbenzene	10		140 J	15				
Styrene	10		UJ					
Xylene (total)	10		540 J	8 J				

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE NO. 95000 / SDG NO. 49977

Client Sample ID:		GW-DS	GW-ES	GW-FS	GW-GS	GW-GS-D	GW-1S	GW-1T
Matrix:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor:		50	1	1	250	250	1	1
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)							
Chloromethane	10	UJ			UJ	UJ		
Bromomethane	10	UJ			UJ	UJ		
Vinyl Chloride	10	3500 J			1500 J	1500 J		
Chloroethane	10	UJ			UJ	UJ		
Methylene Chloride	10	UJ			UJ	UJ		
Acetone	10	UJ			UJ	UJ		
Carbon Disulfide	10	UJ			UJ	UJ		
1,1-Dichloroethene	10	UJ			UJ	UJ		
1,1-Dichloroethane	10	UJ	4 J		UJ	UJ		
1,2-Dichloroethene (total)	10	6400 J	5 J	6 J	42000 J	42000 J		
Chloroform	10	UJ			UJ	UJ		
1,2-Dichloroethane	10	UJ			UJ	UJ		
2-Butanone	10	UJ			UJ	UJ		
1,1,1-Trichloroethane	10	130 J	12	3 J	830 J	820 J		
Carbon Tetrachloride	10	UJ			UJ	UJ		
Bromodichloromethane	10	UJ			UJ	UJ		
1,2-Dichloropropane	10	UJ			UJ	UJ		
cis-1,3-Dichloropropene	10	UJ			UJ	UJ		
Trichloroethene	10	UJ	15	66	14000 J	14000 J		
Dibromochloromethane	10	UJ			UJ	UJ		
1,1,2-Trichloroethane	10	UJ			UJ	UJ		
Benzene	10	UJ			UJ	UJ		
trans-1,3-Dichloropropene	10	UJ			UJ	UJ		
Bromoform	10	UJ	UJ		UJ	UJ		
4-Methyl-2-Pentanone	10	UJ	UJ		UJ	UJ		
2-Hexanone	10	UJ			UJ	UJ		
Tetrachloroethene	10	UJ			UJ	UJ		
1,1,2,2-Tetrachloroethane	10	UJ	UJ		UJ	UJ		
Toluene	10	150 J			6100 J	6000 J		
Chlorobenzene	10	UJ			UJ	UJ		
Ethylbenzene	10	140 J			UJ	360 J		
Styrene	10	UJ			UJ	UJ		
Xylene (total)	10	71 J			1400 J	1400 J		

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE NO. 95000 / SDG NO. 49977

Client Sample ID:	GW–5S
Matrix:	WATER
Dilution Factor:	1
Units:	ug/L

COMPOUND	CRQL (ug/L)
Chloromethane	10
Bromomethane	10
Vinyl Chloride	10
Chloroethane	10
Methylene Chloride	10
Acetone	10
Carbon Disulfide	10
1,1–Dichloroethene	10
1,1–Dichloroethane	10
1,2–Dichloroethene (total)	10
Chloroform	10
1,2–Dichloroethane	10
2–Butanone	10
1,1,1–Trichloroethane	10
Carbon Tetrachloride	10
Bromodichloromethane	10
1,2–Dichloropropane	10
cis–1,3–Dichloropropene	10
Trichloroethene	10
Dibromochloromethane	10
1,1,2–Trichloroethane	10
Benzene	10
trans–1,3–Dichloropropene	10
Bromoform	10
4–Methyl–2–Pentanone	10
2–Hexanone	10
Tetrachloroethene	10
1,1,2,2–Tetrachloroethane	10
Toluene	10
Chlorobenzene	10
Ethylbenzene	10
Styrene	10
Xylene (total)	10

ROY F. WESTON, INC.
SEMIVOLATILE ANALYSES – DATA VALIDATION SUMMARY

BLASLAND, BOUCK AND LEE
SITE: CLOTHIER DISPOSAL
CASE NO. 95000 / SDG NO. 49977

Client Sample ID:		GWADR	GWADS	GW–BS	GW–DS
Matrix:		WATER	WATER	WATER	WATER
Dilution Factor:		1	1	1/2.9*	1
Units:		ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (UG/L)				
bis(2–Chloroethyl)ether	10				
1,3–Dichlorobenzene	10				
1,4–Dichlorobenzene	10				
1,2–Dichlorobenzene	10		30		
2,2'–oxybis(1–Chloropropane)	10				
N–Nitroso–di–n–propylamine	10				
Hexachloroethane	10				
Nitrobenzene	10				
Isophorone	10				
bis(2–Chloroethoxy)methane	10				
1,2,4–Trichlorobenzene	10				
Naphthalene	10		4 J		
4–Chloroaniline	10				
Hexachlorobutadiene	10				
2–Methylnaphthalene	10		3 J		
Hexachlorocyclopentadiene	10				
2–Chloronaphthalene	10				
2–Nitroaniline	25				
Dimethylphthalate	10				
Acenaphthylene	10				
2,6–Dinitrotoluene	10	UJ	UJ	UJ	UJ
3–Nitroaniline	25				
Acenaphthene	10				
Dibenzofuran	10				
2,4–Dinitrotoluene	10	UJ	UJ	UJ	UJ
Diethylphthalate	10				0.7 J
4–Chlorophenyl–phenylether	10				
Fluorene	10				
4–Nitroaniline	25				
N–Nitrosodiphenylamine	10				
4–Bromophenyl–phenylether	10				
Hexachlorobenzene	10				
Phenanthrene	10				

ROY F. WESTON, INC.
SEMIVOLATILE ANALYSES – DATA VALIDATION SUMMARY

BLASLAND, BOUCK AND LEE
SITE: CLOTHIER DISPOSAL
CASE NO. 95000 / SDG NO. 49977

Client Sample ID:		GWADR	GWADS	GW–BS	GW–DS
Matrix:		WATER	WATER	WATER	WATER
Dilution Factor:		1	1	1/2.9*	1
Units:		ug/L	ug/L	ug/L	ug/L
COMPOUND					
	CRQL (UG/L)				
Anthracene	10				
Carbazole	10				
Di–n–butylphthalate	10		0.9 J	0.6 J	0.5 J
Fluoranthene	10				
Pyrene	10				
Butylbenzylphthalate	10				
3,3–Dichlorobenzidine	10				
Benzo(a)anthracene	10				
Chrysene	10				
bis(2–Ethylhexyl)phthalate	10	12 U	10 U	210 U*	16 U
Di–n–octylphthalate	10				
Benzo(b)fluoranthene	10				
Benzo(k)fluoranthene	10				
Benzo(a)pyrene	10				
Indeno(1,2,3–cd)pyrene	10				
Dibenz(a,h)anthracene	10				
Benzo(g,h,i)perylene	10				

ROY F. WESTON, INC.
PESTICIDE/PCB ANALYSES – DATA VALIDATION SUMMARY

BLASLAND, BOUCK AND LEE
SITE: CLOTHIER DISPOSAL
CASE NO. 95000 / SDG NO. 49977

Client Sample ID:		GWARS	GWADS	GW–GS	GW–GS–D	GWADR
Matrix:		WATER	WATER	WATER	WATER	WATER
Dilution Factor:		1	1	1	1	1
Units:		ug/L	ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (UG/L)					
alpha–BHC	0.05					
beta–BHC	0.05					
delta–BHC	0.05					
gamma–BHC(Lindane)	0.05					
Heptachlor	0.05					
Aldrin	0.05					
Heptachlor Epoxide	0.05					
Endosulfan I	0.05					
Dieldrin	0.1					
4,4'–DDE	0.1					
Endrin	0.1					
Endosulfan II	0.1					
4,4'–DDD	0.1					
Endosulfan Sulfate	0.1					
4,4'–DDT	0.1					
Methoxychlor	0.5					
Endrin Ketone	0.1					
Endrin Aldehyde	0.1					
alpha–Chlordane	0.05					
gamma–Chlordane	0.05					
Toxaphene	5					
Aroclor 1016	1					
Aroclor 1221	2					
Aroclor 1232	1					
Aroclor 1242	1					
Aroclor 1248	1					
Aroclor 1254	1		0.7 J			
Aroclor 1260	1					

ATTACHMENT III
FORM I's

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADR

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250949

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250949V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________ (uL) Soil Aliquot Volume: ______ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWADR

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250949

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250949V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250950

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250950D2V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	13	J
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	100	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
540-59-0	1,2-Dichloroethene (total)	1300	
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	100	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
75-27-4	Bromodichloromethane	100	U
78-87-5	1,2-Dichloropropane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
79-01-6	Trichloroethene	1700	
124-48-1	Dibromochloromethane	100	U
79-00-5	1,1,2-Trichloroethane	100	U
71-43-2	Benzene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
75-25-2	Bromoform	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
591-78-6	2-Hexanone	100	U
127-18-4	Tetrachloroethene	100	
79-34-5	1,1,2,2-Tetrachloroethane	100	U
108-88-3	Toluene	550	
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	140	
100-42-5	Styrene	100	U
1330-20-7	Xylene (total)	540	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWADS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250950

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250950D2V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
Number TICs found: 2 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	4.417	160	NJ
2. 108-87-2	Cyclohexane, methyl-	8.370	51	NJ
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWARS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250951

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250951V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	17	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	1	J
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	50	
67-66-3	Chloroform	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	13	
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	8	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	12	
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	15	
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	8	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWARS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250951

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250951V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 354-23-4	Ethane, 1,2-dichloro-1,1,2-t	4.125	19	NJ
2. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	4.417	30	NJ
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-BS

Lab Name: AQUATEC, INC.   Contract: 95000

Lab Code: AQUAI   Case No.: 95000   SAS No.:   SDG No.: 49977

Matrix: (soil/water) WATER   Lab Sample ID: 250952

Sample wt/vol: 5.0 (g/mL) ML   Lab File ID: M250952V.D

Level: (low/med) LOW   Date Received: 03/15/95

% Moisture: not dec. ________   Date Analyzed: 03/20/95

GC Column:CAP   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: _______(uL)   Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	2	J
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-BS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250952V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-CS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250953

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250953V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-CS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250953

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250953V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWD1S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250954

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250954V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	28	
67-66-3	Chloroform	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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWD1S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250954

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250954V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWD7S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250955

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250955V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWD7S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250955

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250955V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-DS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250956

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250956D2VV.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

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

CAS NO.	COMPOUND	UG/L	Q
74-87-3	Chloromethane	500	U
74-83-9	Bromomethane	500	U
75-01-4	Vinyl Chloride	3500	
75-00-3	Chloroethane	500	U
75-09-2	Methylene Chloride	500	U
67-64-1	Acetone	500	U
75-15-0	Carbon Disulfide	500	U
75-35-4	1,1-Dichloroethene	500	U
75-34-3	1,1-Dichloroethane	500	U
540-59-0	1,2-Dichloroethene (total)	6400	
67-66-3	Chloroform	500	U
107-06-2	1,2-Dichloroethane	500	U
78-93-3	2-Butanone	500	U
71-55-6	1,1,1-Trichloroethane	130	J
56-23-5	Carbon Tetrachloride	500	U
75-27-4	Bromodichloromethane	500	U
78-87-5	1,2-Dichloropropane	500	U
10061-01-5	cis-1,3-Dichloropropene	500	U
79-01-6	Trichloroethene	500	U
124-48-1	Dibromochloromethane	500	U
79-00-5	1,1,2-Trichloroethane	500	U
71-43-2	Benzene	500	U
10061-02-6	trans-1,3-Dichloropropene	500	U
75-25-2	Bromoform	500	U
108-10-1	4-Methyl-2-Pentanone	500	U
591-78-6	2-Hexanone	500	U
127-18-4	Tetrachloroethene	500	U
79-34-5	1,1,2,2-Tetrachloroethane	500	U
108-88-3	Toluene	150	J
108-90-7	Chlorobenzene	500	U
100-41-4	Ethylbenzene	140	J
100-42-5	Styrene	500	U
1330-20-7	Xylene (total)	71	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-DS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250956

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250956D2VV.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-ES

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250957

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250957V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	4	J
540-59-0	1,2-Dichloroethene (total)	5	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	12	
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	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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-ES

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250957

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250957V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-FS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250958

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250958V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	6	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	3	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	66	
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-FS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250958

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250958V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-GS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250959

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250959DV.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	2500	U
74-83-9	Bromomethane	2500	U
75-01-4	Vinyl Chloride	1500	J
75-00-3	Chloroethane	2500	U
75-09-2	Methylene Chloride	2500	U
67-64-1	Acetone	2500	U
75-15-0	Carbon Disulfide	2500	U
75-35-4	1,1-Dichloroethene	2500	U
75-34-3	1,1-Dichloroethane	2500	U
540-59-0	1,2-Dichloroethene (total)	42000	
67-66-3	Chloroform	2500	U
107-06-2	1,2-Dichloroethane	2500	U
78-93-3	2-Butanone	2500	U
71-55-6	1,1,1-Trichloroethane	830	J
56-23-5	Carbon Tetrachloride	2500	U
75-27-4	Bromodichloromethane	2500	U
78-87-5	1,2-Dichloropropane	2500	U
10061-01-5	cis-1,3-Dichloropropene	2500	U
79-01-6	Trichloroethene	14000	
124-48-1	Dibromochloromethane	2500	U
79-00-5	1,1,2-Trichloroethane	2500	U
71-43-2	Benzene	2500	U
10061-02-6	trans-1,3-Dichloropropene	2500	U
75-25-2	Bromoform	2500	U
108-10-1	4-Methyl-2-Pentanone	2500	U
591-78-6	2-Hexanone	2500	U
127-18-4	Tetrachloroethene	2500	U
79-34-5	1,1,2,2-Tetrachloroethane	2500	U
108-88-3	Toluene	6100	
108-90-7	Chlorobenzene	2500	U
100-41-4	Ethylbenzene	2500	U
100-42-5	Styrene	2500	U
1330-20-7	Xylene (total)	1400	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-GS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250959

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250959DV.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

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

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	4.417	1200	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-GS-D

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250960

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250960DV.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	2500	U
74-83-9	Bromomethane	2500	U
75-01-4	Vinyl Chloride	1500	J
75-00-3	Chloroethane	2500	U
75-09-2	Methylene Chloride	2500	U
67-64-1	Acetone	2500	U
75-15-0	Carbon Disulfide	2500	U
75-35-4	1,1-Dichloroethene	2500	U
75-34-3	1,1-Dichloroethane	2500	U
540-59-0	1,2-Dichloroethene (total)	42000	
67-66-3	Chloroform	2500	U
107-06-2	1,2-Dichloroethane	2500	U
78-93-3	2-Butanone	2500	U
71-55-6	1,1,1-Trichloroethane	820	J
56-23-5	Carbon Tetrachloride	2500	U
75-27-4	Bromodichloromethane	2500	U
78-87-5	1,2-Dichloropropane	2500	U
10061-01-5	cis-1,3-Dichloropropene	2500	U
79-01-6	Trichloroethene	14000	
124-48-1	Dibromochloromethane	2500	U
79-00-5	1,1,2-Trichloroethane	2500	U
71-43-2	Benzene	2500	U
10061-02-6	trans-1,3-Dichloropropene	2500	U
75-25-2	Bromoform	2500	U
108-10-1	4-Methyl-2-Pentanone	2500	U
591-78-6	2-Hexanone	2500	U
127-18-4	Tetrachloroethene	2500	U
79-34-5	1,1,2,2-Tetrachloroethane	2500	U
108-88-3	Toluene	6000	
108-90-7	Chlorobenzene	2500	U
100-41-4	Ethylbenzene	360	J
100-42-5	Styrene	2500	U
1330-20-7	Xylene (total)	1400	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-GS-D

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250960

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250960DV.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/20/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

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

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 76-13-1	Ethane, 1,1,2-trichloro-1,2,	4.416	1300	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250961

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250961V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________(uL) Soil Aliquot Volume: ______(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-1S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250961

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250961V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________(uL) Soil Aliquot Volume: ______(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-1T

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250962

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250962V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-1T

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250962

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250962V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-5S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250963

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250963V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-5S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250963

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M250963V.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: not dec. ________ Date Analyzed: 03/21/95

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADR

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250949

Sample wt/vol: 917 (g/mL) ML Lab File ID: P250949S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	bis(-2-Chloroethyl)Ether	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
95-50-1	1,2-Dichlorobenzene	11	U
108-60-1	2,2'-oxybis(1-Chloropropane)	11	U
621-64-7	N-Nitroso-di-n-propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
111-91-1	bis(2-Chloroethoxy)methane	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	27	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U
99-09-2	3-Nitroaniline	27	U
83-32-9	Acenaphthene	11	U
132-64-9	Dibenzofuran	11	U
121-14-2	2,4-Dinitrotoluene	11	U
84-66-2	Diethylphthalate	11	U
7005-72-3	4-Chlorophenyl-phenylether	11	U
86-73-7	Fluorene	11	U
100-01-6	4-Nitroaniline	27	U
86-30-6	N-nitrosodiphenylamine (1)	11	U
101-55-3	4-Bromophenyl-phenylether	11	U
118-74-1	Hexachlorobenzene	11	U
85-01-8	Phenanthrene	11	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADR

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250949

Sample wt/vol: 917 (g/mL) ML Lab File ID: P250949S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-12-7	Anthracene	11	U
86-74-8	Carbazole	11	U
84-74-2	Di-n-butylphthalate	11	U
206-44-0	Fluoranthene	11	U
129-00-0	Pyrene	11	U
85-68-7	Butylbenzylphthalate	11	U
91-94-1	3,3'-Dichlorobenzidine	11	U
56-55-3	Benzo(a)anthracene	11	U
218-01-9	Chrysene	11	U
117-81-7	bis(2-Ethylhexyl)phthalate	12	B
117-84-0	Di-n-octylphthalate	11	U
205-99-2	Benzo(b)fluoranthene	11	U
207-08-9	Benzo(k)fluoranthene	11	U
50-32-8	Benzo(a)pyrene	11	U
193-39-5	Indeno(1,2,3-cd)pyrene	11	U
53-70-3	Dibenz(a,h)anthracene	11	U
191-24-2	Benzo(g,h,i)perylene	11	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWADR

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250949

Sample wt/vol: 917 (g/mL) ML Lab File ID: P250949S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:_____

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown chlorinated compound	4.090	2	J
2.	Unknown amide	15.658	10	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250950

Sample wt/vol: 951 (g/mL) ML Lab File ID: P250950S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	bis(-2-Chloroethyl)Ether	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	30	
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	4	J
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
91-57-6	2-Methylnaphthalene	3	J
77-47-4	Hexachlorocyclopentadiene	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
85-01-8	Phenanthrene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250950

Sample wt/vol: 951 (g/mL) ML Lab File ID: P250950S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	0.90	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	JB
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GWADS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250950

Sample wt/vol: 951 (g/mL) ML Lab File ID: P250950S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:_____

Number TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 142-96-1	n-Butyl ether	3.062	8	NJ
2. 98-82-8	Benzene, (1-methylethyl)-	3.765	3	NJ
3. 103-65-1	Benzene, propyl-	4.161	4	NJ
4.	Unknown ethylmethylbenzene	4.250	14	J
5. 108-67-8	Benzene, 1,3,5-trimethyl-	4.330	11	NJ
6. 611-14-3	Benzene, 1-ethyl-2-methyl-	4.449	6	NJ
7. 95-63-6	Benzene, 1,2,4-trimethyl-	4.588	34	NJ
8. 526-73-8	Benzene, 1,2,3-trimethyl-	4.877	19	NJ
9.	Unknown methylpropylbenzene	5.115	4	J
10.	Unknown C4-alkylbenzene	5.403	4	J
11.	Unknown C4-alkylbenzene	5.692	3	J
12.	Unknown aromatic compounds	5.950	4	JZ
13. 65-85-0	Benzoic Acid	6.099	6	NJ
14. 105-60-2	Caprolactam w/ 3-methylbenzo	6.814	2	NJZ
15. 90-12-0	Naphthalene, 1-methyl-	7.300	3	NJ
16. 128-37-0	Butylated Hydroxytoluene	8.896	4	NJ
17. 629-78-7	Heptadecane	10.403	4	NJ
18. 57-10-3	Hexadecanoic acid	12.614	5	NJ
19. 57-11-4	Octadecanoic acid	14.161	3	NJ
20. 630-02-4	Octacosane	18.312	4	NJ
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-BS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	bis(-2-Chloroethyl)Ether	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
85-01-8	Phenanthrene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-BS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	0.60	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	160	EB
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-BS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:_____

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-BSDL

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952D1

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952D2S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000 (UL) Date Analyzed: 03/22/95

Injection Volume: 2.0 (uL) Dilution Factor: 2.9

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	bis(-2-Chloroethyl)Ether	30	U
541-73-1	1,3-Dichlorobenzene	30	U
106-46-7	1,4-Dichlorobenzene	30	U
95-50-1	1,2-Dichlorobenzene	30	U
108-60-1	2,2'-oxybis(1-Chloropropane)	30	U
621-64-7	N-Nitroso-di-n-propylamine	30	U
67-72-1	Hexachloroethane	30	U
98-95-3	Nitrobenzene	30	U
78-59-1	Isophorone	30	U
111-91-1	bis(2-Chloroethoxy)methane	30	U
120-82-1	1,2,4-Trichlorobenzene	30	U
91-20-3	Naphthalene	30	U
106-47-8	4-Chloroaniline	30	U
87-68-3	Hexachlorobutadiene	30	U
91-57-6	2-Methylnaphthalene	30	U
77-47-4	Hexachlorocyclopentadiene	30	U
91-58-7	2-Chloronaphthalene	30	U
88-74-4	2-Nitroaniline	76	U
131-11-3	Dimethylphthalate	30	U
208-96-8	Acenaphthylene	30	U
606-20-2	2,6-Dinitrotoluene	30	U
99-09-2	3-Nitroaniline	76	U
83-32-9	Acenaphthene	30	U
132-64-9	Dibenzofuran	30	U
121-14-2	2,4-Dinitrotoluene	30	U
84-66-2	Diethylphthalate	30	U
7005-72-3	4-Chlorophenyl-phenylether	30	U
86-73-7	Fluorene	30	U
100-01-6	4-Nitroaniline	76	U
86-30-6	N-nitrosodiphenylamine (1)	30	U
101-55-3	4-Bromophenyl-phenylether	30	U
118-74-1	Hexachlorobenzene	30	U
85-01-8	Phenanthrene	30	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-BSDL

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952D1

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952D2S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/22/95

Injection Volume: 2.0(uL) Dilution Factor: 2.9

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-12-7	Anthracene	30	U
86-74-8	Carbazole	30	U
84-74-2	Di-n-butylphthalate	30	U
206-44-0	Fluoranthene	30	U
129-00-0	Pyrene	30	U
85-68-7	Butylbenzylphthalate	30	U
91-94-1	3,3'-Dichlorobenzidine	30	U
56-55-3	Benzo(a)anthracene	30	U
218-01-9	Chrysene	30	U
117-81-7	bis(2-Ethylhexyl)phthalate	210	BD
117-84-0	Di-n-octylphthalate	30	U
205-99-2	Benzo(b)fluoranthene	30	U
207-08-9	Benzo(k)fluoranthene	30	U
50-32-8	Benzo(a)pyrene	30	U
193-39-5	Indeno(1,2,3-cd)pyrene	30	U
53-70-3	Dibenz(a,h)anthracene	30	U
191-24-2	Benzo(g,h,i)perylene	30	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-BSDL

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952D1

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952D2S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/22/95

Injection Volume: 2.0(uL) Dilution Factor: 2.9

GPC Cleanup: (Y/N) N pH:_____

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-DS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250956

Sample wt/vol: 951 (g/mL) ML Lab File ID: P250956S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	bis(-2-Chloroethyl)Ether	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	0.70	J
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
85-01-8	Phenanthrene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-DS

Lab Name: AQUATEC, INC.   Contract: 95000

Lab Code: AQUAI   Case No.: 95000   SAS No.:   SDG No.: 49977

Matrix: (soil/water) WATER   Lab Sample ID: 250956

Sample wt/vol: 951 (g/mL) ML   Lab File ID: P250956S.D

Level: (low/med) LOW   Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___   Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(UL)   Date Analyzed: 03/21/95

Injection Volume: 2.0(uL)   Dilution Factor: 1.0

GPC Cleanup: (Y/N) N   pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	0.50	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	16	B
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-DS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250956

Sample wt/vol: 951 (g/mL) ML Lab File ID: P250956S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:_____

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown aliphatic acid ester	5.809	2	JZ
2.	Unknown	6.048	2	J
3. 719-22-2	2,5-Cyclohexadiene-1,4-dione	8.543	6	NJ
4. 1421-49-4	Benzoic acid, 3,5-bis(1,1-di	12.260	3	NJ
5. 57-10-3	Hexadecanoic acid	12.630	6	NJ
6. 10544-50-0	Sulfur, mol. (S8)	13.727	8	NJ
7. 57-11-4	Octadecanoic acid	14.177	4	NJ
8. 80-05-7	Phenol, 4,4'-(1-methylethyli	14.496	4	NJ
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWARS

Lab Name: AQUATEC INC Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250951

Sample wt/vol: 908.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 03/15/95

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/17/95

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.055	U
319-85-7	beta-BHC	0.055	U
319-86-8	delta-BHC	0.055	U
58-89-9	gamma-BHC (Lindane)	0.055	U
76-44-8	Heptachlor	0.055	U
309-00-2	Aldrin	0.055	U
1024-57-3	Heptachlor epoxide	0.055	U
959-98-8	Endosulfan I	0.055	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.55	U
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.055	U
5103-74-2	gamma-Chlordane	0.055	U
8001-35-2	Toxaphene	5.5	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADS

Name: AQUATEC INC   Contract: 95000

Lab Code: AQUAI   Case No.: 95000   SAS No.:   SDG No.: 49977

Matrix: (soil/water) WATER   Lab Sample ID: 250950

Sample wt/vol: 948.0 (g/mL) ML   Lab File ID:

% Moisture: decanted: (Y/N)   Date Received: 03/15/95

Extraction: (SepF/Cont/Sonc) SEPF   Date Extracted: 03/17/95

Concentrated Extract Volume: 10000 (uL)   Date Analyzed: 03/22/95

Injection Volume: 1.00 (uL)   Dilution Factor: 1.00

GPC Cleanup: (Y/N) N   pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.052	U
319-85-7	beta-BHC	0.052	U
319-86-8	delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.052	U
5103-74-2	gamma-Chlordane	0.052	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	0.70	J
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-GS

Lab Name: AQUATEC INC   Contract: 95000

Lab Code: AQUAI   Case No.: 95000   SAS No.:   SDG No.: 49977

Matrix: (soil/water) WATER   Lab Sample ID: 250959

Sample wt/vol: 910.0 (g/mL) ML   Lab File ID:

% Moisture: decanted: (Y/N)   Date Received: 03/15/95

Extraction: (SepF/Cont/Sonc) SEPF   Date Extracted: 03/17/95

Concentrated Extract Volume: 10000 (uL)   Date Analyzed: 03/22/95

Injection Volume: 1.00 (uL)   Dilution Factor: 1.00

GPC Cleanup: (Y/N) N   pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.055	U
319-85-7	beta-BHC	0.055	U
319-86-8	delta-BHC	0.055	U
58-89-9	gamma-BHC (Lindane)	0.055	U
76-44-8	Heptachlor	0.055	U
309-00-2	Aldrin	0.055	U
1024-57-3	Heptachlor epoxide	0.055	U
959-98-8	Endosulfan I	0.055	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.55	U
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.055	U
5103-74-2	gamma-Chlordane	0.055	U
8001-35-2	Toxaphene	5.5	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-GS-D

Name: AQUATEC INC   Contract: 95000

Lab Code: AQUAI   Case No.: 95000   SAS No.:   SDG No.: 49977

Matrix: (soil/water) WATER   Lab Sample ID: 250960

Sample wt/vol: 964.0 (g/mL) ML   Lab File ID:

% Moisture: decanted: (Y/N)   Date Received: 03/15/95

Extraction: (SepF/Cont/Sonc) SEPF   Date Extracted: 03/17/95

Concentrated Extract Volume: 10000 (uL)   Date Analyzed: 03/22/95

Injection Volume: 1.00 (uL)   Dilution Factor: 1.00

GPC Cleanup: (Y/N) N   pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.052	U
319-85-7	beta-BHC	0.052	U
319-86-8	delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.052	U
5103-74-2	gamma-Chlordane	0.052	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GWADR

Lab Name: AQUATEC INC Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250949

Sample wt/vol: 947.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 03/15/95

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/17/95

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/21/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.053	U
319-85-7	beta-BHC	0.053	U
319-86-8	delta-BHC	0.053	U
58-89-9	gamma-BHC (Lindane)	0.053	U
76-44-8	Heptachlor	0.053	U
309-00-2	Aldrin	0.053	U
1024-57-3	Heptachlor epoxide	0.053	U
959-98-8	Endosulfan I	0.053	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.53	U
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.053	U
5103-74-2	gamma-Chlordane	0.053	U
8001-35-2	Toxaphene	5.3	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

WESTON

Kelly Spittler
Originator

PHONE CONVERSATION RECORD

Conversation with:

Name: Pauline Malik

Company: Aquatec

Address:

Phone: (802) 655-1203

Date: 04 / 21 / 95

Time: 11 : 38 AM/PM

☐ Originator Placed Call

☐ Originator Received Call

~~W.O. NO.~~ FAX (802) 655-1248

Subject: Missing Documentation - BBL Case 95000, SDG 49977

Notes:

BNA
- Missing pages 288-303

Pest/PCB
- verify AR-1254 result sample GWADS (Lab ID 250950) believe this positive result should be removed from Form I - lab verified ID.

☐ **File**

☐ **Tickle File** ____ / ____ / ____

☐ **Follow-Up By:**

☐ **Copy/Route To:** file report, Pauline (Aquatec) Mike Gefell (BBL)

Follow-Up-Action:

Originator's Initials: KMS

RFW 110-4-83

Transmittal

BLASLAND, BOUCK & LEE, INC.
6723 Towpath Road/Box 66 Syracuse, New York 13214-0066
(315) 446-9120

To: Ms. Kelly Spittler
Data Validation Unit Leader
Analyte Division
Roy F. Weston, Inc.
1 Weston Way
West Chester, PA 19380-1499

Date: May 1, 1995

File: 0631.63101 #2

Re: SDG #49977

We are sending you __X__ herewith ______ under separate cover

______ drawings ______ letters __X__ other

If material received is not as listed, please notify us at once.

Quantity	Identifying Number	Title	Action*
1	SDG #49977	Semi-Volatile Organics Data	

*Action letter code: R - reviewed; N - reviewed and noted; I - for your information; S - resubmit; J - rejected; Y - for your approval

Remarks:

Pages 288-303, previously missing from SDG #49977.

Very truly yours,

BLASLAND, BOUCK & LEE, INC.

Philip A. Zach
Project Engineer

cc: M.J. Gefell, Blasland, Bouck & Lee, Inc.

Inchcape Testing Services
Aquatec Laboratories

55 South Park Drive
Colchester, VT 05446
Tel. 802-655-1203
Fax. 802-655-1248

75 Green Mountain Drive
South Burlington, VT 05403
Tel. 802-655-1203
Fax. 802-658-3189

FACSIMILE TRANSMITTAL COVER SHEET

TO: Date: 4/28/95

Name: Kelly Spittler / Mike Gefell

Company: BBL

FAX #: 315-445-9161

FROM:

Name: Sheila M. Wynkoop / Dolly Malik

Total Number of Pages (INCLUDING COVER): ______
If all pages are not received, please notify sender at (802) 655-1203

DID YOU KNOW THAT:

INCHCAPE TESTING SERVICES ENVIRONMENTAL LABORATORIES is a group of six laboratories in the United States and one in the United Kingdom.

COMMENTS: please find pgs 288 → 303, previously missing from sdg 49977. Sorry for any in-convenience.

A Hard copy is to follow –

Data File: /chem/P.i/P.p/PFCV_OLM.b/P250950S.d

Date : 21-MAR-1995 16:34

Client ID: GWADS

Instrument: P.i

Sample Info: L#250950 CLI#GWADS ETR#49977

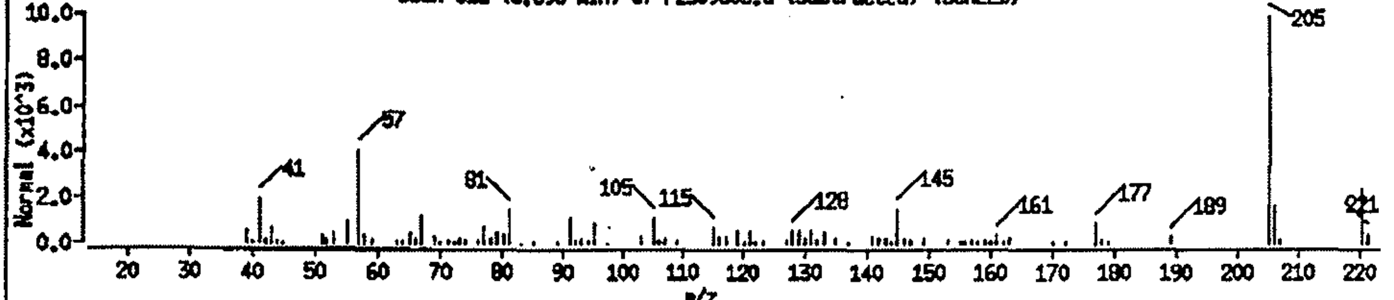
Volume Injected (uL): 2.0

Operator: GWG

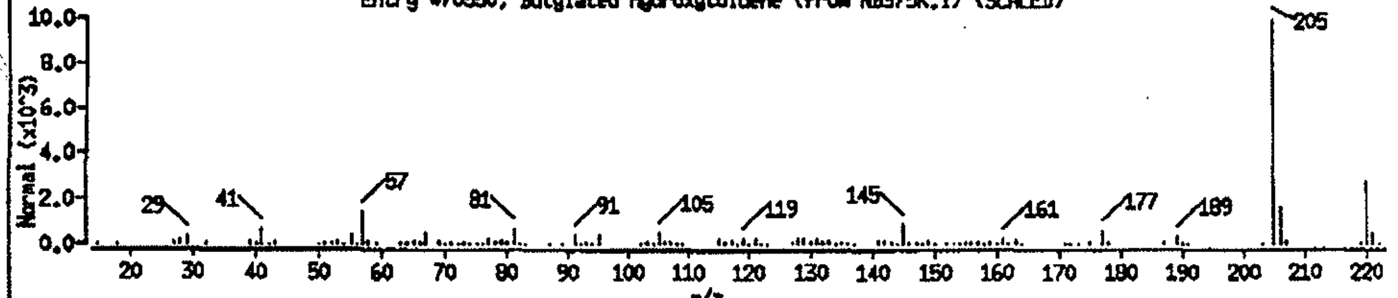
Column phase: HP5-MS

Column diameter: 0.25

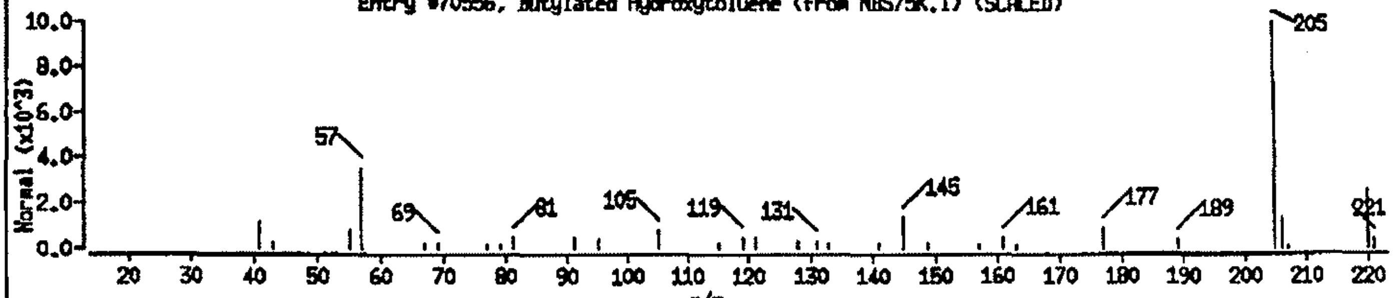
Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Butylated Hydroxytoluene	128-37-0	NBS75K.l	70550	98	C15H24O	220
Butylated Hydroxytoluene	128-37-0	NBS75K.l	70556	98	C15H24O	220
Butylated Hydroxytoluene	128-37-0	NBS75K.l	70551	98	C15H24O	220



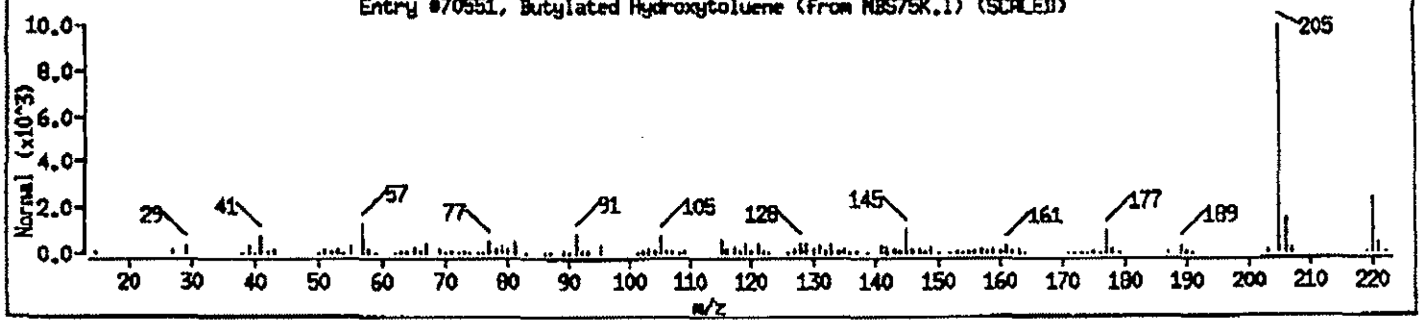
Scan 612 (8.896 min) of P250950S.d (Subtracted) (SCALED)



Entry #70550, Butylated Hydroxytoluene (from NBS75K.l) (SCALED)



Entry #70556, Butylated Hydroxytoluene (from NBS75K.l) (SCALED)



Entry #70551, Butylated Hydroxytoluene (from NBS75K.l) (SCALED)

Data File: /chem/P.i/P.p/PFCV_OLM.b/P250950S.d

Date : 21-MAR-1995 16:34

Client ID: GWADS

Instrument: P.i

Sample Info: L#250950 CLI#GWADS ETR#49977

Volume Injected (uL): 2.0

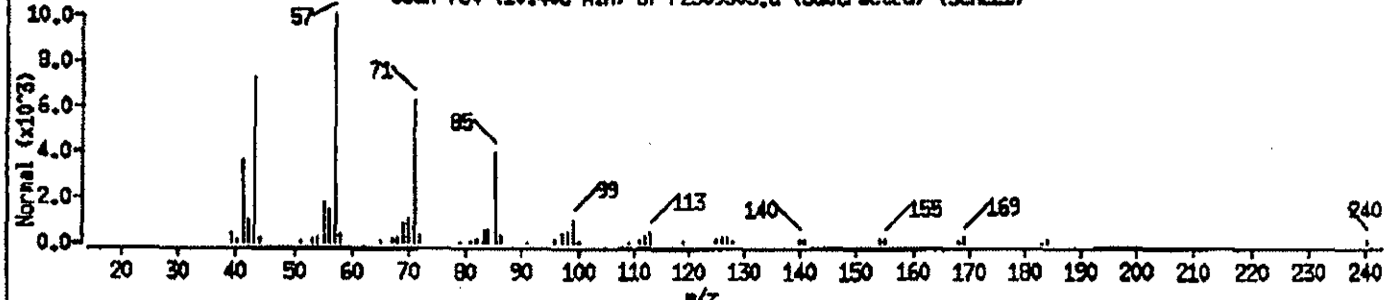
Operator: GWG

Column phase: HP5-MS

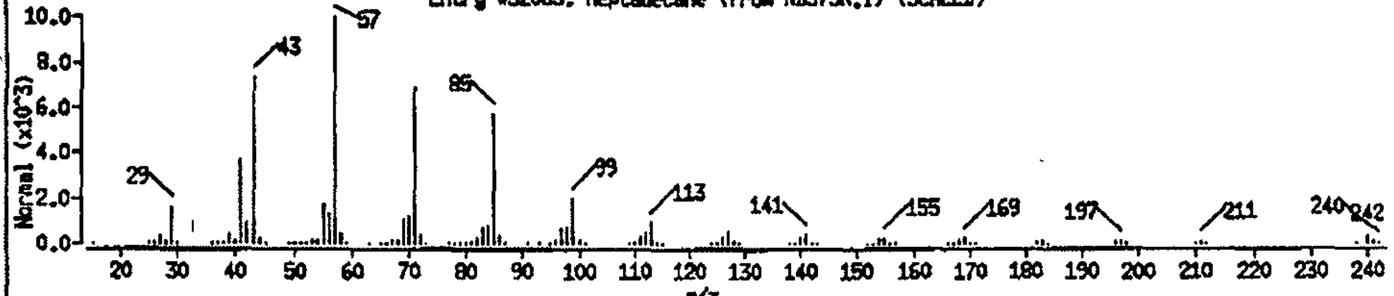
Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Heptadecane	629-78-7	NBS75K.l	32063	97	C17H36	240
Heptadecane	629-78-7	NBS75K.l	71191	96	C17H36	240
Pentadecane	629-62-9	NBS75K.l	26001	91	C15H32	212

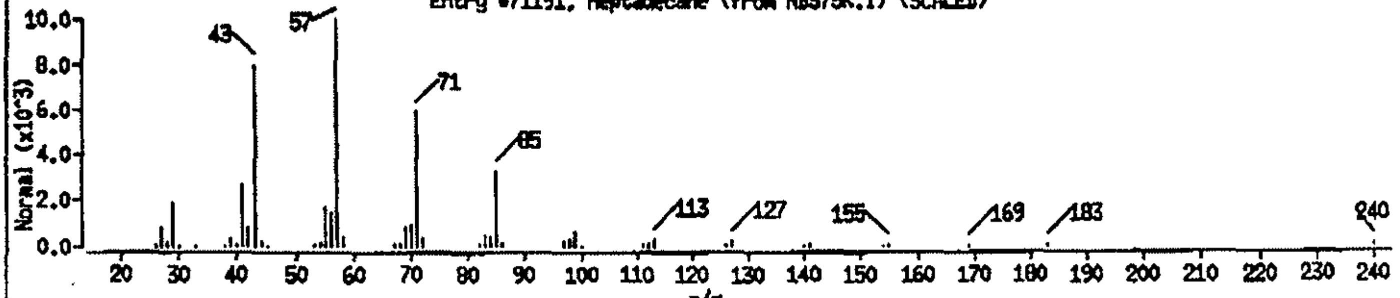
Scan 764 (10.403 min) of P250950S.d (Subtracted) (SCALED)



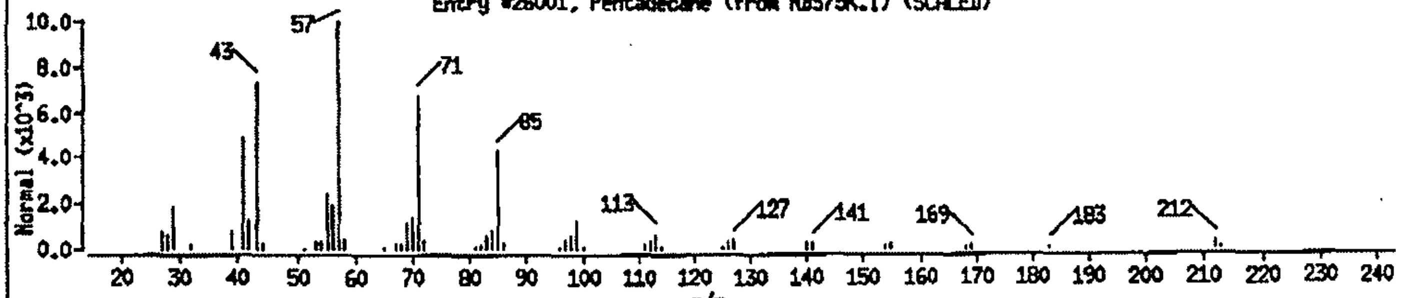
Entry #32063, Heptadecane (from NBS75K.l) (SCALED)



Entry #71191, Heptadecane (from NBS75K.l) (SCALED)



Entry #26001, Pentadecane (from NBS75K.l) (SCALED)



Data File: /chem/P.i/P.p/PFCV_OLM.b/P250950S.d

Date : 21-MAR-1995 16:34

Client ID: GWADS

Instrument: P.i

Sample Info: L#250950 CLI#GWADS ETR#49977

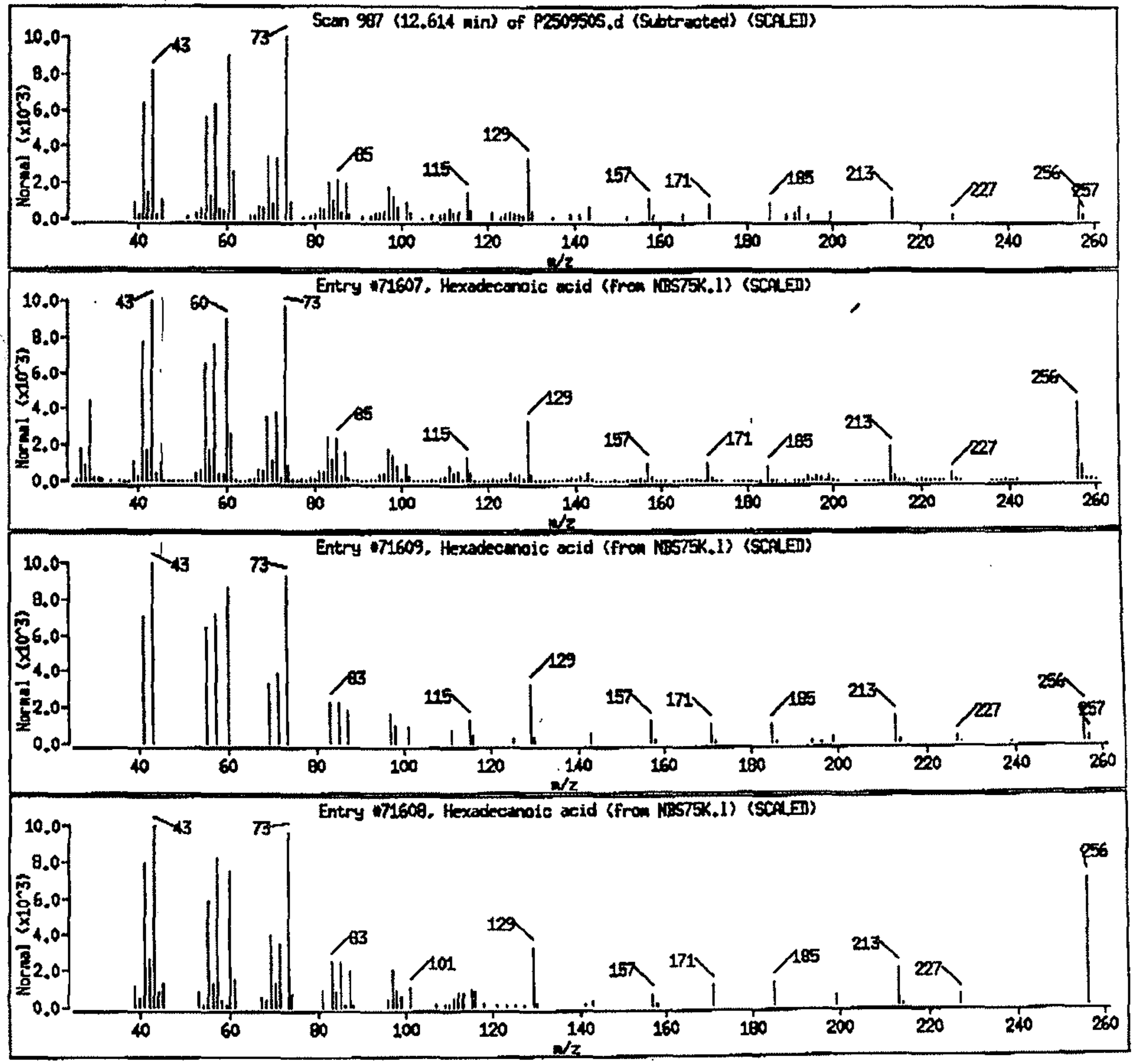
Volume Injected (uL): 2.0

Operator: GWG

Column phase: HP5-MS

Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Hexadecanoic acid	57-10-3	NBS75K.l	71607	99	C16H32O2	256
Hexadecanoic acid	57-10-3	NBS75K.l	71609	99	C16H32O2	256
Hexadecanoic acid	57-10-3	NBS75K.l	71608	96	C16H32O2	256



000230

Data File: /chem/P.i/P.p/PFCV_OLM.b/P250950S.d

Date : 21-MAR-1995 16:34

Client ID: GWADS

Instrument: P.i

Sample Info: L#250950 CLI#GWADS ETR#49977

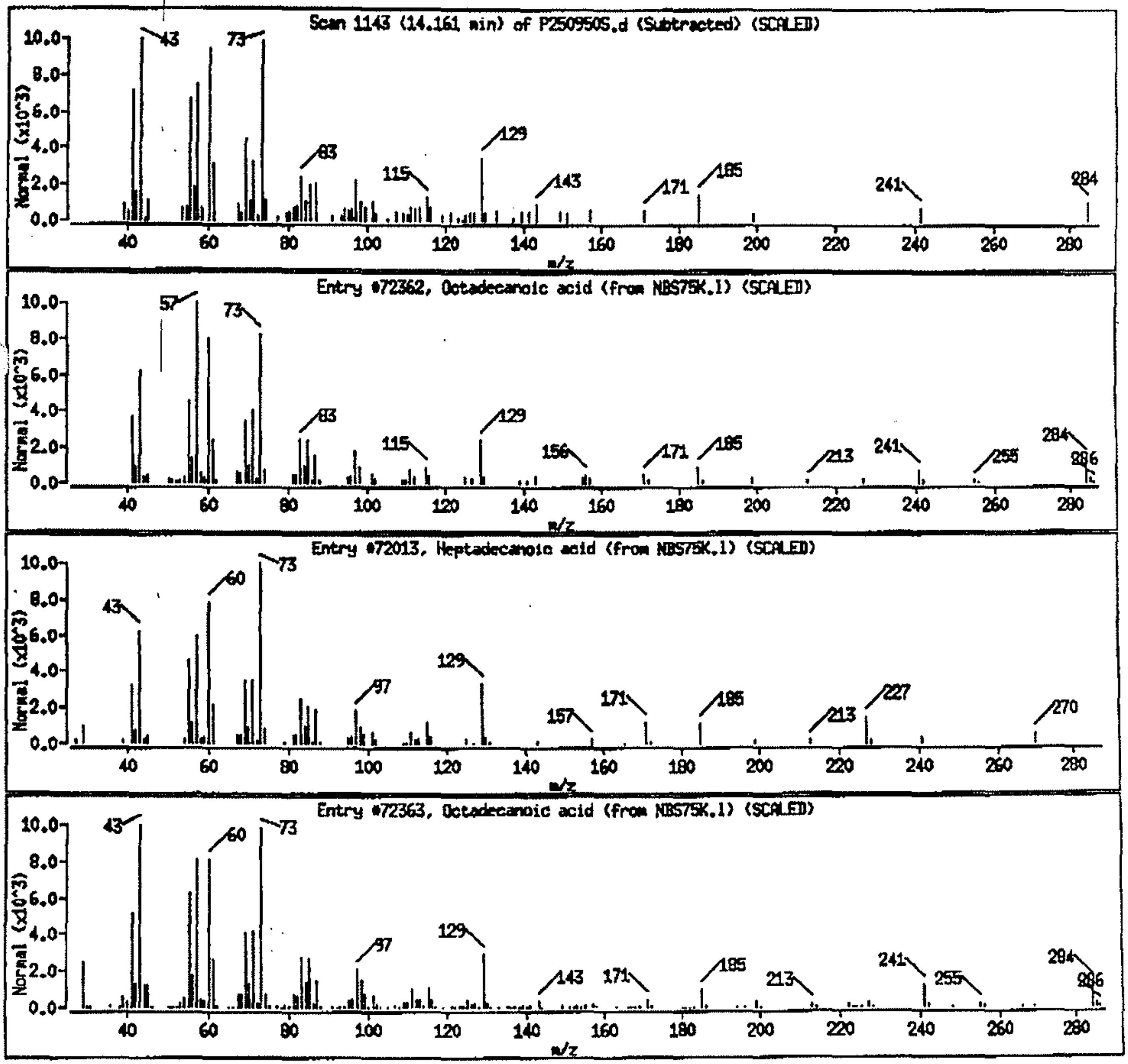
Volume Injected (uL): 2.0

Operator: GWG

Column phase: HP5-MS

Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Octadecanoic acid	57-11-4	NBS75K.l	72362	91	C18H36O2	284
Heptadecanoic acid	506-12-7	NBS75K.l	72013	91	C17H34O2	270
Octadecanoic acid	57-11-4	NBS75K.l	72363	90	C18H36O2	284



000231

Data File: /chem/P.i/P.p/PFCV_OLM.b/P250950S.d

Date : 21-MAR-1995 16:34

Client ID: GWADS

Instrument: P.i

Sample Info: L#250950 CLI#GWADS ETR#49977

Volume Injected (uL): 2.0

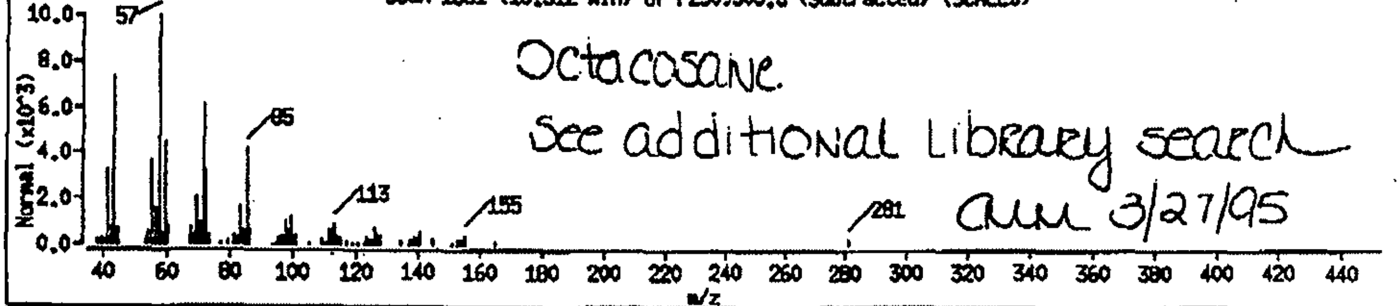
Operator: GWG

Column phase: HP5-MS

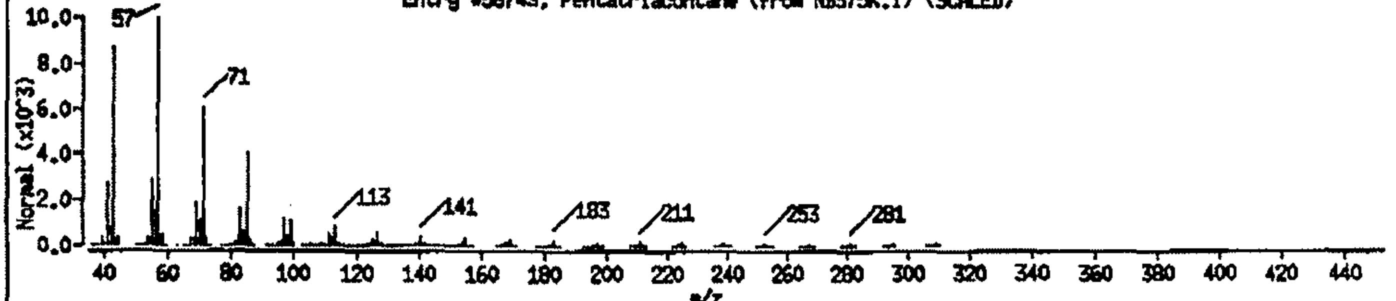
Column diameter: 0.25

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Pentatriacontane	630-07-9	NBS75K.l	58743	64	C35H72	493
Dotriacontane	544-85-4	NBS75K.l	74491	64	C32H66	451
Hexatriacontane	630-06-8	NBS75K.l	74635	64	C36H74	507

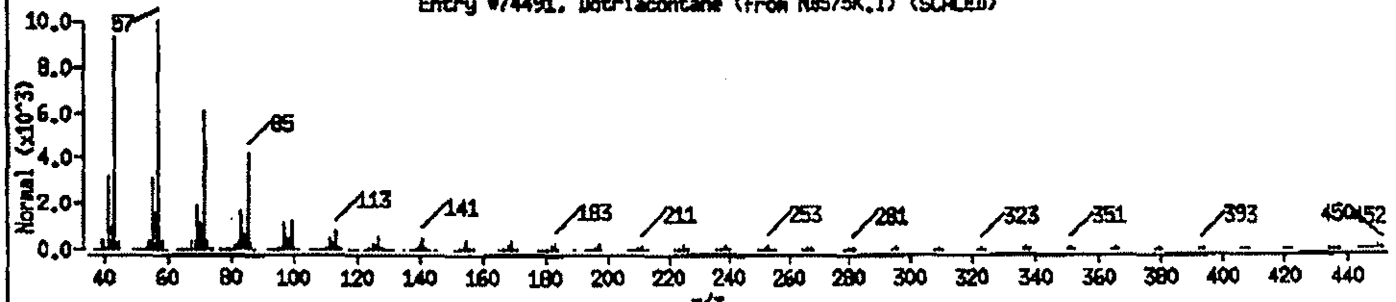
Scan 1561 (18.312 min) of P250950S.d (Subtracted) (SCALED)



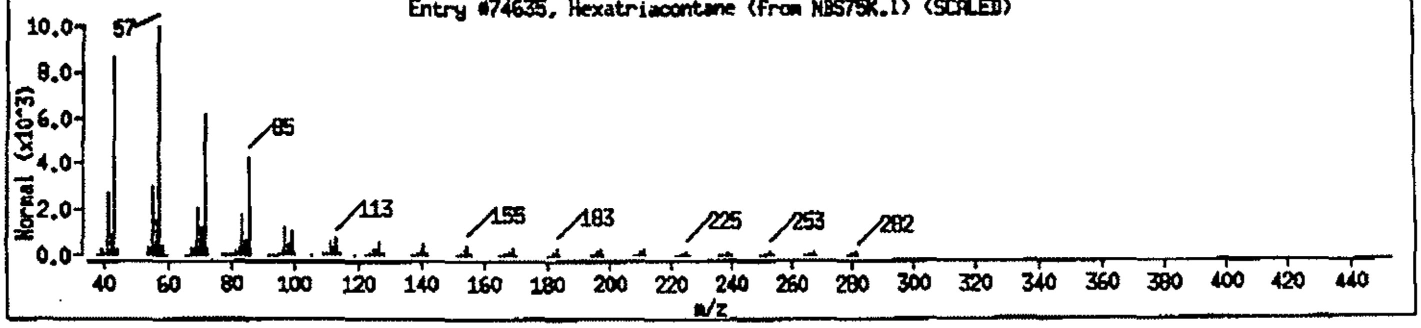
Entry #58743, Pentatriacontane (from NBS75K.l) (SCALED)



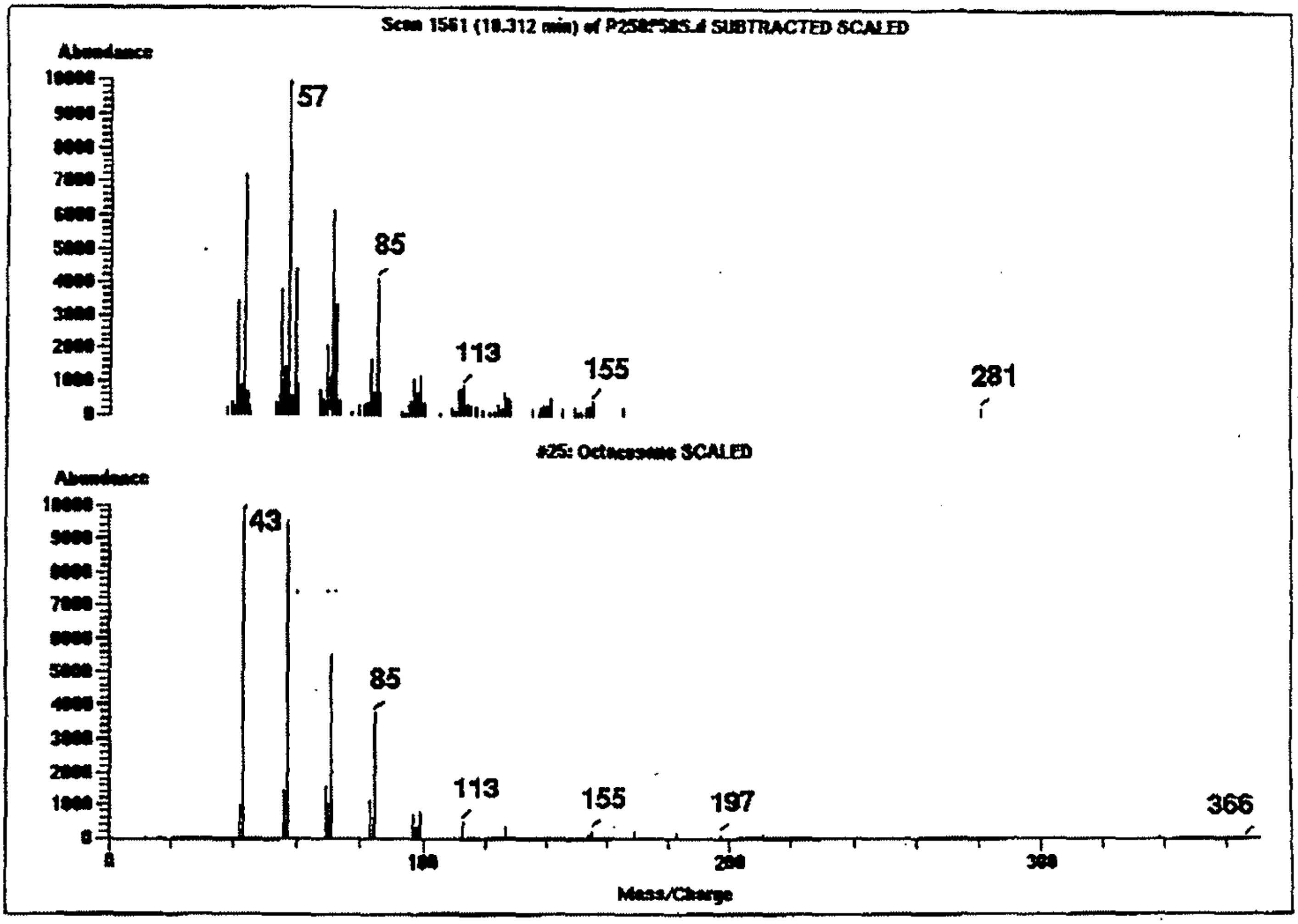
Entry #74491, Dotriacontane (from NBS75K.l) (SCALED)



Entry #74635, Hexatriacontane (from NBS75K.l) (SCALED)



File:/chem/P.i/P.p/PFCV_OLM.b/P250950S.d   Date: 21-MAR-1995 16:34
SMO #: GWADS   Inst: P.i
Libr: /chem/database/alkane.l



000233

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-BS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted:03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	bis(-2-Chloroethyl)Ether	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
85-01-8	Phenanthrene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-3S

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/21/95

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	0.60	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	160	EB
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

GW-BS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/21/95

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:_____

Number TICs found: 0

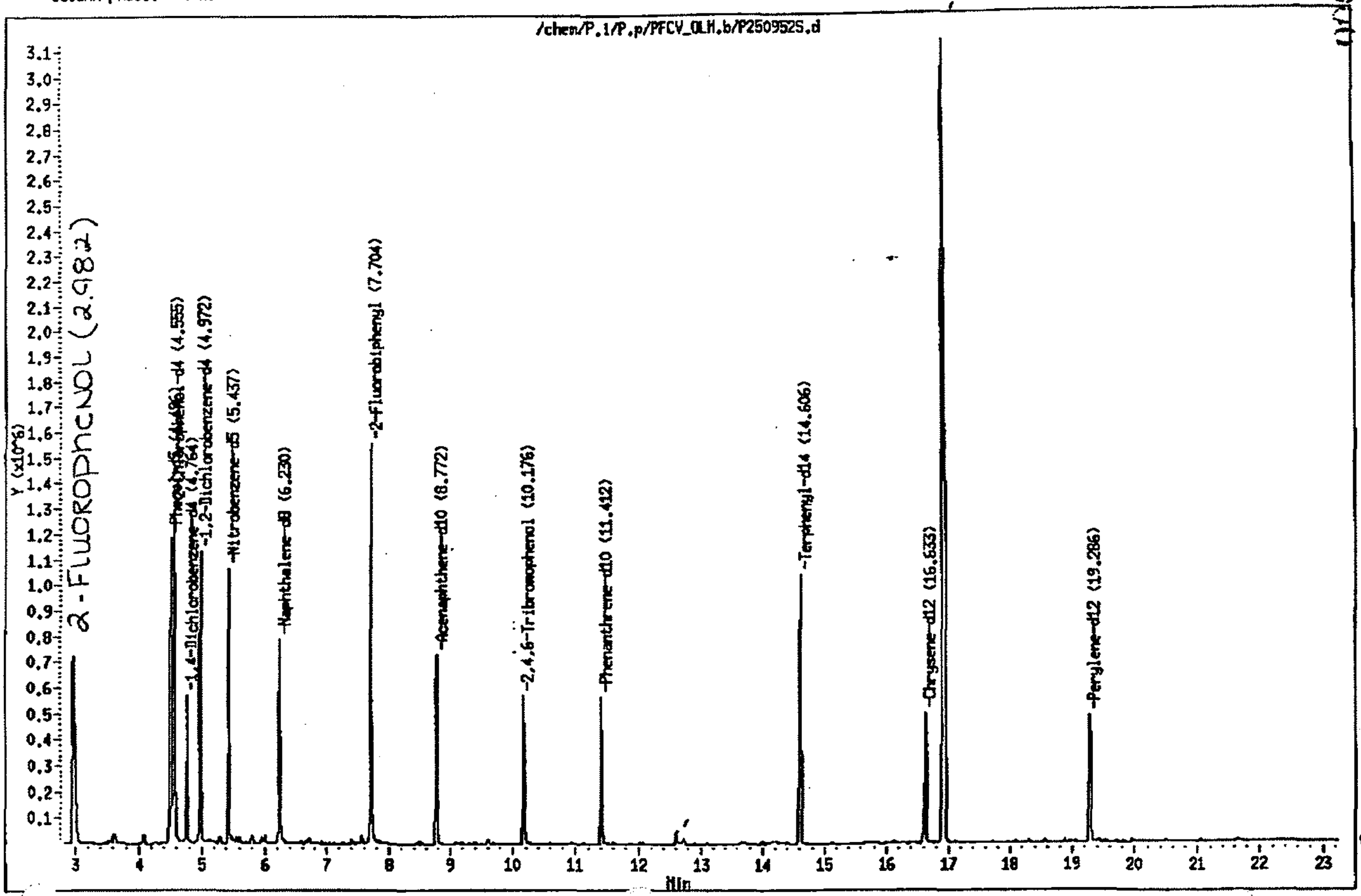
CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Data File: /chem/P.i/P.p/PFCV_OLM.b/P250952S.d
Date : 21-MAR-1995 18:08
Client ID: GW-BS
Sample Info: L#250952 CLI#GW-BS ETR#49977
Volume Injected (uL): 2.0
Column phase: HP5-MS

Instrument: P.i

Operator: GWG
Column diameter: 0.25



Aquatec, Inc.

SEMIVOLATILE QUANTITATION REPORT

Data file : /chem/P.i/P.p/PFCV_OLM.b/P250952S.d
Lab Smp Id: 250952 Client Smp ID: GW-BS
Inj Date : 21-MAR-1995 18:08 Autotune Date: 30-Jan-95 20:11
Operator : GWG Inst ID: P.i
Smp Info : L#250952 CLI#GW-BS ETR#49977
Misc Info : 946ML 100% ANALYSIS
Comment :
Method : /chem/P.i/P.p/PFCV_OLM.b/SV_AQ1.m
Meth Date : 24-Mar-1995 15:57 cmm Quant Type: ISTD
Cal Date : 21-MAR-1995 12:11 Cal File: PFC050V2BS.d
Als bottle: 9
Dil Factor: 1.000
Integrator: HP RTE Compound Sublist: BN.sub
Target Version: 3.10

		QUANT SIG					CONCENTRATIONS ON-COLUMN	FINAL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ng)	(ug/L)
	5 bis(-2-Chloroethyl)Ether	93.00	Compound Not Detected.					
	8 1,3-Dichlorobenzene	146.00	Compound Not Detected.					
*	9 1,4-Dichlorobenzene-d4	152.00	4.764	4.752	(1.000)	153423	40	
	10 1,4-Dichlorobenzene	146.00	Compound Not Detected.					
$	12 1,2-Dichlorobenzene-d4	152.00	4.972	4.970	(1.044)	297160	82	44
	13 1,2-Dichlorobenzene	146.00	Compound Not Detected.					
	15 2,2'-oxybis(1-Chloropropane)	45.00	Compound Not Detected.					
	17 N-Nitroso-di-n-propylamine	70.00	Compound Not Detected.					
	18 Hexachloroethane	117.00	Compound Not Detected.					
$	19 Nitrobenzene-d5	82.00	5.437	5.437	(0.873)	536066	90	48
	20 Nitrobenzene	77.00	Compound Not Detected.					
	21 Isophorone	82.00	Compound Not Detected.					
	24 bis(2-Chloroethoxy)methane	93.00	Compound Not Detected.					
	27 1,2,4-Trichlorobenzene	180.00	Compound Not Detected.					
*	28 Naphthalene-d8	136.00	6.230	6.231	(1.000)	518400	40	
	29 Naphthalene	128.00	Compound Not Detected.					
	30 4-Chloroaniline	127.00	Compound Not Detected.					
	31 Hexachlorobutadiene	225.00	Compound Not Detected.					
	33 2-Methylnaphthalene	142.00	Compound Not Detected.					
	34 Hexachlorocyclopentadiene	237.00	Compound Not Detected.					
$	37 2-Fluorobiphenyl	172.00	7.704	7.707	(0.878)	716017	83	44
	38 2-Chloronaphthalene	162.00	Compound Not Detected.					
	39 2-Nitroaniline	65.00	Compound Not Detected.					
	40 Dimethylphthalate	163.00	Compound Not Detected.					
	42 Acenaphthylene	152.00	Compound Not Detected.					
	41 2,6-Dinitrotoluene	165.00	Compound Not Detected.					
*	44 Acenaphthene-d10	164.00	8.772	8.777	(1.000)	255033	40	
	43 3-Nitroaniline	138.00	Compound Not Detected.					
	45 Acenaphthene	153.00	Compound Not Detected.					

000239

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng)	CONCENTRATIONS FINAL (ug/L)
	48 Dibenzofuran	168.00	Compound Not Detected.					
	49 2,4-Dinitrotoluene	165.00	Compound Not Detected.					
	50 Diethylphthalate	149.00	Compound Not Detected.					
	52 Fluorene	166.00	Compound Not Detected.					
	51 4-Chlorophenyl-phenylether	204.00	Compound Not Detected.					
	53 4-Nitroaniline	138.00	Compound Not Detected.					
	55 N-nitrosodiphenylamine	169.00	Compound Not Detected.					
	58 4-Bromophenyl-phenylether	248.00	Compound Not Detected.					
	59 Hexachlorobenzene	283.81	Compound Not Detected.					
*	61 Phenanthrene-d10	188.00	11.412	11.421	(1.000)	286625	40	
	62 Phenanthrene	178.00	Compound Not Detected.					
	63 Anthracene	178.00	Compound Not Detected.					
	64 Carbazole	167.00	Compound Not Detected.					
	65 Di-n-butylphthalate	149.00	12.727	12.736	(1.115)	16518	1	0.6(a)
	66 Fluoranthene	202.00	Compound Not Detected.					
	68 Pyrene	202.00	Compound Not Detected.					
$	69 Terphenyl-d14	244.00	14.606	14.605	(0.878)	557460	93	49
	70 Butylbenzylphthalate	149.00	Compound Not Detected.					
	73 Benzo(a)anthracene	228.00	Compound Not Detected.					
	72 3,3'-Dichlorobenzidine	252.00	Compound Not Detected.					
*	74 Chrysene-d12	240.00	16.633	16.651	(1.000)	251659	40	
	75 Chrysene	228.00	Compound Not Detected.					
	71 bis(2-Ethylhexyl)phthalate	149.00	16.931	16.899	(1.018)	2658728	300	160(A)
	76 Di-n-octylphthalate	149.00	Compound Not Detected.					
	77 Benzo(b)fluoranthene	252.00	Compound Not Detected.					
	78 Benzo(k)fluoranthene	252.00	Compound Not Detected.					
	79 Benzo(a)pyrene	252.00	Compound Not Detected.					
*	80 Perylene-d12	264.00	19.286	19.302	(1.000)	255569	40	
	82 Indeno(1,2,3-cd)pyrene	276.00	Compound Not Detected.					
	81 Dibenz(a,h)anthracene	278.00	Compound Not Detected.					
	83 Benzo(g,h,i)perylene	276.00	Compound Not Detected.					

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

000229

Unknown Compounds Quantitation Report

Data file : /chem/P.i/P.p/PFCV_OLM.b/P250952S.d
Lab Smp Id: 250952 Client Smp ID: GW-BS
Inj Date : 21-MAR-95 18:08 Autotune Date: 30-Jan-95 20:11:1
Operator : GWG Inst ID: P.i
Smp Info : L#250952 CLI#GW-BS ETR#49977
Misc Info : 946ML 100% ANALYSIS
Comment :
Method : /chem/P.i/P.p/PFCV_OLM.b/SV_AQ1.m
Meth Date : 21-Mar-1995 15:24 operator
Cal Date : 21-MAR-1995 12:11 Cal File: PFC050V2BS.d
Als bottle: 9
Dil Factor: 1.000 Target Version: 3.10
Integrator: HP RTE Compound Sublist: OLM.sub
Sample Matrix: WATER
Quantitative Mode : Use RF of Nearest Std

- NO TENTATIVELY IDENTIFIED COMPOUNDS -

Data File: /chem/P.i/P.p/PFCV_OLM.b/P250952S.d

Date : 21-MAR-1995 18:08

Client ID: GW-BS

Instrument: P.i

Sample Info: L#250952 CLI#GW-BS ETR#49977

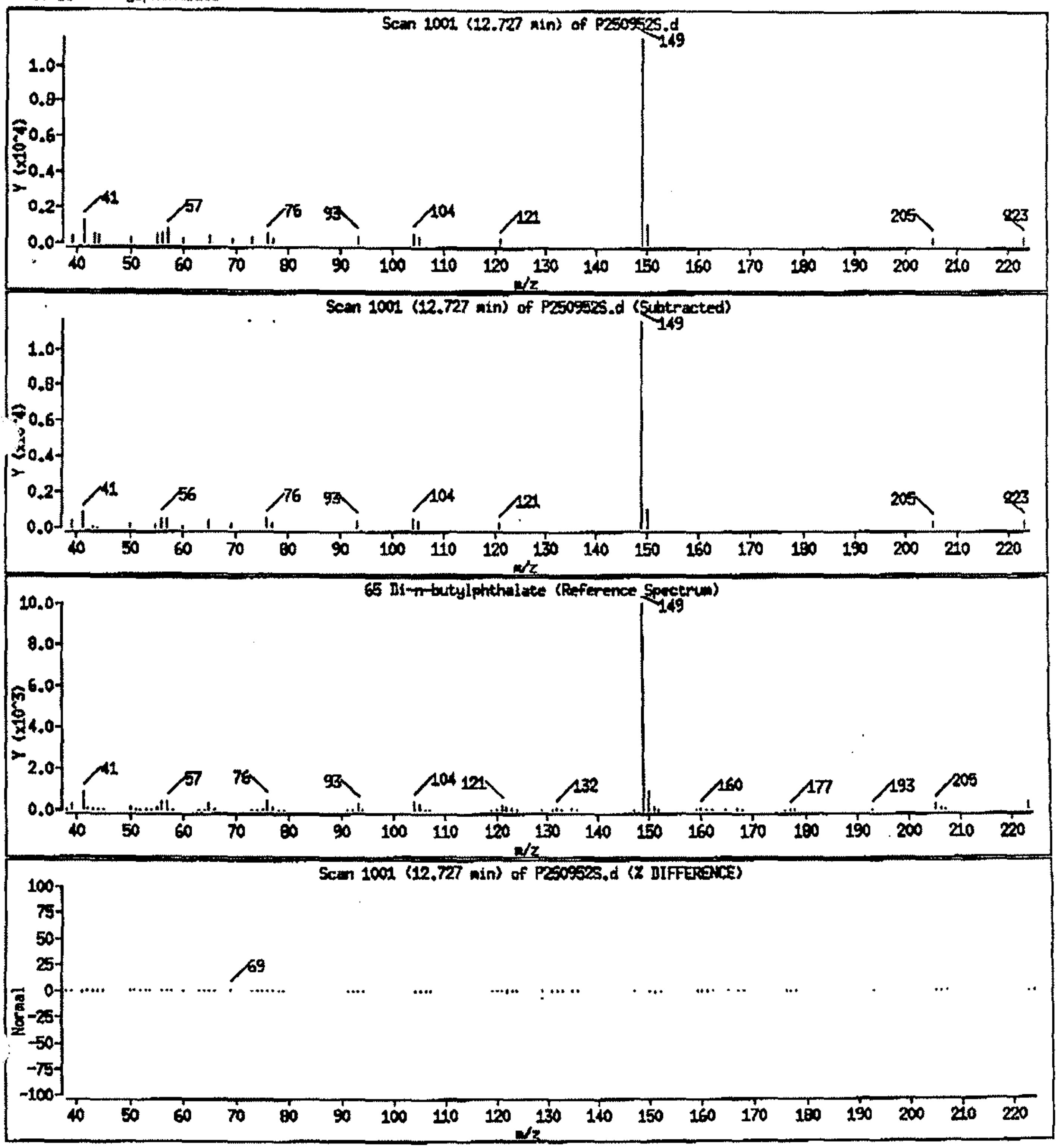
Volume Injected (uL): 2.0

Operator: GWG

Column phase: HP5-MS

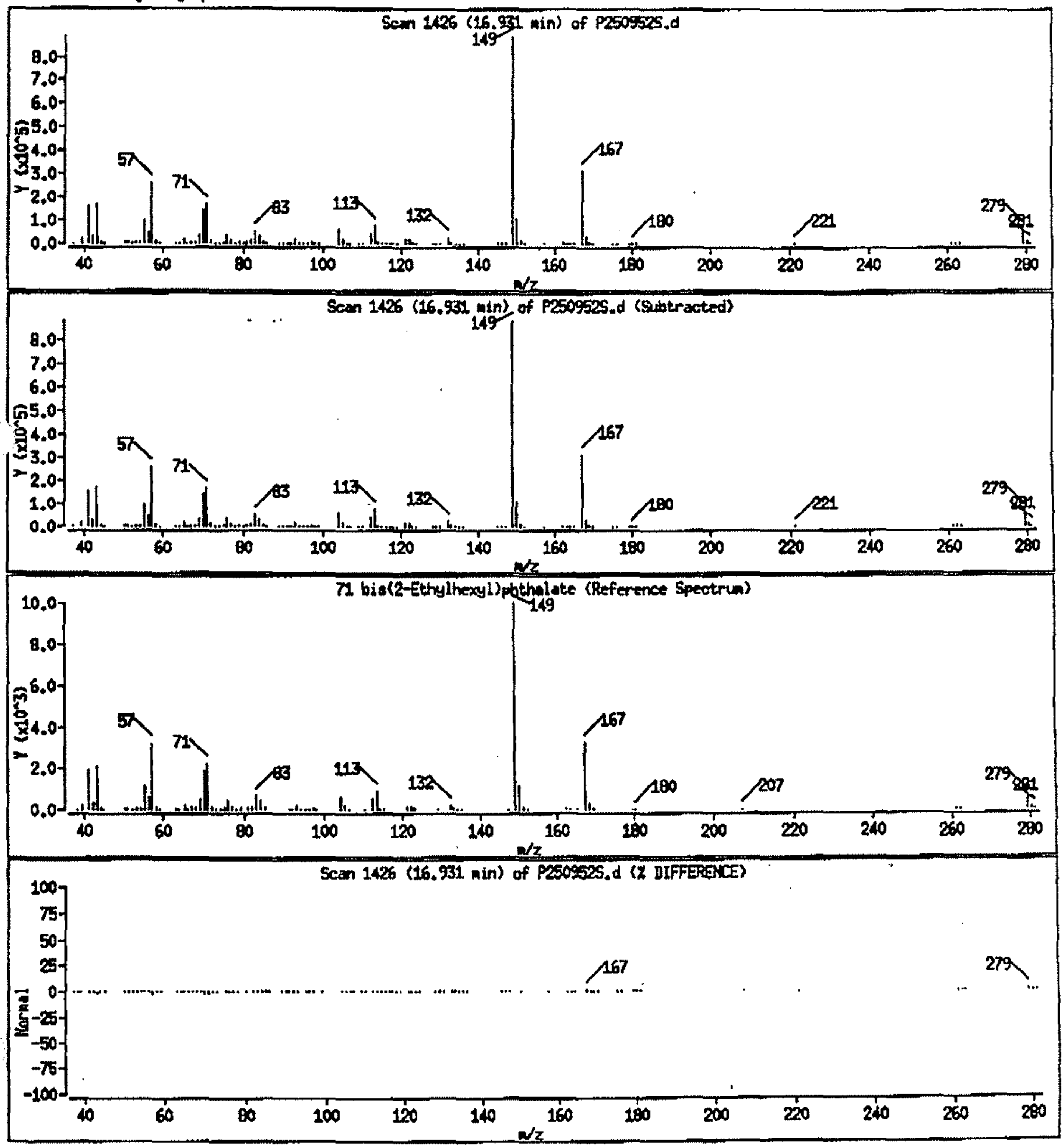
Column diameter: 0.25

65 Di-n-butylphthalate



Data File: /chem/P.i/P.p/PFCV_OLM.b/P250952S.d
Date : 21-MAR-1995 18:08
Client ID: GW-BS
Instrument: P.i
Sample Info: L#250952 CLI#GW-BS ETR#49977
Volume Injected (uL): 2.0
Operator: GWG
Column phase: HP5-MS
Column diameter: 0.25

71 bis(2-Ethylhexyl)phthalate



1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GW-BSDL

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 49977

Matrix: (soil/water) WATER Lab Sample ID: 250952D1

Sample wt/vol: 946 (g/mL) ML Lab File ID: P250952D2S.D

Level: (low/med) LOW Date Received: 03/15/95

% Moisture: ______ decanted: (Y/N)___ Date Extracted: 03/16/95

Concentrated Extract Volume: 1000(UL) Date Analyzed: 03/22/95

Injection Volume: 2.0(uL) Dilution Factor: 2.9

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
111-44-4	bis(-2-Chloroethyl)Ether	30	U
541-73-1	1,3-Dichlorobenzene	30	U
106-46-7	1,4-Dichlorobenzene	30	U
95-50-1	1,2-Dichlorobenzene	30	U
108-60-1	2,2'-oxybis(1-Chloropropane)	30	U
621-64-7	N-Nitroso-di-n-propylamine	30	U
67-72-1	Hexachloroethane	30	U
98-95-3	Nitrobenzene	30	U
78-59-1	Isophorone	30	U
111-91-1	bis(2-Chloroethoxy)methane	30	U
120-82-1	1,2,4-Trichlorobenzene	30	U
91-20-3	Naphthalene	30	U
106-47-8	4-Chloroaniline	30	U
87-68-3	Hexachlorobutadiene	30	U
91-57-6	2-Methylnaphthalene	30	U
77-47-4	Hexachlorocyclopentadiene	30	U
91-58-7	2-Chloronaphthalene	30	U
88-74-4	2-Nitroaniline	76	U
131-11-3	Dimethylphthalate	30	U
208-96-8	Acenaphthylene	30	U
606-20-2	2,6-Dinitrotoluene	30	U
99-09-2	3-Nitroaniline	76	U
83-32-9	Acenaphthene	30	U
132-64-9	Dibenzofuran	30	U
121-14-2	2,4-Dinitrotoluene	30	U
84-66-2	Diethylphthalate	30	U
7005-72-3	4-Chlorophenyl-phenylether	30	U
86-73-7	Fluorene	30	U
100-01-6	4-Nitroaniline	76	U
86-30-6	N-nitrosodiphenylamine (1)	30	U
101-55-3	4-Bromophenyl-phenylether	30	U
118-74-1	Hexachlorobenzene	30	U
85-01-8	Phenanthrene	30	U

FORM I SV-1 3/90

Inchcape Testing Services
Aquatec Laboratories

MEMORANDUM

TO: Kelly Spittler, Weston

FROM: Pauline T. Malik ITS-Aquatec

DATE: May 1, 1995

RE: Aroclor 1254 Identification, Case 95000, SDG 49977

Upon further investigation of data for sample GWADS (Lab No. 250950), it has been determined that AR1254 is present. The level (0.70 ug/L) is slightly less than the levels found in the MS and MSD samples (1.2 ug/L and 1.4 ug/L). All of these AR1254 patterns are very good matches to the calibration standards.

95905B1MAY95

TO: Kelly Spittler	FROM: Pauline Malik	DATE: 5/1/95
FAX #: 610-701-5320	FAX #: PHONE #:	PAGES INCLUDING THIS PAGE: 1

END OF DATA VALIDATION REPORT

Roy F. Weston, Inc.
1 Weston Way
West Chester, Pennsylvania 19380-1499
610-701-3000 • Fax 610-701-3186

MANAGERS DESIGNERS/CONSULTANTS

ORGANIC QUALITY ASSURANCE REVIEW

BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46550
ORGANICS

REVIEW PERFORMED BY
THE ENVIRONMENTAL METRICS DIVISION
OF
ROY F. WESTON, INC.

PREPARED BY: Kelly Muir Spittler — 05-11-95
Kelly Muir Spittler — Date
Unit Leader - Data Validation

VERIFIED BY: Zohreh Hamid — 5-11-95
Zohreh Hamid, Ph.D. — Date
Section Manager - Data Validation

BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46550
ORGANICS

INTRODUCTION

This quality assurance review is based upon a review of all data generated from fourteen water samples and fourteen soil samples collected on 09-08,09,12,13-94. The samples were analyzed according to criteria set forth in the NYSDEC Analytical Services Protocol ASP (September 1989, 12-91 Revision) for TCL Volatile, Method 601/602 for GC Volatile target compounds, and Total Organic Compound by Lloyd Kahn.

All data have been validated with regard to usability according to the quality assurance set forth in the NYSDEC Contract Laboratory Program, Analytical Services Protocol (ASP). If you have any questions or comments on this data review, please call Zohreh Hamid at (610) 701-5315.

QUALITY ASSURANCE REVIEW

The analyses were performed by Inchcape Testing Services.

The finding offered in this report are based upon a rigorous of the following criteria:

- Holding Time
- Blanks
- Surrogate Recoveries
- Internal Standards
- * GC/MS Tuning
- Calibration
- Matrix Spike/Spike Duplicate/Blank Spike
- * Instrument Performance
- Sample Results
- * Data Completeness

* All criteria were met; therefore, a narrative section is not provided for this classification.

Blasland, Bouck & Lee
Case: 94000 / SDG: 46550

HOLDING TIME

Volatiles 601/602

Samples GWB6T28 and GWD4T28 were analyzed 3 and 5 days, respectively, beyond the holding time. Sample results may be biased; therefore, both positive results and non-detects are qualified estimated.

BLANKS

TCL Volatiles

The method blanks (VBLKC7, VBLKC8, and VBLKD1) contained acetone, 2-hexanone, and/or 2-butanone at levels less than the CRQL. Sample results less than 10X the blank levels are believed to be laboratory artifacts and are flagged "U". If these results are also less than the quantitation limit, they are also elevated to the CRQL. (page E-52, 5.1.1.1)

SURROGATE RECOVERIES

TCL Volatiles

The toluene-d_8 surrogate recovery (144%) in sample SSC3S (2-4) exceeded the QC limits of 84-138%. This sample was reanalyzed and the surrogate recovery criteria were met; therefore, the reanalysis should be reported as the representative results without qualification. (page E-54, 6.2.3)

Volatiles 601/602

The 1,4-dichlorobutane surrogate recoveries in samples SSB6R28 (125%) and GWD4S20 (58%) were outside the advisory QC limits of 70-120%. Sample results may be biased. Since the recovery exceeded the QC limits for sample SSB6R28, all positive results are qualified estimated. Sample GWD4S20 has both positive results and non-detects qualified estimated, since this recovery was below the QC limits.

The surrogate recoveries were diluted out for the diluted analysis of sample GWD4S10DL. Since the surrogate recoveries met the QC limits in the original analysis, no qualification was required.

Blasland, Bouck & Lee
Case: 94000 / SDG: 46550

INTERNAL STANDARDS

TCL Volatiles

The following internal standard areas were below the laboratory's QC limits:

SAMPLE	INTERNAL STANDARD OUTLIER
SSC3S(2-4)	1,4-Difluorobenzene Chlorobenzene-d_5
SSC3S(2-4)RE	Chlorobenzene-d_5

This sample was probably exhibiting a matrix effect. Based on surrogate and internal standard outliers, the reanalysis should be reported as the representative results. All sample data quantified in reference to chlorobenzene-d_5 are considered estimated. (page E-51, 4.3)

CALIBRATION

TCL Volatile

The RRFs were within the control limits. The following %RSDs and %Ds in the initial and continuing calibrations were outside the validation requirement limits of 30% and 25%, respectively.

COMPOUND NAME	IC 08-24-94	IC 08-08-94	CC 09-16-94	CC 09-14-94	CC 09-15-94
2-Hexanone	35.7		41.9		
Acetone		48.5			26.4
4-Methyl-2-pentanone			27.6		
Vinyl Chloride				29.8	
Chloroethane				39.8	
1,1,1-Trichloroethane				26.0	

WESTON

Blasland, Bouck & Lee
Case: 94000 / SDG: 46550

COMPOUND NAME	IC 08-24-94	IC 08-08-94	CC 09-16-94	CC 09-14-94	CC 09-15-94
Associated Samples:	VBLKC9 SSB2P(6-8) SSB2R(6-8) SSB2W(6-8) SSD4R28	VBLKD1 SSB25(6-8) SS045 (4-6) SSD4S (6-8) VBLKC7 SSA3S(2-4) VBLKC8 SSA6S(4-6) SSB4S(4-16) SSB5S(4-6) SSC1S(6-8) SSC3S(2-4) SSC3S(2-4)RE	VBLKC9 SSB2P(6-8) SSB2R(6-8) SSB2W(6-8) SSD4R28	VBLKC7 SSA3S(2-4)	VBLKC8 SSA6S(4-6) SSB4S(4-6) SSB5S(4-6) SSC1S(6-8) SSC3S(2-4) SSC3S(2-4)RE

Most of the compounds were not detected in the samples. The acetone results were already qualified "U" due to blank contamination, no additional qualification is applied. All other associated non-detects are qualified estimated. (page E-47, 2.4.2 and 2.4.3).

Volatiles 601/602

The following %Ds were above the 15% QC limits in the continuing calibration analyses. Since these calibrations were analyzed after the samples, no action was required.

CALIBRATION DATE	COLUMN	COMPOUND	%D
09-16-94/08:43	RTX-1	1,1,2,2-Tetrachloroethane	18
	VOCOL	Trichloroethene Styrene	20 17
09-19-94/09:21	RTX-1	Bromonethane Bromodichloromethane Trans-1,3-dichloropropane Dibromochloromethane Bromoform	18 16 16 16 18
	VOCOL	Dibromochloromethane Bromoform	16.6 15.1

The correlation coefficient (r) for several compounds was outside the QC limits of 0.995; however, since the spike recoveries were within the QC limits, the sample results were not affected by these outliers.

MATRIX SPIKE/SPIKE DUPLICATE

TCL Volatiles

MS/MSD and BS analyses were not provided with this batch of samples. The long-term precision and accuracy of the analytical method cannot be evaluated; however, no specific action was required, due to the lack of these QC analyses. (page E-56, 7.1)

Volatiles 601/602

BS analyses were not performed for the GC Volatile analyses. The sample data were not adversely affected, due to the lack of these QC analyses.

SAMPLE RESULTS

Volatiles 601/602

Sample GWB6S20 was originally analyzed at a 4-fold dilution and sample GWD4S10 was reanalyzed at a 2-fold dilution, due to the amount of target compounds. The only result reported from GWD4S10DL was trichloroethene. Since the dilution levels were low, no qualification has been applied.

TOC

The TOC sample results and data package were satisfactory. There were no QC outliers in these analyses; the sample data were accepted without qualification.

WESTON

MANAGERS DESIGNERS/CONSULTANTS

ATTACHMENTS

1. Attachment I - Glossary of Data Qualifier Codes

2. Attachment II - Sample Result Summary. This includes:

   a) A summary of all positive results for the target analytes with the qualifier codes, if applicable;

   b) All qualified and usable detection limits.

3. Attachment III - Sample data (Form I) verified by the laboratory.

ATTACHMENT I
GLOSSARY OF DATA QUALIFIER CODES

WESTON.

GLOSSARY OF DATA QUALIFIERS

CODES RELATING TO IDENTIFICATION

(confidence concerning presence or absence of compounds):

U = NOT DETECTED SUBSTANTIALLY ABOVE THE LEVEL REPORTED IN LABORATORY OR FIELD BLANKS. [Substantially is equivalent to a result less than 10 times the blank level for common contaminants (methylene chloride, acetone and 2-butanone in the VOA analyses, and common phthalates in the BNA analyses, along with tentatively identified compounds) or less than 5 times the blank level for other target compounds.]

R = UNUSABLE RESULT. THE PRESENCE OR ABSENCE OF THIS ANALYTE CANNOT BE VERIFIED. SUPPORTING DATA NECESSARY TO CONFIRM RESULT.

N = NEGATED COMPOUND. THERE IS PRESUMPTIVE EVIDENCE TO MAKE A TENTATIVE IDENTIFICATION.

CODES RELATING TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = ANALYTE WAS POSITIVELY IDENTIFIED. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.

UJ = ANALYTE WAS NOT DETECTED ABOVE THE CRQL. THE REPORTED QUANTITATION LIMIT IS QUALIFIED ESTIMATED.

OTHER CODES

Q = NO ANALYTICAL RESULT.

ATTACHMENT II
SAMPLE RESULT SUMMARY

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46550

Client Sample ID:		SSA3S(2–4)	SSA6S(4–6)	SSB4S(4–6)	SSB5S(4–6)	SSC1S(6–8)	SSC3S(2–4)RE	SSB2S(6–8)
Matrix:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Dilution Factor:		1	1	1	1	1	1	1
% Moisture:		15	17	11	15	12	16	17
Units:		ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
COMPOUND	CRQL (ug/Kg)							
Chloromethane	10	UJ						
Bromomethane	10							
Vinyl Chloride	10	UJ						
Chloroethane	10							
Methylene Chloride	10							
Acetone	10	12 U	12 U	11 U	12 U	120 J	12 U	UJ
Carbon Disulfide	10							
1,1–Dichloroethene	10							
1,1–Dichloroethane	10							
1,2–Dichloroethene (total)	10							
Chloroform	10							
1,2–Dichloroethane	10							
2–Butanone	10					29		
1,1,1–Trichloroethane	10	UJ						
Carbon Tetrachloride	10							
Bromodichloromethane	10							
1,2–Dichloropropane	10							
cis–1,3–Dichloropropene	10							
Trichloroethene	10							
Dibromochloromethane	10							
1,1,2–Trichloroethane	10							
Benzene	10							
trans–1,3–Dichloropropene	10							
Bromoform	10							
4–Methyl–2–Pentanone	10						UJ	
2–Hexanone	10						UJ	
Tetrachloroethene	10						UJ	
1,1,2,2–Tetrachloroethane	10						UJ	
Toluene	10	6 J	11 J	11 J	7 J	8 J	6 J	
Chlorobenzene	10						UJ	
Ethylbenzene	10						UJ	
Styrene	10						UJ	
Xylene (total)	10					6 J	UJ	

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46550

Client Sample ID:		SSC4S(4–6)	SSD4S(6–8)
Matrix:		SOIL	SOIL
Dilution Factor:		1	1
% Moisture:		18	9
Units:		ug/Kg	ug/Kg
COMPOUND	CRQL (ug/Kg)		
Chloromethane	10		
Bromomethane	10		
Vinyl Chloride	10		
Chloroethane	10		
Methylene Chloride	10		
Acetone	10	12 U	16 U
Carbon Disulfide	10		
1,1–Dichloroethene	10		
1,1–Dichloroethane	10		
1,2–Dichloroethene (total)	10		
Chloroform	10		
1,2–Dichloroethane	10		
2–Butanone	10		11 U
1,1,1–Trichloroethane	10		
Carbon Tetrachloride	10		
Bromodichloromethane	10		
1,2–Dichloropropane	10		
cis–1,3–Dichloropropene	10		
Trichloroethene	10		1 J
Dibromochloromethane	10		
1,1,2–Trichloroethane	10		
Benzene	10		
trans–1,3–Dichloropropene	10		
Bromoform	10		
4–Methyl–2–Pentanone	10		
2–Hexanone	10		
Tetrachloroethene	10		
1,1,2,2–Tetrachloroethane	10		
Toluene	10	17	13
Chlorobenzene	10		
Ethylbenzene	10		
Styrene	10		
Xylene (total)	10		

ROY F. [illegible]TON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46550

Client Sample ID:		SSB2P(6–8)	SSB2R(6–8)	SSB2W(6–8)	SSD4R28
Matrix:		WATER	WATER	WATER	WATER
Dilution Factor:		1	1	1	1
Units:		ug/L	ug/L	ug/L	ug/L
COMPOUND					
	CRQL (ug/L)				
Chloromethane	10				
Bromomethane	10				
Vinyl Chloride	10				
Chloroethane	10				
Methylene Chloride	10				
Acetone	10	7 J	10	8 J	8 J
Carbon Disulfide	10				
1,1–Dichloroethene	10				
1,1–Dichloroethane	10				
1,2–Dichloroethene (total)	10				
Chloroform	10	37	4 J	4 J	3 J
1,2–Dichloroethane	10				
2–Butanone	10				
1,1,1–Trichloroethane	10				
Carbon Tetrachloride	10				
Bromodichloromethane	10		2 J	2 J	1 J
1,2–Dichloropropane	10				
cis–1,3–Dichloropropene	10				
Trichloroethene	10				
Dibromochloromethane	10				
1,1,2–Trichloroethane	10				
Benzene	10				
trans–1,3–Dichloropropene	10				
Bromoform	10				
4–Methyl–2–Pentanone	10	UJ	UJ	UJ	UJ
2–Hexanone	10	UJ	UJ	UJ	UJ
Tetrachloroethene	10				
1,1,2,2–Tetrachloroethane	10				
Toluene	10				5 J
Chlorobenzene	10				
Ethylbenzene	10				
Styrene	10				
Xylene (total)	10				

ROY F. WESTON, INC.
601/602 VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46550

Client Sample ID:		GWB6R28	GWB6S20	GWB6S28	GWB6T28	GWD4R28	GWD4S10	GWD4S20
Matrix:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor:		1	4	1	1	1	1/2*	1
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)							
Dichlorodifluoromethane	0.5				UJ			UJ
Chloromethane	0.5				UJ			UJ
Vinyl Chloride H	0.5				UJ			UJ
Bromomethane	0.5				UJ			UJ
Chloroethane	0.5				UJ			UJ
Trichlorofluoromethane	0.5				UJ			UJ
Freon-113	0.5		3.6		UJ			UJ
1,1-Dichloroethene H	0.5				UJ			UJ
Methylene Chloride	0.5				UJ			UJ
Trans-1,2-Dichloroethene H	0.5				UJ			UJ
1,1-Dichloroethane	0.5				UJ			UJ
Cis-1,2-Dichloroethene H	0.5		52	1.6	UJ		2.4	UJ
Chloroform	0.5	3.7 J			4.4 J	2		UJ
1,1,1-Trichloroethane	0.5		4.5		UJ		19	UJ
Carbon Tetrachloride	0.5				UJ			UJ
1,2-Dichloroethane	0.5	1.8 J		1.9	UJ			UJ
Trichloroethene H	0.5		84	2.4	UJ		52 *	1.4 J
1,2-Dichloropropane	0.5				UJ			UJ
Bromodichloroemethane	0.5	2.1 J			UJ	1.4		UJ
Cis-1,3-Dichloropropene H	0.5				UJ			UJ
Trans-1,3-Dichloropropene	0.5				UJ			UJ
1,1,2-Trichloroethane	0.5				UJ			UJ
Tetrachloroethene H	0.5				UJ			UJ
Dibromochloromethane	0.5	1.2 J			UJ			UJ
Chlorobenzene H	0.5				UJ			UJ
Bromoform	0.5				UJ			UJ
1,1,2,2-Tetrachloroethane	0.5				UJ			UJ
1,3-Dichlorobenzene H	0.5				UJ			UJ
1,4-Dichlorobenzene H	0.5				UJ			UJ
1,2-Dichlorobenzene H	0.5				UJ			UJ
Benzene	0.5				UJ			UJ
Toluene	0.5	7.3 J			UJ	6.7		UJ
Ethylbenzene	0.5				UJ			UJ
Xylene (total)	1.0				UJ			UJ
Styrene	0.5				UJ			UJ

ROY F. WESTON, INC.
601/602 VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46550

Client Sample ID:		GWD4S28	GWD4T28	SSB6R28
Matrix:		WATER	WATER	WATER
Dilution Factor:		1	1	1
Units:		ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)			
Dichlorodifluoromethane	0.5		UJ	
Chloromethane	0.5		UJ	
Vinyl Chloride H	0.5		UJ	
Bromomethane	0.5		UJ	
Chloroethane	0.5		UJ	
Trichlorofluoromethane	0.5		UJ	
Freon–113	0.5		UJ	
1,1–Dichloroethene H	0.5		UJ	
Methylene Chloride	0.5		UJ	
Trans–1,2–Dichloroethene H	0.5		UJ	
1,1–Dichloroethane	0.5		UJ	
Cis–1,2–Dichloroethene H	0.5		UJ	
Chloroform	0.5		5.6 J	4.4
1,1,1–Trichloroethane	0.5		UJ	
Carbon Tetrachloride	0.5		UJ	
1,2–Dichloroethane	0.5		UJ	1.4
Trichloroethene H	0.5	1.4	UJ	
1,2–Dichloropropane	0.5		UJ	
Bromodichloromethane	0.5		UJ	2.3
Cis–1,3–Dichloropropene H	0.5		UJ	
Trans–1,3–Dichloropropene	0.5		UJ	
1,1,2–Trichloroethane	0.5		UJ	
Tetrachloroethene H	0.5		UJ	
Dibromochloromethane	0.5		UJ	1.3
Chlorobenzene H	0.5		UJ	
Bromoform	0.5		UJ	
1,1,2,2–Tetrachloroethane	0.5		UJ	
1,3–Dichlorobenzene H	0.5		UJ	
1,4–Dichlorobenzene H	0.5		UJ	
1,2–Dichlorobenzene H	0.5		UJ	
Benzene	0.5		UJ	
Toluene	0.5		UJ	8.5
Ethylbenzene	0.5		UJ	
Xylene (total)	1.0		UJ	
Styrene	0.5		UJ	

ROY F. WESTON, INC.
TOC ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46550

Client Sample ID:	SSB6S20	SSB6S28	SSD4S10	SSD4S20	SSD4S28
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
Dilution Factor:	1	1	1	1	1
Units:	h*	h*	h*	h*	h*
COMPOUND					
TOC	1.3	1.78	1.2	1.24	0.99

h* = % w/w dry

WESTON
MANAGERS DESIGNERS/CONSULTANTS

ATTACHMENT III
FORM I's

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA3S(2-4)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233787

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233787V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 15 Date Analyzed: 09/14/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	4	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA3S(2-4)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233787

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233787V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 15 Date Analyzed: 09/14/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA6S(4-6)

Lab Name: AQUATEC, INC.   Contract: 94000

Lab Code: AQUAI   Case No.: 94000   SAS No.:   SDG No.: 46550

Matrix: (soil/water) SOIL   Lab Sample ID: 233788

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: N233788V.D

Level: (low/med) LOW   Date Received: 09/10/94

% Moisture: not dec. 17   Date Analyzed: 09/15/94

GC Column:CAP   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: _______(uL)   Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	8	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	11	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA6S(4-6)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233788

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233788V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 17 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB4S(4-6)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233789

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233789V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 11 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	3	JB
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB4S(4-6)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233789

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233789V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 11 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB5S(4-6)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233790

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233790V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 15 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	6	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	7	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB5S(4-6)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233790

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233790V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 15 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ________(uL) Soil Aliquot Volume: ______(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSC1S(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233794

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233794V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 12 Date Analyzed: 09/15/94

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	120	B
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	29	
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	8	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	6	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSC1S(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233794

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233794V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 12 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 95-36-3	1,2,4-Trimethylbenzene	14.084	10	NJ
2. 526-73-8	Benzene, 1,2,3-trimethyl-	14.807	8	NJ
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSC3S(2-4)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233795

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233795V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 16 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	8	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	2	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSC3S(2-4)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233795

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233795V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 16 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 121-43-7	Boric acid, trimethyl ester	3.619	8	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSC3S(2-4)RE

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 233795R1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233795I2V.D

Level: (low/med) LOW Date Received: 09/10/94

% Moisture: not dec. 16 Date Analyzed: 09/15/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	6	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	6	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSC3S(2-4)RE

Lab Name: AQUATEC, INC.   Contract: 94000

Lab Code: AQUAI   Case No.: 94000   SAS No.:   SDG No.: 46550

Matrix: (soil/water) SOIL   Lab Sample ID: 233795R1

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: N233795I2V.D

Level: (low/med) LOW   Date Received: 09/10/94

% Moisture: not dec. 16   Date Analyzed: 09/15/94

GC Column:CAP   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: _______(uL)   Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB2P(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234128

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234128V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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	7	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	37	
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB2P(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234128

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234128V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB2R(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234129

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234129V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	4	J
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	2	J
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB2R(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234129

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234129V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB2S(6-8)

Lab Name: AQUATEC, INC.   Contract: 94000

Lab Code: AQUAI   Case No.: 94000   SAS No.:   SDG No.: 46550

Matrix: (soil/water) SOIL   Lab Sample ID: 234130

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: N234130V.D

Level: (low/med) LOW   Date Received: 09/14/94

% Moisture: not dec. 17   Date Analyzed: 09/19/94

GC Column:CAP   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: _______(uL)   Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB2S(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 234130

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N234130V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. 17 Date Analyzed: 09/19/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB2W(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234131

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234131V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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	8	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	4	J
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	2	J
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB2W(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234131

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234131V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSC4S(4-6)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 234132

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N234132V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. 18 Date Analyzed: 09/19/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	2	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	17	
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSC4S(4-6)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 234132

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N234132V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. 18 Date Analyzed: 09/19/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSD4R28

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234133

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234133V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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	8	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
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	1	J
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	5	J
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSD4R28

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) WATER Lab Sample ID: 234133

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M234133V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. ________ Date Analyzed: 09/16/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSD4S(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 234134

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N234134V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. 9 Date Analyzed: 09/19/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	16	~~B~~ U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11 ~~7~~	~~JB~~ U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	1	J
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	13	
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSD4S(6-8)

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46550

Matrix: (soil/water) SOIL Lab Sample ID: 234134

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N234134V.D

Level: (low/med) LOW Date Received: 09/14/94

% Moisture: not dec. 9 Date Analyzed: 09/19/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown terpene	14.754	6	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWB6R28

Lab Name: Aquatec Inc.
Lab Sample ID: 233783
Date Analyzed: 09/16/94
Date Received: 09/10/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46500
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	3.7	
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	1.8	
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	2.1	
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	1.2	
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	7.3	
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWB6S20

Lab Name: Aquatec Inc.
Lab Sample ID: 233784
Date Analyzed: 09/16/94
Date Received: 09/10/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 4.0

Contract No.: 94000
Case No.: 94000
SDG No: 46500
Sample wt/vol: 12.5 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	2.0	U
74-87-3	CHLOROMETHANE	2.0	U
75-01-4	VINYL CHLORIDE H	2.0	U
74-83-9	BROMOMETHANE	2.0	U
75-00-3	CHLOROETHANE	2.0	U
75-69-4	TRICHLOROFLUOROMETHANE	2.0	U
76131	FREON-113	3.6	
75-35-4	1,1-DICHLOROETHENE H	2.0	U
75-09-2	METHYLENE CHLORIDE	2.0	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	2.0	U
75-34-3	1,1-DICHLOROETHANE	2.0	U
156-59-2	CIS-1,2-DICHLOROETHENE H	52	
67-66-3	CHLOROFORM	2.0	U
71-55-6	1,1,1-TRICHLOROETHANE	4.5	
56-23-5	CARBON TETRACHLORIDE	2.0	U
107-06-2	1,2-DICHLOROETHANE	2.0	U
79-01-6	TRICHLOROETHENE H	84	
78-87-5	1,2-DICHLOROPROPANE	2.0	U
75-27-4	BROMODICHLOROMETHANE	2.0	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	2.0	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	2.0	U
79-00-5	1,1,2-TRICHLOROETHANE	2.0	U
127-18-4	TETRACHLOROETHENE H	2.0	U
124-48-1	DIBROMOCHLOROMETHANE	2.0	U
108-90-7	CHLOROBENZENE H	2.0	U
75-25-2	BROMOFORM	2.0	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	2.0	U
541-73-1	1,3-DICHLOROBENZENE H	2.0	U
106-46-7	1,4-DICHLOROBENZENE H	2.0	U
95-50-1	1,2-DICHLOROBENZENE H	2.0	U
71-43-2	BENZENE	2.0	U
108-88-3	TOLUENE	2.0	U
100-41-4	ETHYLBENZENE	2.0	U
1330-20-7	TOTAL XYLENES	4.0	U
100-42-5	STYRENE	2.0	U

233784.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWB6S28

Lab Name: Aquatec Inc.
Lab Sample ID: 233785
Date Analyzed: 09/16/94
Date Received: 09/10/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46500
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	1.6	
67-66-3	CHLOROFORM	0.5	U
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	1.9	
79-01-6	TRICHLOROETHENE H	2.4	
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

233785.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWB6T28

Lab Name: Aquatec Inc.
Lab Sample ID: 233786
Date Analyzed: 09/16/94
Date Received: 09/10/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46500
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	4.4	
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	0.5	U
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

233786.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWD4R28

Lab Name: Aquatec Inc.
Lab Sample ID: 234123
Date Analyzed: 09/19/94
Date Received: 09/14/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46550
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	2.0	
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	0.5	U
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	1.4	
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	6.7	
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

234123.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWD4S10

Lab Name: Aquatec Inc.
Lab Sample ID: 234124
Date Analyzed: 09/19/94
Date Received: 09/14/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0 / c*

Contract No.: 94000
Case No.: 94000
SDG No: 46550
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	2.4	
67-66-3	CHLOROFORM	0.5	U
71-55-6	1,1,1-TRICHLOROETHANE	19	
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	0.5	U
79-01-6	TRICHLOROETHENE H	71	X
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

234124.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWD4S10DL

Lab Name: Aquatec Inc.
Lab Sample ID: 234124D1
Date Analyzed: 09/19/94
Date Received: 09/14/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 2.0

Contract No.: 94000
Case No.: 94000
SDG No: 46550
Sample wt/vol: 2.5 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	1.0	U
74-87-3	CHLOROMETHANE	1.0	U
75-01-4	VINYL CHLORIDE H	1.0	U
74-83-9	BROMOMETHANE	1.0	U
75-00-3	CHLOROETHANE	1.0	U
75-69-4	TRICHLOROFLUOROMETHANE	1.0	U
76131	FREON-113	1.0	U
75-35-4	1,1-DICHLOROETHENE H	1.0	U
75-09-2	METHYLENE CHLORIDE	1.0	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	1.0	U
75-34-3	1,1-DICHLOROETHANE	1.0	U
156-59-2	CIS-1,2-DICHLOROETHENE H	1.4	D
67-66-3	CHLOROFORM	1.0	U
71-55-6	1,1,1-TRICHLOROETHANE	13	D
56-23-5	CARBON TETRACHLORIDE	1.0	U
107-06-2	1,2-DICHLOROETHANE	1.0	U
79-01-6	TRICHLOROETHENE H	52	D
78-87-5	1,2-DICHLOROPROPANE	1.0	U
75-27-4	BROMODICHLOROMETHANE	1.0	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	1.0	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	1.0	U
79-00-5	1,1,2-TRICHLOROETHANE	1.0	U
127-18-4	TETRACHLOROETHENE H	1.0	U
124-48-1	DIBROMOCHLOROMETHANE	1.0	U
108-90-7	CHLOROBENZENE H	1.0	U
75-25-2	BROMOFORM	1.0	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	1.0	U
541-73-1	1,3-DICHLOROBENZENE H	1.0	U
106-46-7	1,4-DICHLOROBENZENE H	1.0	U
95-50-1	1,2-DICHLOROBENZENE H	1.0	U
71-43-2	BENZENE	1.0	U
108-88-3	TOLUENE	1.0	U
100-41-4	ETHYLBENZENE	1.0	U
1330-20-7	TOTAL XYLENES	2.0	U
100-42-5	STYRENE	1.0	U

234124D1.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWD4S20

Lab Name: Aquatec Inc.
Lab Sample ID: 234125
Date Analyzed: 09/19/94
Date Received: 09/14/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46550
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L)	ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE		0.5	U
74-87-3	CHLOROMETHANE		0.5	U
75-01-4	VINYL CHLORIDE H		0.5	U
74-83-9	BROMOMETHANE		0.5	U
75-00-3	CHLOROETHANE		0.5	U
75-69-4	TRICHLOROFLUOROMETHANE		0.5	U
76131	FREON-113		0.5	U
75-35-4	1,1-DICHLOROETHENE H		0.5	U
75-09-2	METHYLENE CHLORIDE		0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H		0.5	U
75-34-3	1,1-DICHLOROETHANE		0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H		0.5	U
67-66-3	CHLOROFORM		0.5	U
71-55-6	1,1,1-TRICHLOROETHANE		0.5	U
56-23-5	CARBON TETRACHLORIDE		0.5	U
107-06-2	1,2-DICHLOROETHANE		0.5	U
79-01-6	TRICHLOROETHENE H		1.4	
78-87-5	1,2-DICHLOROPROPANE		0.5	U
75-27-4	BROMODICHLOROMETHANE		0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H		0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H		0.5	U
79-00-5	1,1,2-TRICHLOROETHANE		0.5	U
127-18-4	TETRACHLOROETHENE H		0.5	U
124-48-1	DIBROMOCHLOROMETHANE		0.5	U
108-90-7	CHLOROBENZENE H		0.5	U
75-25-2	BROMOFORM		0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE		0.5	U
541-73-1	1,3-DICHLOROBENZENE H		0.5	U
106-46-7	1,4-DICHLOROBENZENE H		0.5	U
95-50-1	1,2-DICHLOROBENZENE H		0.5	U
71-43-2	BENZENE		0.5	U
108-88-3	TOLUENE		0.5	U
100-41-4	ETHYLBENZENE		0.5	U
1330-20-7	TOTAL XYLENES		1.0	U
100-42-5	STYRENE		0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWD4S28

Lab Name: Aquatec Inc.
Lab Sample ID: 234126
Date Analyzed: 09/19/94
Date Received: 09/14/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46550
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L)	ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE		0.5	U
74-87-3	CHLOROMETHANE		0.5	U
75-01-4	VINYL CHLORIDE H		0.5	U
74-83-9	BROMOMETHANE		0.5	U
75-00-3	CHLOROETHANE		0.5	U
75-69-4	TRICHLOROFLUOROMETHANE		0.5	U
76131	FREON-113		0.5	U
75-35-4	1,1-DICHLOROETHENE H		0.5	U
75-09-2	METHYLENE CHLORIDE		0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H		0.5	U
75-34-3	1,1-DICHLOROETHANE		0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H		0.5	U
67-66-3	CHLOROFORM		0.5	U
71-55-6	1,1,1-TRICHLOROETHANE		0.5	U
56-23-5	CARBON TETRACHLORIDE		0.5	U
107-06-2	1,2-DICHLOROETHANE		0.5	U
79-01-6	TRICHLOROETHENE H		1.4	
78-87-5	1,2-DICHLOROPROPANE		0.5	U
75-27-4	BROMODICHLOROMETHANE		0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H		0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H		0.5	U
79-00-5	1,1,2-TRICHLOROETHANE		0.5	U
127-18-4	TETRACHLOROETHENE H		0.5	U
124-48-1	DIBROMOCHLOROMETHANE		0.5	U
108-90-7	CHLOROBENZENE H		0.5	U
75-25-2	BROMOFORM		0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE		0.5	U
541-73-1	1,3-DICHLOROBENZENE H		0.5	U
106-46-7	1,4-DICHLOROBENZENE H		0.5	U
95-50-1	1,2-DICHLOROBENZENE H		0.5	U
71-43-2	BENZENE		0.5	U
108-88-3	TOLUENE		0.5	U
100-41-4	ETHYLBENZENE		0.5	U
1330-20-7	TOTAL XYLENES		1.0	U
100-42-5	STYRENE		0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWD4T28

Lab Name: Aquatec Inc.
Lab Sample ID: 234127
Date Analyzed: 09/18/94
Date Received: 09/14/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46550
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	5.6	
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	0.5	U
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

234127.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

SSB6R28

Lab Name: Aquatec Inc.
Lab Sample ID: 233791
Date Analyzed: 09/16/94
Date Received: 09/10/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46500
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	4.4	
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	1.4	
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	2.3	
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	1.3	
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	8.5	
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Blasland & Bouck Engineers
6723 Towpath Road
Box 66
Syracuse, NY 13214

Attention : Mr. Pat Farr

Date : 09/26/94
ETR Number : 46550
Project No.: 94000
No. Samples: 14
Arrived : 09/10/94

Case:94000 SDG:46550 Site:Utica

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
233792	SSB6S20:09/08/94 (Soil)	
IN847	TOC by Lloyd Kahn	1.30 h
IN623	Solids, Total	85.5 c
233793	SSB6S28:09/09/94 (Soil)	
IN847	TOC by Lloyd Kahn	1.78 h
IN623	Solids, Total	83.9 c

Comments/Notes

h = % W/W dry
c = %W/W as received

0007

< Last Page > Submitted By : Kare R. Chigon Aquatec Inc.

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Blasland & Bouck Engineers
6723 Towpath Road
Box 66
Syracuse, NY 13214

Attention : Mr. Pat Farr

Date : 09/28/94
ETR Number : 46618
Project No.: 94000
No. Samples: 15
Arrived : 09/14/94

Case:94000 SDG:46550

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.		Sample Description/ Parameter	Result
234135	SSD4S10:09/13/94 @1045(Soil)		
	IN847	TOC by Lloyd Kahn	1.20 h
	IN623	Solids, Total	86.4 c
234136	SSD4S20:09/13/94 @1210(Soil)		
	IN847	TOC by Lloyd Kahn	1.24 h
	IN623	Solids, Total	81.4 c
234137	SSD4S28:09/13/94 @1335(Soil)		
	IN847	TOC by Lloyd Kahn	0.99 h
	IN623	Solids, Total	81.0 c

Comments/Notes

h = % W/W dry
c = %W/W as received

< Last Page > Submitted By : Karen R. Chugin

0008
Aquatec Inc.

END OF DATA VALIDATION REPORT

Roy F. Weston, Inc.
1 Weston Way
West Chester, Pennsylvania 19380-1499
610-701-3000 • Fax 610-701-3186

MANAGERS DESIGNERS/CONSULTANTS

ORGANIC QUALITY ASSURANCE REVIEW

BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46393
ORGANICS

REVIEW PERFORMED BY
THE ENVIRONMENTAL METRICS DIVISION
OF
ROY F. WESTON, INC.

PREPARED BY: Kelly Muir Spittler — 05-12-95
Kelly Muir Spittler — Date
Unit Leader - Data Validation

VERIFIED BY: — 5-12-95
Zohreh Hamid, Ph.D. — Date
Section Manager - Data Validation

BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46393
ORGANICS

INTRODUCTION

This quality assurance review is based upon a review of all data generated from twenty-one water samples and twenty-one soil samples collected on 08-29,30,31-94and 09-06,07,08-94. The samples were analyzed according to criteria set forth in the NYSDEC Analytical Services Protocol ASP (September 1989, 12-91 Revision) for TCL Volatile target compounds, Method 601/602 for GC Volatile compounds, and Total Organic Compound by Lloyd Kahn.

All data have been validated with regard to usability according to the quality assurance set forth in the NYSDEC Contract Laboratory Program, Analytical Services Protocol (ASP). If you have any questions or comments on this data review, please call Zohreh Hamid at (610) 701-5315.

QUALITY ASSURANCE REVIEW

The analyses were performed by Inchcape Testing Services.

The finding offered in this report are based upon a rigorous of the following criteria:

- Holding Time
- Blanks
- Surrogate Recoveries
- Internal Standards
- * GC/MS Tuning
- Calibration
- Matrix Spike/Spike Duplicate/Blank Spike
- * Instrument Performance
- Sample Results
- * Data Completeness

* All criteria were met; therefore, a narrative section is not provided for this classification.

HOLDING TIME

Volatiles 601/602

Samples GWB6T10 and SSC533-35DL were analyzed 1 and 3 days, respectively, beyond the holding time. Sample results may be biased; therefore, both positive results and non-detects are qualified estimated.

BLANKS

TCL Volatiles

The method blanks (VBLKA7, VBLKB3, VBLKB9, and VBLKC9) contained acetone, 2-hexanone, and/or 2-butanone at levels less than the CRQL. Sample results less than 10X the blank levels are believed to be laboratory artifacts and are flagged "U". If these results are less than the quantitation limit, they are also elevated to the CRQL. (page E-52, 5.1.1.1)

SURROGATE RECOVERIES

Volatiles 601/602

The 1,4-dichlorobutane surrogate recovery for VBLKW9 (126%) was outside the advisory QC limits of 70-120%. Since the associated samples met the surrogate criteria, no action is taken based on this blank outlier.

All surrogate recoveries were below the advisory limits in the analysis of SSC5S33-35. This sample was also analyzed at a dilution and the 1-bromo-3-chloropropane surrogate recovery was below the QC limits. This sample was probably exhibiting a matrix effect. Sample results may be biased low; therefore, both positive results and non-detects are qualified estimated for this sample.

WESTON

Blasland, Bouck & Lee
Case: 94000 / SDG: 46393

INTERNAL STANDARDS

TCL Volatiles

The following internal standard areas were below the laboratory's QC limits:

SAMPLE	INTERNAL STANDARD OUTLIER
SSD2S4-6	1,4-Difluorobenzene Chlorobenzene-d_5
SSD2S4-6RE	Chlorobenzene-d_5

This sample was probably exhibiting a matrix effect. Based on the internal standard outliers, the reanalysis should be reported as the representative results. All sample data quantified in reference to chlorobenzene-d_5 are considered estimated. (page E-51, 4.3)

CALIBRATION

TCL Volatile

The RRFs were within the control limits. The following %RSDs and %Ds in the initial and continuing calibrations were outside the validation requirement limits of 30% and 25%, respectively.

COMPOUND NAME	IC 08-29-94	IC 08-08-94	CC 09-09-94 10:46	CC 09-07-94	CC 09-09-94 09:54	CC 09-13-94 08:27
2-Hexanone	35.7			-36.6		-34.5
Acetone		48.5				-35.9
2-Butanone				-53.5	-28.6	-53.6
Vinyl Chloride			29.2			
Chloromethane			39.0		33.3	

WESTON

Blasland, Bouck & Lee
Case: 94000 / SDG: 46393

COMPOUND NAME	IC 08-29-94	IC 08-08-94	CC 09-09-94 10:46	CC 09-07-94	CC 09-09-94 09:54	CC 09-13-94 08:27
1,1,1-Trichloroethane			-27.1			
Chloroethane			25.9			
Associated Samples:	VBLKC3 SSC5R34-36 VBLKC1 SSA7R35-37 SSD2R42-44	VBLKA7 SSA44-6 SSA50-2 VBLKB3 SSB315-17 SSA14-6 VBLKB9 MSB SSA2S6-8 SSA7S4-6 SSA7S4-6MS SSA7S4-6MSD SSD1S2-4 SSD2S4-6 VBLKC4 SSD2S4-6RE SSB6S15-17 SSC5S15-17 SSC5S15-17D	VBLKC1 SSA7R35-37 SSD2R42-44	VBLKB3 SSB315-17 SSA14-6	VBLKB9 MSB SSA2S6-8 SSA7S4-6 SSA7S4-6MS SSA7S4-6MSD SSD1S2-4 SSD2S4-6	VBLKC4 SSD2S4-6RE SSB6S15-17 SSC5S15-17 SSC5S15-17D

Most of the compounds were not detected in the samples. The acetone results were already qualified "U" due to blank contamination, no additional qualification is applied. All other associated non-detects are qualified estimated. (page E-47, 2.4.2 and 2.4.3).

Volatiles 601/602

Up to eleven %Ds were above the 15% QC limits in the continuing calibration analyses. Since these calibrations were analyzed after the samples, no action was required.

MATRIX SPIKE/SPIKE DUPLICATE

Volatiles 601/602

The following MS/MSD recoveries and RPD results were outside the QC limits:

QC ANALYSIS	COMPOUND	RESULT	QC LIMIT(S)
GWA7S10RPD	Trichlorofluoromethane	32	25
	Cis-1,2-dichloroethene	44	25
	1,2-Dichloroethane	26	25
	Trichloroethene	30	25
GWA7S10MS/MSD	Styrene	46/37	50-120

Since these compounds were not detected in the samples, the MS/MSD outliers were above 10%, and no qualification was required based on MS/MSD data alone, no action was taken. The matrix spike blank recoveries were within the QC limits; however, several recoveries were outside the limits in the quality control standard analyses. No qualification was applied based on these QC outliers.

SAMPLE RESULTS

TCL Volatiles

In the analyses of SSB315-17 (1.5 grams), SSC5S15-17 (1.5 grams), and SSC5S15-17D (1.0 grams) the amount of grams used for the analysis was less than the standard amount of 5 grams. The detection limits are elevated and the variation in sample weight is reflected in the dilution factor. The sample data are not adversely affected due to this discrepancy; therefore, no qualification is applied.

Volatiles 601/602

Samples GWB3(10-12) (2500-fold), GWB320 (500-fold), GWB330 (20-fold), GWC5S10 (25-fold), GWC5S10D (25-fold), and GWC5S20 (10-fold) were analyzed at dilutions, due to the levels of target compounds. Sample results may be biased low; therefore, both positive results and non-detects are qualified estimated. Sample GWB6S10 was analyzed at a 2-fold dilution but due to the low dilution level, the sample data are not adversely affected.

TOC

The TOC sample results and data package were satisfactory. There were no QC outliers in these analyses; the sample data were accepted without qualification.

ATTACHMENTS

1. Attachment I - Glossary of Data Qualifier Codes

2. Attachment II - Sample Result Summary. This includes:

    a) A summary of all positive results for the target analytes with the qualifier codes, if applicable;

    b) All qualified and usable detection limits.

3. Attachment III - Sample data (Form I) verified by the laboratory.

ATTACHMENT I
GLOSSARY OF DATA QUALIFIER CODES

WESTON

GLOSSARY OF DATA QUALIFIERS

CODES RELATING TO IDENTIFICATION

(confidence concerning presence or absence of compounds):

U = NOT DETECTED SUBSTANTIALLY ABOVE THE LEVEL REPORTED IN LABORATORY OR FIELD BLANKS. [Substantially is equivalent to a result less than 10 times the blank level for common contaminants (methylene chloride, acetone and 2-butanone in the VOA analyses, and common phthalates in the BNA analyses, along with tentatively identified compounds) or less than 5 times the blank level for other target compounds.]

R = UNUSABLE RESULT. THE PRESENCE OR ABSENCE OF THIS ANALYTE CANNOT BE VERIFIED. SUPPORTING DATA NECESSARY TO CONFIRM RESULT.

N = NEGATED COMPOUND. THERE IS PRESUMPTIVE EVIDENCE TO MAKE A TENTATIVE IDENTIFICATION.

CODES RELATING TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = ANALYTE WAS POSITIVELY IDENTIFIED. REPORTED VALUE MAY NOT BE ACCURATE OR PRECISE.

UJ = ANALYTE WAS NOT DETECTED ABOVE THE CRQL. THE REPORTED QUANTITATION LIMIT IS QUALIFIED ESTIMATED.

OTHER CODES

Q = NO ANALYTICAL RESULT.

ATTACHMENT II
SAMPLE RESULT SUMMARY

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46393

Client Sample ID:		SSA44-6	SSA50-2	SSB315-17	SSA14-6	SSA2S6-8	SSA7S4-6	SSD1S2-4
Matrix:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Dilution Factor:		1	1	3.3	1	1	1	1
% Moisture:		13	10	0	11	9	12	12
Units:		ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
COMPOUND	CRQL (ug/Kg)							
Chloromethane	10					UJ	UJ	UJ
Bromomethane	10							
Vinyl Chloride	10			11 J				
Chloroethane	10							
Methylene Chloride	10	3 J	2 J					
Acetone	10	10 U	10 U	33 U	11 U	11 U	11 U	11 U
Carbon Disulfide	10	1 J						
1,1-Dichloroethene	10							
1,1-Dichloroethane	10							
1,2-Dichloroethene (total)	10	1 J		560				
Chloroform	10							
1,2-Dichloroethane	10							
2-Butanone	10			UJ	UJ	UJ	UJ	UJ
1,1,1-Trichloroethane	10			11 J				
Carbon Tetrachloride	10							
Bromodichloromethane	10							
1,2-Dichloropropane	10							
cis-1,3-Dichloropropene	10							
Trichloroethene	10	3 J		52		12		
Dibromochloromethane	10							
1,1,2-Trichloroethane	10							
Benzene	10							
trans-1,3-Dichloropropene	10							
Bromoform	10							
4-Methyl-2-Pentanone	10							
2-Hexanone	10			UJ	UJ			
Tetrachloroethene	10	26		3 J		38		
1,1,2,2-Tetrachloroethane	10							
Toluene	10		4 J	200	2 J	3 J	7 J	2 J
Chlorobenzene	10							
Ethylbenzene	10			34				
Styrene	10							
Xylene (total)	10	12		96				

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46393

Client Sample ID:		SSD2S4-6RE	SSC5S15-17	SSC5S15-17D	SSB6S15-17
Matrix:		SOIL	SOIL	SOIL	SOIL
Dilution Factor:		1	3.3	5	1
% Moisture:		14	13	12	9
Units:		ug/Kg	ug/Kg	ug/Kg	ug/Kg
COMPOUND	CRQL (ug/Kg)				
Chloromethane	10				
Bromomethane	10				
Vinyl Chloride	10		34 J	26 J	
Chloroethane	10				
Methylene Chloride	10	2 J			
Acetone	10	12 U	38 U	57 U	18 U
Carbon Disulfide	10				
1,1-Dichloroethene	10				
1,1-Dichloroethane	10				
1,2-Dichloroethene (total)	10		490	870	11 J
Chloroform	10				
1,2-Dichloroethane	10				
2-Butanone	10	UJ	UJ	UJ	UJ
1,1,1-Trichloroethane	10		12 J	20 J	
Carbon Tetrachloride	10				
Bromodichloromethane	10				
1,2-Dichloropropane	10				
cis-1,3-Dichloropropene	10				
Trichloroethene	10		74	190	200
Dibromochloromethane	10				
1,1,2-Trichloroethane	10				
Benzene	10		16 J	19 J	
trans-1,3-Dichloropropene	10				
Bromoform	10				
4-Methyl-2-Pentanone	10	UJ			
2-Hexanone	10	UJ	UJ	UJ	UJ
Tetrachloroethene	10	UJ			
1,1,2,2-Tetrachloroethane	10	UJ			
Toluene	10	1 J	13 J	12 J	5 J
Chlorobenzene	10	UJ			
Ethylbenzene	10	UJ			
Styrene	10	UJ			
Xylene (total)	10	UJ	9 J	15 J	

ROY F. WESTON, INC.
VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46393

Client Sample ID:		SSA7R35-37	SSD2R42-44	SSC5R34-36
Matrix:		WATER	WATER	WATER
Dilution Factor:		1	1	1
Units:		ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)			
Chloromethane	10	UJ	UJ	
Bromomethane	10			
Vinyl Chloride	10	UJ	UJ	
Chloroethane	10	UJ	UJ	
Methylene Chloride	10			
Acetone	10	5 J	6 J	11
Carbon Disulfide	10			
1,1-Dichloroethene	10			
1,1-Dichloroethane	10			
1,2-Dichloroethene (total)	10			5 J
Chloroform	10			
1,2-Dichloroethane	10			
2-Butanone	10			
1,1,1-Trichloroethane	10			
Carbon Tetrachloride	10			
Bromodichloromethane	10			2 J
1,2-Dichloropropane	10			
cis-1,3-Dichloropropene	10			
Trichloroethene	10			
Dibromochloromethane	10			
1,1,2-Trichloroethane	10			
Benzene	10			
trans-1,3-Dichloropropene	10			
Bromoform	10			
4-Methyl-2-Pentanone	10			
2-Hexanone	10	UJ	UJ	UJ
Tetrachloroethene	10			
1,1,2,2-Tetrachloroethane	10	UJ	UJ	
Toluene	10			
Chlorobenzene	10			
Ethylbenzene	10			
Styrene	10			
Xylene (total)	10			

ROY F. WESTON, INC.
601/602 VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46393

Client Sample ID:	SSC5S33-35
Matrix:	SOIL
Dilution Factor:	2/5*
% Moisture:	89
Units:	ug/Kg

COMPOUND	CRQL (ug/L)	
Dichlorodifluoromethane	0.5	UJ
Chloromethane	0.5	UJ
Vinyl Chloride H	0.5	21 J
Bromomethane	0.5	UJ
Chloroethane	0.5	UJ
Trichlorofluoromethane	0.5	UJ
Freon-113	0.5	UJ
1,1-Dichloroethene H	0.5	UJ
Methylene Chloride	0.5	UJ
Trans-1,2-Dichloroethene H	0.5	UJ
1,1-Dichloroethane	0.5	UJ
Cis-1,2-Dichloroethene H	0.5	230 J*
Chloroform	0.5	UJ
1,1,1-Trichloroethane	0.5	UJ
Carbon Tetrachloride	0.5	UJ
1,2-Dichloroethane	0.5	UJ
Trichloroethene H	0.5	33 J
1,2-Dichloropropane	0.5	UJ
Bromodichloroemethane	0.5	UJ
Cis-1,3-Dichloropropene H	0.5	UJ
Trans-1,3-Dichloropropene	0.5	UJ
1,1,2-Trichloroethane	0.5	UJ
Tetrachloroethene H	0.5	UJ
Dibromochloromethane	0.5	UJ
Chlorobenzene H	0.5	UJ
Bromoform	0.5	UJ
1,1,2,2-Tetrachloroethane	0.5	UJ
1,3-Dichlorobenzene H	0.5	UJ
1,4-Dichlorobenzene H	0.5	UJ
1,2-Dichlorobenzene H	0.5	UJ
Benzene	0.5	3.1 J
Toluene	0.5	2.1 J
Ethylbenzene	0.5	UJ
Xylene (total)	1.0	6.5 J
Styrene	0.5	UJ

ROY F. WESTON, INC.
601/602 VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46393

Client Sample ID:		GWA7R28	GWA7S10	GWA7S20	GWA7S28	GWA7T28	GWB3(10–12)	GWB320
Matrix:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor:		1	1	1	1	1	2500	500
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)							
Dichlorodifluoromethane	0.5						UJ	UJ
Chloromethane	0.5	0.9	0.8	1.1	0.8		UJ	UJ
Vinyl Chloride H	0.5		0.8	1.4		0.6	UJ	770 J
Bromomethane	0.5			0.7			2300 J	UJ
Chloroethane	0.5						UJ	UJ
Trichlorofluoromethane	0.5		0.5				UJ	UJ
Freon–113	0.5		0.6	1.1			UJ	340 J
1,1–Dichloroethene H	0.5						UJ	UJ
Methylene Chloride	0.5						UJ	UJ
Trans–1,2–Dichloroethene H	0.5						UJ	UJ
1,1–Dichloroethane	0.5				0.8		UJ	UJ
Cis–1,2–Dichloroethene H	0.5		16	27	1.2		65000 J	13000 J
Chloroform	0.5					5.1	UJ	UJ
1,1,1–Trichloroethane	0.5		0.9	2.8			UJ	UJ
Carbon Tetrachloride	0.5						UJ	UJ
1,2–Dichloroethane	0.5	1.2	1.5	2.1			UJ	UJ
Trichloroethene H	0.5		8.3	7.7			UJ	400 J
1,2–Dichloropropane	0.5						UJ	UJ
Bromodichloroemethane	0.5						UJ	UJ
Cis–1,3–Dichloropropene H	0.5						UJ	UJ
Trans–1,3–Dichloropropene	0.5						UJ	UJ
1,1,2–Trichloroethane	0.5						UJ	UJ
Tetrachloroethene H	0.5						UJ	UJ
Dibromochloromethane	0.5						UJ	UJ
Chlorobenzene H	0.5						UJ	UJ
Bromoform	0.5						UJ	UJ
1,1,2,2–Tetrachloroethane	0.5						UJ	UJ
1,3–Dichlorobenzene H	0.5						UJ	UJ
1,4–Dichlorobenzene H	0.5						UJ	UJ
1,2–Dichlorobenzene H	0.5						UJ	UJ
Benzene	0.5						UJ	UJ
Toluene	0.5						14000 J	880 J
Ethylbenzene	0.5						UJ	270 J
Xylene (total)	1.0						2300 J	420 J
Styrene	0.5						UJ	UJ

ROY F. WESTON, INC.
601/602 VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46393

Client Sample ID:		GWB330	GWB6S10	GWB6T10	GWC5R33–35	GWC5S10	GWC5S10D	GWC5S20
Matrix:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
Dilution Factor:		20	2	1	1	25	1	10
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)							
Dichlorodifluoromethane	0.5	UJ		UJ		UJ	UJ	UJ
Chloromethane	0.5	UJ		UJ		UJ	UJ	UJ
Vinyl Chloride H	0.5	UJ		UJ		320 J	180 J	120 J
Bromomethane	0.5	UJ		UJ		UJ	UJ	UJ
Chloroethane	0.5	UJ		UJ		UJ	UJ	UJ
Trichlorofluoromethane	0.5	UJ		UJ		UJ	UJ	UJ
Freon–113	0.5	UJ	1.3	UJ		UJ	UJ	UJ
1,1–Dichloroethene H	0.5	UJ		UJ		UJ	UJ	UJ
Methylene Chloride	0.5	UJ		UJ		UJ	UJ	UJ
Trans–1,2–Dichloroethene H	0.5	UJ		UJ		UJ	UJ	UJ
1,1–Dichloroethane	0.5	UJ		UJ		UJ	UJ	UJ
Cis–1,2–Dichloroethene H	0.5	410 J	40	UJ		440 J	430 J	210 J
Chloroform	0.5	UJ		5 J	4	UJ	UJ	UJ
1,1,1–Trichloroethane	0.5	UJ	1.1	UJ		UJ	UJ	UJ
Carbon Tetrachloride	0.5	UJ		UJ		UJ	UJ	UJ
1,2–Dichloroethane	0.5	UJ	1.4	UJ	1.2	UJ	UJ	UJ
Trichloroethene H	0.5	UJ	67	UJ		61 J	73 J	26 J
1,2–Dichloropropane	0.5	UJ		UJ		UJ	UJ	UJ
Bromodichloroemethane	0.5	UJ		UJ	1.2	UJ	UJ	UJ
Cis–1,3–Dichloropropene H	0.5	UJ		UJ		UJ	UJ	UJ
Trans–1,3–Dichloropropene	0.5	UJ		UJ		UJ	UJ	UJ
1,1,2–Trichloroethane	0.5	UJ		UJ		UJ	UJ	UJ
Tetrachloroethene H	0.5	UJ		UJ		UJ	UJ	UJ
Dibromochloromethane	0.5	UJ		UJ	0.6	UJ	UJ	UJ
Chlorobenzene H	0.5	UJ		UJ		UJ	UJ	UJ
Bromoform	0.5	UJ		UJ		UJ	UJ	UJ
1,1,2,2–Tetrachloroethane	0.5	UJ		UJ		UJ	UJ	UJ
1,3–Dichlorobenzene H	0.5	UJ		UJ		UJ	UJ	UJ
1,4–Dichlorobenzene H	0.5	UJ		UJ		UJ	UJ	UJ
1,2–Dichlorobenzene H	0.5	UJ		UJ		UJ	UJ	UJ
Benzene	0.5	UJ		UJ		UJ	UJ	5.1 J
Toluene	0.5	25 J		UJ	0.7	UJ	UJ	UJ
Ethylbenzene	0.5	UJ		UJ		UJ	UJ	UJ
Xylene (total)	1.0	UJ		UJ		UJ	UJ	UJ
Styrene	0.5	UJ		UJ		UJ	UJ	UJ

ROY F. WESTON, INC.
601/602 VOLATILE ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
SITE: WEST LOT
CASE: 94000 / SDG: 46393

Client Sample ID:		GWC5T30	SSA5R(45-47)	SSB3R43-43.5	TB
Matrix:		WATER	WATER	WATER	WATER
Dilution Factor:		1	1	1	1
Units:		ug/L	ug/L	ug/L	ug/L
COMPOUND	CRQL (ug/L)				
Dichlorodifluoromethane	0.5				
Chloromethane	0.5				
Vinyl Chloride H	0.5				
Bromomethane	0.5		1		
Chloroethane	0.5				
Trichlorofluoromethane	0.5				
Freon-113	0.5				
1,1-Dichloroethene H	0.5				
Methylene Chloride	0.5				
Trans-1,2-Dichloroethene H	0.5				
1,1-Dichloroethane	0.5				
Cis-1,2-Dichloroethene H	0.5		0.6	0.5	
Chloroform	0.5	2.3	4.9		5.4
1,1,1-Trichloroethane	0.5				
Carbon Tetrachloride	0.5				
1,2-Dichloroethane	0.5		2.6	2.2	
Trichloroethene H	0.5				
1,2-Dichloropropane	0.5				
Bromodichloroemethane	0.5		1.7		
Cis-1,3-Dichloropropene H	0.5				
Trans-1,3-Dichloropropene	0.5				
1,1,2-Trichloroethane	0.5				
Tetrachloroethene H	0.5				
Dibromochloromethane	0.5		1.1		
Chlorobenzene H	0.5				
Bromoform	0.5				
1,1,2,2-Tetrachloroethane	0.5				
1,3-Dichlorobenzene H	0.5				
1,4-Dichlorobenzene H	0.5				
1,2-Dichlorobenzene H	0.5				
Benzene	0.5				
Toluene	0.5		1		
Ethylbenzene	0.5				
Xylene (total)	1.0				
Styrene	0.5				

ROY F. WESTON, INC.
TOC ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46393

Client Sample ID:	SSB3(10–12)	SSB3(20–22)	SSB3(32–34)	SSC5S(10–12)	SSC5S20–22	SSA7S20–22	SSA7S28–30	SSC534–36
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Dilution Factor:	1	1	1	1	1	1	1	1
Units:	h*	h*	h*	h*	h*	h*	h*	h*
COMPOUND								
TOC	2	1.42	2.1	0.88	1.34	0.73	0.86	1.3

h* = % W/W dry

ROY F. WESTON, INC.
TOC ANALYSES – DATA VALIDATION SUMMARY

CLIENT: BLASLAND, BOUCK & LEE
WEST LOT SITE
CASE: 94000 / SDG: 46393

Client Sample ID:	SSB6S10
Matrix:	SOIL
Dilution Factor:	1
Units:	h*

COMPOUND	
TOC	1.25

h* = % W/W dry

ATTACHMENT III
FORM I's

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA44-6

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232949

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N232949V.D

Level: (low/med) LOW Date Received: 08/31/94

% Moisture: not dec. 13 Date Analyzed: 09/06/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	4	JB
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	1	J
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	3	J
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	26	
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	12	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA44-6

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232949

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N232949V.D

Level: (low/med) LOW Date Received: 08/31/94

% Moisture: not dec. 13 Date Analyzed: 09/06/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 142-82-5	Heptane	7.957	12	NJ
2.	Unknown alkane	8.439	34	J
3. 108-87-2	Cyclohexane, methyl-	8.664	140	NJ
4.	Unknown trimethylcyclopentan	8.939	58	J
5.	Unknown trimethylcyclopentan	9.129	42	J
6.	Unknown alkane	9.336	18	J
7.	Unknown alkane	9.525	21	J
8.	Unknown cycloalkane	10.008	12	J
9.	Unknown cycloalkane	10.232	10	J
10.	Unknown cycloalkane	10.904	8	J
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA50-2

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232950

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N232950V.D

Level: (low/med) LOW Date Received: 08/31/94

% Moisture: not dec. 10 Date Analyzed: 09/06/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	3	JB
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA50-2

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232950

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N232950V.D

Level: (low/med) LOW Date Received: 08/31/94

% Moisture: not dec. 10 Date Analyzed: 09/06/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB315-17

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232953

Sample wt/vol: 1.5 (g/mL) G Lab File ID: N232953D2V.D

Level: (low/med) LOW Date Received: 08/31/94

% Moisture: not dec. 0 Date Analyzed: 09/07/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	33	U
74-83-9	Bromomethane	33	U
75-01-4	Vinyl Chloride	11	J
75-00-3	Chloroethane	33	U
75-09-2	Methylene Chloride	33	U
67-64-1	Acetone	20	JB
75-15-0	Carbon Disulfide	33	U
75-35-4	1,1-Dichloroethene	33	U
75-34-3	1,1-Dichloroethane	33	U
540-59-0	1,2-Dichloroethene (total)	560	
67-66-3	Chloroform	33	U
107-06-2	1,2-Dichloroethane	33	U
78-93-3	2-Butanone	33	U
71-55-6	1,1,1-Trichloroethane	11	J
56-23-5	Carbon Tetrachloride	33	U
75-27-4	Bromodichloromethane	33	U
78-87-5	1,2-Dichloropropane	33	U
10061-01-5	cis-1,3-Dichloropropene	33	U
79-01-6	Trichloroethene	52	
124-48-1	Dibromochloromethane	33	U
79-00-5	1,1,2-Trichloroethane	33	U
71-43-2	Benzene	33	U
10061-02-6	trans-1,3-Dichloropropene	33	U
75-25-2	Bromoform	33	U
108-10-1	4-Methyl-2-Pentanone	33	U
591-78-6	2-Hexanone	33	U
127-18-4	Tetrachloroethene	3	J
79-34-5	1,1,2,2-Tetrachloroethane	33	U
108-88-3	Toluene	200	
108-90-7	Chlorobenzene	33	U
100-41-4	Ethylbenzene	34	
100-42-5	Styrene	33	U
1330-20-7	Xylene (total)	96	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB315-17

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232953

Sample wt/vol: 1.5 (g/mL) G Lab File ID: N232953D2V.D

Level: (low/med) LOW Date Received: 08/31/94

% Moisture: not dec. 0 Date Analyzed: 09/07/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA14-6

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233054

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N232054V.D

Level: (low/med) LOW Date Received: 09/02/94

% Moisture: not dec. 11 Date Analyzed: 09/07/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	2	JB
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA14-6

Lab Name: AQUATEC, INC.   Contract: 94000

Lab Code: AQUAI   Case No.: 94000   SAS No.:   SDG No.: 46393

Matrix: (soil/water) SOIL   Lab Sample ID: 233054

Sample wt/vol: 5.0 (g/mL) G   Lab File ID: N232054V.D

Level: (low/med) LOW   Date Received: 09/02/94

% Moisture: not dec. 11   Date Analyzed: 09/07/94

GC Column:CAP   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: _______(uL)   Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
Number TICs found: 0   (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA2S6-8

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233456

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233456V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 9 Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	5	JB
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	12	
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	38	
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA2S6-8

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233456

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233456V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 9 Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA7R35-37

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) WATER Lab Sample ID: 233457

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M233457V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. ________ Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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	5	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA7R35-37

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) WATER Lab Sample ID: 233457

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M233457V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. ________ Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSA7S4-6

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233459

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233459V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 12 Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	5	JB
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	7	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSA7S4-6

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233459

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233459V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 12 Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSD1S2-4

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233462

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233462V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 12 Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	4	JB
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSD1S2-4

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233462

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233462V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 12 Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSD2R42-44

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) WATER Lab Sample ID: 233463

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M233463V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. ________ Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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	6	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	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
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSD2R42-44

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) WATER Lab Sample ID: 233463

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M233463V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. ________ Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSD2S4-6

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233464

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233464V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 14 Date Analyzed: 09/09/94

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	7	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSD2S4-6

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233464

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233464V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 14 Date Analyzed: 09/09/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-78-6	Ethyl Acetate	6.735	17	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSD2S4-6RE

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232464R1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233464I2V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 14 Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	6	JB
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSD2S4-6RE

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 232464R1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: N233464I2V.D

Level: (low/med) LOW Date Received: 09/08/94

% Moisture: not dec. 14 Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSC5R34-36

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) WATER Lab Sample ID: 233655

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M233655V.D

Level: (low/med) LOW Date Received: 09/09/94

% Moisture: not dec. ________ Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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	11	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	5	J
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	2	J
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSC5R34-36

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) WATER Lab Sample ID: 233655

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: M233655V.D

Level: (low/med) LOW Date Received: 09/09/94

% Moisture: not dec. ________ Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

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

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSC5S15-17

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233656

Sample wt/vol: 1.5 (g/mL) G Lab File ID: N233656DV.D

Level: (low/med) LOW Date Received: 09/09/94

% Moisture: not dec. 13 Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	38	U
74-83-9	Bromomethane	38	U
75-01-4	Vinyl Chloride	34	J
75-00-3	Chloroethane	38	U
75-09-2	Methylene Chloride	38	U
67-64-1	Acetone	13	JB
75-15-0	Carbon Disulfide	38	U
75-35-4	1,1-Dichloroethene	38	U
75-34-3	1,1-Dichloroethane	38	U
540-59-0	1,2-Dichloroethene (total)	490	
67-66-3	Chloroform	38	U
107-06-2	1,2-Dichloroethane	38	U
78-93-3	2-Butanone	38	U
71-55-6	1,1,1-Trichloroethane	12	J
56-23-5	Carbon Tetrachloride	38	U
75-27-4	Bromodichloromethane	38	U
78-87-5	1,2-Dichloropropane	38	U
10061-01-5	cis-1,3-Dichloropropene	38	U
79-01-6	Trichloroethene	74	
124-48-1	Dibromochloromethane	38	U
79-00-5	1,1,2-Trichloroethane	38	U
71-43-2	Benzene	16	J
10061-02-6	trans-1,3-Dichloropropene	38	U
75-25-2	Bromoform	38	U
108-10-1	4-Methyl-2-Pentanone	38	U
591-78-6	2-Hexanone	38	U
127-18-4	Tetrachloroethene	38	U
79-34-5	1,1,2,2-Tetrachloroethane	38	U
108-88-3	Toluene	13	J
108-90-7	Chlorobenzene	38	U
100-41-4	Ethylbenzene	38	U
100-42-5	Styrene	38	U
1330-20-7	Xylene (total)	9	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSC5S15-17

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233656

Sample wt/vol: 1.5 (g/mL) G Lab File ID: N233656DV.D

Level: (low/med) LOW Date Received: 09/09/94

% Moisture: not dec. 13 Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 79-38-9	Ethene, chlorotrifluoro-	2.570	19	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I VOA-TIC 3/90

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSC5S15-17D

Lab Name: AQUATEC, INC.   Contract: 94000

Lab Code: AQUAI   Case No.: 94000   SAS No.:   SDG No.: 46393

Matrix: (soil/water) SOIL   Lab Sample ID: 233657

Sample wt/vol: 1.0 (g/mL) G   Lab File ID: N233657DV.D

Level: (low/med) LOW   Date Received: 09/09/94

% Moisture: not dec. 12   Date Analyzed: 09/13/94

GC Column:CAP   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume: _______(uL)   Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	57	U
74-83-9	Bromomethane	57	U
75-01-4	Vinyl Chloride	26	J
75-00-3	Chloroethane	57	U
75-09-2	Methylene Chloride	57	U
67-64-1	Acetone	15	JB
75-15-0	Carbon Disulfide	57	U
75-35-4	1,1-Dichloroethene	57	U
75-34-3	1,1-Dichloroethane	57	U
540-59-0	1,2-Dichloroethene (total)	870	
67-66-3	Chloroform	57	U
107-06-2	1,2-Dichloroethane	57	U
78-93-3	2-Butanone	57	U
71-55-6	1,1,1-Trichloroethane	20	J
56-23-5	Carbon Tetrachloride	57	U
75-27-4	Bromodichloromethane	57	U
78-87-5	1,2-Dichloropropane	57	U
10061-01-5	cis-1,3-Dichloropropene	57	U
79-01-6	Trichloroethene	190	
124-48-1	Dibromochloromethane	57	U
79-00-5	1,1,2-Trichloroethane	57	U
71-43-2	Benzene	19	J
10061-02-6	trans-1,3-Dichloropropene	57	U
75-25-2	Bromoform	57	U
108-10-1	4-Methyl-2-Pentanone	57	U
591-78-6	2-Hexanone	57	U
127-18-4	Tetrachloroethene	57	U
79-34-5	1,1,2,2-Tetrachloroethane	57	U
108-88-3	Toluene	12	J
108-90-7	Chlorobenzene	57	U
100-41-4	Ethylbenzene	57	U
100-42-5	Styrene	57	U
1330-20-7	Xylene (total)	15	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSC5S15-17D

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233657

Sample wt/vol: 1.0 (g/mL) G Lab File ID: N233657DV.D

Level: (low/med) LOW Date Received: 09/09/94

% Moisture: not dec. 12 Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: ______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSB6S15-17

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233660

Sample wt/vol: 3.0 (g/mL) G Lab File ID: N233660DV.D

Level: (low/med) LOW Date Received: 09/09/94

% Moisture: not dec. 9 Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	18	U
74-83-9	Bromomethane	18	U
75-01-4	Vinyl Chloride	18	U
75-00-3	Chloroethane	18	U
75-09-2	Methylene Chloride	18	U
67-64-1	Acetone	5	JB
75-15-0	Carbon Disulfide	18	U
75-35-4	1,1-Dichloroethene	18	U
75-34-3	1,1-Dichloroethane	18	U
540-59-0	1,2-Dichloroethene (total)	11	J
67-66-3	Chloroform	18	U
107-06-2	1,2-Dichloroethane	18	U
78-93-3	2-Butanone	18	U
71-55-6	1,1,1-Trichloroethane	18	U
56-23-5	Carbon Tetrachloride	18	U
75-27-4	Bromodichloromethane	18	U
78-87-5	1,2-Dichloropropane	18	U
10061-01-5	cis-1,3-Dichloropropene	18	U
79-01-6	Trichloroethene	200	
124-48-1	Dibromochloromethane	18	U
79-00-5	1,1,2-Trichloroethane	18	U
71-43-2	Benzene	18	U
10061-02-6	trans-1,3-Dichloropropene	18	U
75-25-2	Bromoform	18	U
108-10-1	4-Methyl-2-Pentanone	18	U
591-78-6	2-Hexanone	18	U
127-18-4	Tetrachloroethene	18	U
79-34-5	1,1,2,2-Tetrachloroethane	18	U
108-88-3	Toluene	5	J
108-90-7	Chlorobenzene	18	U
100-41-4	Ethylbenzene	18	U
100-42-5	Styrene	18	U
1330-20-7	Xylene (total)	18	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SSB6S15-17

Lab Name: AQUATEC, INC. Contract: 94000

Lab Code: AQUAI Case No.: 94000 SAS No.: SDG No.: 46393

Matrix: (soil/water) SOIL Lab Sample ID: 233660

Sample wt/vol: 3.0 (g/mL) G Lab File ID: N233660DV.D

Level: (low/med) LOW Date Received: 09/09/94

% Moisture: not dec. 9 Date Analyzed: 09/13/94

GC Column:CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _______(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWA7R28

Lab Name: Aquatec Inc.
Lab Sample ID: 233450
Date Analyzed: 09/13/94
Date Received: 09/08/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.9	
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	0.5	U
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	1.2	
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWA7S10

Lab Name: Aquatec Inc.
Lab Sample ID: 233451
Date Analyzed: 09/13/94
Date Received: 09/08/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.8	
75-01-4	VINYL CHLORIDE H	0.8	
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	
76131	FREON-113	0.6	
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	16.0	
67-66-3	CHLOROFORM	0.5	U
71-55-6	1,1,1-TRICHLOROETHANE	0.9	
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	1.5	
79-01-6	TRICHLOROETHENE H	8.3	
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWA7S20

Lab Name: Aquatec Inc.
Lab Sample ID: 233453
Date Analyzed: 09/13/94
Date Received: 09/08/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	1.1	
75-01-4	VINYL CHLORIDE H	1.4	
74-83-9	BROMOMETHANE	0.7	
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	1.1	
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	27	
67-66-3	CHLOROFORM	0.5	U
71-55-6	1,1,1-TRICHLOROETHANE	2.8	
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	2.1	
79-01-6	TRICHLOROETHENE H	7.7	
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

233453.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWA7S28

Lab Name: Aquatec Inc.
Lab Sample ID: 233454
Date Analyzed: 09/13/94
Date Received: 09/08/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.8	
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.8	
156-59-2	CIS-1,2-DICHLOROETHENE H	1.2	
67-66-3	CHLOROFORM	0.5	U
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	0.5	U
79-01-6	TRICHLOROETHENE H	3.6	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWA7T28

Lab Name: Aquatec Inc.
Lab Sample ID: 233455
Date Analyzed: 09/13/94
Date Received: 09/08/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.6	
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	5.1	
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	0.5	U
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWB3(10-12)

Lab Name: Aquatec Inc.
Lab Sample ID: 232946
Date Analyzed: 09/07/94
Date Received: 08/31/94
% Moisture:
Matrix(soil/water): WATER
Dilution Factor: 2500

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 0.020 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	1300	U
74-87-3	CHLOROMETHANE	1300	U
75-01-4	VINYL CHLORIDE H	1300	U
74-83-9	BROMOMETHANE	2300	
75-00-3	CHLOROETHANE	1250.0	U
75-69-4	TRICHLOROFLUOROMETHANE	1250.0	U
76131	FREON-113	1300	U
75-35-4	1,1-DICHLOROETHENE H	1250.0	U
75-09-2	METHYLENE CHLORIDE	1250.0	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	1250.0	U
75-34-3	1,1-DICHLOROETHANE	1250.0	U
156-59-2	CIS-1,2-DICHLOROETHENE H	65000	
67-66-3	CHLOROFORM	1250.0	U
71-55-6	1,1,1-TRICHLOROETHANE	1250.0	U
56-23-5	CARBON TETRACHLORIDE	1250.0	U
107-06-2	1,2-DICHLOROETHANE	1250.0	U
79-01-6	TRICHLOROETHENE H	1250.0	U
78-87-5	1,2-DICHLOROPROPANE	1250.0	U
75-27-4	BROMODICHLOROMETHANE	1250.0	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	1250.0	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	1250.0	U
79-00-5	1,1,2-TRICHLOROETHANE	1250.0	U
127-18-4	TETRACHLOROETHENE H	1250.0	U
124-48-1	DIBROMOCHLOROMETHANE	1250.0	U
108-90-7	CHLOROBENZENE H	1250.0	U
75-25-2	BROMOFORM	1250.0	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	1250.0	U
541-73-1	1,3-DICHLOROBENZENE H	1250.0	U
106-46-7	1,4-DICHLOROBENZENE H	1250.0	U
95-50-1	1,2-DICHLOROBENZENE H	1250.0	U
71-43-2	BENZENE	1250.0	U
108-88-3	TOLUENE	14000	
100-41-4	ETHYLBENZENE	1250.0	U
1330-20-7	TOTAL XYLENES	2300	
100-42-5	STYRENE	1250.0	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWB320

Lab Name: Aquatec Inc.
Lab Sample ID: 232947
Date Analyzed: 09/06/94
Date Received: 08/31/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 500

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 0.10 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	250	U
74-87-3	CHLOROMETHANE	250.0	U
75-01-4	VINYL CHLORIDE H	770	
74-83-9	BROMOMETHANE	250.0	U
75-00-3	CHLOROETHANE	250.0	U
75-69-4	TRICHLOROFLUOROMETHANE	250.0	U
76131	FREON-113	340	
75-35-4	1,1-DICHLOROETHENE H	250.0	U
75-09-2	METHYLENE CHLORIDE	250.0	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	250.0	U
75-34-3	1,1-DICHLOROETHANE	250.0	U
156-59-2	CIS-1,2-DICHLOROETHENE H	13000	
67-66-3	CHLOROFORM	250.0	U
71-55-6	1,1,1-TRICHLOROETHANE	250.0	U
56-23-5	CARBON TETRACHLORIDE	250.0	U
107-06-2	1,2-DICHLOROETHANE	250.0	U
79-01-6	TRICHLOROETHENE H	400.0	
78-87-5	1,2-DICHLOROPROPANE	250.0	U
75-27-4	BROMODICHLOROMETHANE	250.0	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	250.0	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	250.0	U
79-00-5	1,1,2-TRICHLOROETHANE	250.0	U
127-18-4	TETRACHLOROETHENE H	250.0	U
124-48-1	DIBROMOCHLOROMETHANE	250.0	U
108-90-7	CHLOROBENZENE H	250.0	U
75-25-2	BROMOFORM	250.0	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	250.0	U
541-73-1	1,3-DICHLOROBENZENE H	250.0	U
106-46-7	1,4-DICHLOROBENZENE H	250.0	U
95-50-1	1,2-DICHLOROBENZENE H	250.0	U
71-43-2	BENZENE	250.0	U
108-88-3	TOLUENE	880	
100-41-4	ETHYLBENZENE	270	
1330-20-7	TOTAL XYLENES	420	
100-42-5	STYRENE	250.0	U

232947.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWB330

Lab Name: Aquatec Inc.
Lab Sample ID: 232948
Date Analyzed: 09/06/94
Date Received: 08/31/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 20

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 2.5 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	10	U
74-87-3	CHLOROMETHANE	10.0	U
75-01-4	VINYL CHLORIDE H	10.0	U
74-83-9	BROMOMETHANE	10.0	U
75-00-3	CHLOROETHANE	10.0	U
75-69-4	TRICHLOROFLUOROMETHANE	10.0	U
76131	FREON-113	10.0	U
75-35-4	1,1-DICHLOROETHENE H	10.0	U
75-09-2	METHYLENE CHLORIDE	10.0	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	10.0	U
75-34-3	1,1-DICHLOROETHANE	10.0	U
156-59-2	CIS-1,2-DICHLOROETHENE H	410	
67-66-3	CHLOROFORM	10.0	U
71-55-6	1,1,1-TRICHLOROETHANE	10.0	U
56-23-5	CARBON TETRACHLORIDE	10.0	U
107-06-2	1,2-DICHLOROETHANE	10.0	U
79-01-6	TRICHLOROETHENE H	10.0	U
78-87-5	1,2-DICHLOROPROPANE	10.0	U
75-27-4	BROMODICHLOROMETHANE	10.0	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	10.0	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	10.0	U
79-00-5	1,1,2-TRICHLOROETHANE	10.0	U
127-18-4	TETRACHLOROETHENE H	10.0	U
124-48-1	DIBROMOCHLOROMETHANE	10.0	U
108-90-7	CHLOROBENZENE H	10.0	U
75-25-2	BROMOFORM	10.0	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	10.0	U
541-73-1	1,3-DICHLOROBENZENE H	10.0	U
106-46-7	1,4-DICHLOROBENZENE H	10.0	U
95-50-1	1,2-DICHLOROBENZENE H	10.0	U
71-43-2	BENZENE	10.0	U
108-88-3	TOLUENE	25	
100-41-4	ETHYLBENZENE	10.0	U
1330-20-7	TOTAL XYLENES	20.0	U
100-42-5	STYRENE	10.0	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWB6S10

Lab Name: Aquatec Inc.
Lab Sample ID: 233651
Date Analyzed: 09/14/94
Date Received: 09/09/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 2.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 25.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	1.0	U
74-87-3	CHLOROMETHANE	1.0	U
75-01-4	VINYL CHLORIDE H	1.0	U
74-83-9	BROMOMETHANE	1.0	U
75-00-3	CHLOROETHANE	1.0	U
75-69-4	TRICHLOROFLUOROMETHANE	1.0	U
76131	FREON-113	1.3	
75-35-4	1,1-DICHLOROETHENE H	1.0	U
75-09-2	METHYLENE CHLORIDE	1.0	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	1.0	U
75-34-3	1,1-DICHLOROETHANE	1.0	U
156-59-2	CIS-1,2-DICHLOROETHENE H	40	
67-66-3	CHLOROFORM	1.0	U
71-55-6	1,1,1-TRICHLOROETHANE	1.1	
56-23-5	CARBON TETRACHLORIDE	1.0	U
107-06-2	1,2-DICHLOROETHANE	1.4	
79-01-6	TRICHLOROETHENE H	67	
78-87-5	1,2-DICHLOROPROPANE	1.0	U
75-27-4	BROMODICHLOROMETHANE	1.0	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	1.0	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	1.0	U
79-00-5	1,1,2-TRICHLOROETHANE	1.0	U
127-18-4	TETRACHLOROETHENE H	1.0	U
124-48-1	DIBROMOCHLOROMETHANE	1.0	U
108-90-7	CHLOROBENZENE H	1.0	U
75-25-2	BROMOFORM	1.0	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	1.0	U
541-73-1	1,3-DICHLOROBENZENE H	1.0	U
106-46-7	1,4-DICHLOROBENZENE H	1.0	U
95-50-1	1,2-DICHLOROBENZENE H	1.0	U
71-43-2	BENZENE	1.0	U
108-88-3	TOLUENE	1.0	U
100-41-4	ETHYLBENZENE	1.0	U
1330-20-7	TOTAL XYLENES	2.0	U
100-42-5	STYRENE	1.0	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWB6T10

Lab Name: Aquatec Inc.
Lab Sample ID: 233652
Date Analyzed: 09/14/94
Date Received: 09/09/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L)	ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE		0.5	U
74-87-3	CHLOROMETHANE		0.5	U
75-01-4	VINYL CHLORIDE H		0.5	U
74-83-9	BROMOMETHANE		0.5	U
75-00-3	CHLOROETHANE		0.5	U
75-69-4	TRICHLOROFLUOROMETHANE		0.5	U
76131	FREON-113		0.5	U
75-35-4	1,1-DICHLOROETHENE H		0.5	U
75-09-2	METHYLENE CHLORIDE		0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H		0.5	U
75-34-3	1,1-DICHLOROETHANE		0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H		0.5	U
67-66-3	CHLOROFORM		5.0	
71-55-6	1,1,1-TRICHLOROETHANE		0.5	U
56-23-5	CARBON TETRACHLORIDE		0.5	U
107-06-2	1,2-DICHLOROETHANE		0.5	U
79-01-6	TRICHLOROETHENE H		0.5	U
78-87-5	1,2-DICHLOROPROPANE		0.5	U
75-27-4	BROMODICHLOROMETHANE		0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H		0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H		0.5	U
79-00-5	1,1,2-TRICHLOROETHANE		0.5	U
127-18-4	TETRACHLOROETHENE H		0.5	U
124-48-1	DIBROMOCHLOROMETHANE		0.5	U
108-90-7	CHLOROBENZENE H		0.5	U
75-25-2	BROMOFORM		0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE		0.5	U
541-73-1	1,3-DICHLOROBENZENE H		0.5	U
106-46-7	1,4-DICHLOROBENZENE H		0.5	U
95-50-1	1,2-DICHLOROBENZENE H		0.5	U
71-43-2	BENZENE		0.5	U
108-88-3	TOLUENE		0.5	U
100-41-4	ETHYLBENZENE		0.5	U
1330-20-7	TOTAL XYLENES		1.0	U
100-42-5	STYRENE		0.5	U

233652.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWC5R33-35

Lab Name: Aquatec Inc.
Lab Sample ID: 233653
Date Analyzed: 09/14/94
Date Received: 09/09/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L)	ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE		0.5	U
74-87-3	CHLOROMETHANE		0.5	U
75-01-4	VINYL CHLORIDE H		0.5	U
74-83-9	BROMOMETHANE		0.5	U
75-00-3	CHLOROETHANE		0.5	U
75-69-4	TRICHLOROFLUOROMETHANE		0.5	U
76131	FREON-113		0.5	U
75-35-4	1,1-DICHLOROETHENE H		0.5	U
75-09-2	METHYLENE CHLORIDE		0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H		0.5	U
75-34-3	1,1-DICHLOROETHANE		0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H		0.5	U
67-66-3	CHLOROFORM		4.0	
71-55-6	1,1,1-TRICHLOROETHANE		0.5	U
56-23-5	CARBON TETRACHLORIDE		0.5	U
107-06-2	1,2-DICHLOROETHANE		1.2	
79-01-6	TRICHLOROETHENE H		0.5	U
78-87-5	1,2-DICHLOROPROPANE		0.5	U
75-27-4	BROMODICHLOROMETHANE		1.2	
10061-01-5	CIS-1,3-DICHLOROPROPENE H		0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H		0.5	U
79-00-5	1,1,2-TRICHLOROETHANE		0.5	U
127-18-4	TETRACHLOROETHENE H		0.5	U
124-48-1	DIBROMOCHLOROMETHANE		0.6	
108-90-7	CHLOROBENZENE H		0.5	U
75-25-2	BROMOFORM		0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE		0.5	U
541-73-1	1,3-DICHLOROBENZENE H		0.5	U
106-46-7	1,4-DICHLOROBENZENE H		0.5	U
95-50-1	1,2-DICHLOROBENZENE H		0.5	U
71-43-2	BENZENE		0.5	U
108-88-3	TOLUENE		0.7	
100-41-4	ETHYLBENZENE		0.5	U
1330-20-7	TOTAL XYLENES		1.0	U
100-42-5	STYRENE		0.5	U

VSC 9/13

~~000658~~ 000668

233653.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWC5S10

Lab Name: Aquatec Inc.
Lab Sample ID: 233050
Date Analyzed: 09/07/94
Date Received: 09/02/94
% Moisture:
Matrix(soil/water): WATER
Dilution Factor: 25

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 2.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	13	U
74-87-3	CHLOROMETHANE	13	U
75-01-4	VINYL CHLORIDE H	320	
74-83-9	BROMOMETHANE	13	U
75-00-3	CHLOROETHANE	13	U
75-69-4	TRICHLOROFLUOROMETHANE	13	U
76131	FREON-113	13	U
75-35-4	1,1-DICHLOROETHENE H	12.5	U
75-09-2	METHYLENE CHLORIDE	12.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	12.5	U
75-34-3	1,1-DICHLOROETHANE	12.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	440	
67-66-3	CHLOROFORM	12.5	U
71-55-6	1,1,1-TRICHLOROETHANE	12.5	U
56-23-5	CARBON TETRACHLORIDE	12.5	U
107-06-2	1,2-DICHLOROETHANE	12.5	U
79-01-6	TRICHLOROETHENE H	61.0	
78-87-5	1,2-DICHLOROPROPANE	61	U
75-27-4	BROMODICHLOROMETHANE	12.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	12.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	12.5	U
79-00-5	1,1,2-TRICHLOROETHANE	12.5	U
127-18-4	TETRACHLOROETHENE H	12.5	U
124-48-1	DIBROMOCHLOROMETHANE	12.5	U
108-90-7	CHLOROBENZENE H	12.5	U
75-25-2	BROMOFORM	12.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	12.5	U
541-73-1	1,3-DICHLOROBENZENE H	12.5	U
106-46-7	1,4-DICHLOROBENZENE H	12.5	U
95-50-1	1,2-DICHLOROBENZENE H	12.5	U
71-43-2	BENZENE	12.5	U
108-88-3	TOLUENE	12.5	U
100-41-4	ETHYLBENZENE	12.5	U
1330-20-7	TOTAL XYLENES	12.5	U
100-42-5	STYRENE	12.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

GWC5S10D

Lab Name: Aquatec Inc.
Lab Sample ID: 233051
Date Analyzed: 09/07/94
Date Received: 09/02/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 25

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 2.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	13	U
74-87-3	CHLOROMETHANE	13	U
75-01-4	VINYL CHLORIDE H	180	
74-83-9	BROMOMETHANE	13	U
75-00-3	CHLOROETHANE	13	U
75-69-4	TRICHLOROFLUOROMETHANE	13	U
76131	FREON-113	13	U
75-35-4	1,1-DICHLOROETHENE H	13	U
75-09-2	METHYLENE CHLORIDE	13	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	13	U
75-34-3	1,1-DICHLOROETHANE	13	U
156-59-2	CIS-1,2-DICHLOROETHENE H	430	
67-66-3	CHLOROFORM	12.5	U
71-55-6	1,1,1-TRICHLOROETHANE	12.5	U
56-23-5	CARBON TETRACHLORIDE	12.5	U
107-06-2	1,2-DICHLOROETHANE	12.5	U
79-01-6	TRICHLOROETHENE H	73	
78-87-5	1,2-DICHLOROPROPANE	12.5	U
75-27-4	BROMODICHLOROMETHANE	12.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	12.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	12.5	U
79-00-5	1,1,2-TRICHLOROETHANE	12.5	U
127-18-4	TETRACHLOROETHENE H	12.5	U
124-48-1	DIBROMOCHLOROMETHANE	12.5	U
108-90-7	CHLOROBENZENE H	12.5	U
75-25-2	BROMOFORM	12.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	12.5	U
541-73-1	1,3-DICHLOROBENZENE H	12.5	U
106-46-7	1,4-DICHLOROBENZENE H	12.5	U
95-50-1	1,2-DICHLOROBENZENE H	12.5	U
71-43-2	BENZENE	12.5	U
108-88-3	TOLUENE	12.5	U
100-41-4	ETHYLBENZENE	12.5	U
1330-20-7	TOTAL XYLENES	12.5	U
100-42-5	STYRENE	12.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWC5S20

Lab Name: Aquatec Inc.
Lab Sample ID: 233052
Date Analyzed: 09/07/94
Date Received: 09/02/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 10

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	5.0	U
74-87-3	CHLOROMETHANE	5.0	U
75-01-4	VINYL CHLORIDE H	120	
74-83-9	BROMOMETHANE	5.0	U
75-00-3	CHLOROETHANE	5.0	U
75-69-4	TRICHLOROFLUOROMETHANE	5.0	U
76131	FREON-113	5.0	U
75-35-4	1,1-DICHLOROETHENE H	5.0	U
75-09-2	METHYLENE CHLORIDE	5.0	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	5.0	U
75-34-3	1,1-DICHLOROETHANE	5.0	U
156-59-2	CIS-1,2-DICHLOROETHENE H	210	
67-66-3	CHLOROFORM	5.0	U
71-55-6	1,1,1-TRICHLOROETHANE	5.0	U
56-23-5	CARBON TETRACHLORIDE	5.0	U
107-06-2	1,2-DICHLOROETHANE	5.0	U
79-01-6	TRICHLOROETHENE H	26	
78-87-5	1,2-DICHLOROPROPANE	5.0	U
75-27-4	BROMODICHLOROMETHANE	5.0	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	5.0	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	5.0	U
79-00-5	1,1,2-TRICHLOROETHANE	5.0	U
127-18-4	TETRACHLOROETHENE H	5.0	U
124-48-1	DIBROMOCHLOROMETHANE	5.0	U
108-90-7	CHLOROBENZENE H	5.0	U
75-25-2	BROMOFORM	5.0	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.0	U
541-73-1	1,3-DICHLOROBENZENE H	5.0	U
106-46-7	1,4-DICHLOROBENZENE H	5.0	U
95-50-1	1,2-DICHLOROBENZENE H	5.0	U
71-43-2	BENZENE	5.1	
108-88-3	TOLUENE	5.0	U
100-41-4	ETHYLBENZENE	5.0	U
1330-20-7	TOTAL XYLENES	10.0	U
100-42-5	STYRENE	5.0	U

233052.XLS

000723

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: GWC5T30

Lab Name: Aquatec Inc.
Lab Sample ID: 233053
Date Analyzed: 09/07/94
Date Received: 09/02/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	U
67-66-3	CHLOROFORM	2.3	
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	0.5	U
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

000741

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

SSA5R(45-47)

Lab Name: Aquatec Inc.
Lab Sample ID: 232951
Date Analyzed: 09/06/94
Date Received: 08/31/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L)	ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE		0.5	U
74-87-3	CHLOROMETHANE		0.5	U
75-01-4	VINYL CHLORIDE H		0.5	U
74-83-9	BROMOMETHANE		1.0	
75-00-3	CHLOROETHANE		0.5	U
75-69-4	TRICHLOROFLUOROMETHANE		0.5	U
76131	FREON-113		0.5	U
75-35-4	1,1-DICHLOROETHENE H		0.5	U
75-09-2	METHYLENE CHLORIDE		0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H		0.5	U
75-34-3	1,1-DICHLOROETHANE		0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H		0.6	
67-66-3	CHLOROFORM		4.9	
71-55-6	1,1,1-TRICHLOROETHANE		0.5	U
56-23-5	CARBON TETRACHLORIDE		0.5	U
107-06-2	1,2-DICHLOROETHANE		2.6	
79-01-6	TRICHLOROETHENE H		0.5	U
78-87-5	1,2-DICHLOROPROPANE		0.5	U
75-27-4	BROMODICHLOROMETHANE		1.7	
10061-01-5	CIS-1,3-DICHLOROPROPENE H		0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H		0.5	U
79-00-5	1,1,2-TRICHLOROETHANE		0.5	U
127-18-4	TETRACHLOROETHENE H		0.5	U
124-48-1	DIBROMOCHLOROMETHANE		1.1	
108-90-7	CHLOROBENZENE H		0.5	U
75-25-2	BROMOFORM		0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE		0.5	U
541-73-1	1,3-DICHLOROBENZENE H		0.5	U
106-46-7	1,4-DICHLOROBENZENE H		0.5	U
95-50-1	1,2-DICHLOROBENZENE H		0.5	U
71-43-2	BENZENE		0.5	U
108-88-3	TOLUENE		1.0	
100-41-4	ETHYLBENZENE		0.5	U
1330-20-7	TOTAL XYLENES		1.0	U
100-42-5	STYRENE		0.5	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

SSB3R43-43.5

Lab Name: Aquatec Inc.
Lab Sample ID: 233055
Date Analyzed: 09/07/94
Date Received: 09/02/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE	0.5	U
74-87-3	CHLOROMETHANE	0.5	U
75-01-4	VINYL CHLORIDE H	0.5	U
74-83-9	BROMOMETHANE	0.5	U
75-00-3	CHLOROETHANE	0.5	U
75-69-4	TRICHLOROFLUOROMETHANE	0.5	U
76131	FREON-113	0.5	U
75-35-4	1,1-DICHLOROETHENE H	0.5	U
75-09-2	METHYLENE CHLORIDE	0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	0.5	U
75-34-3	1,1-DICHLOROETHANE	0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H	0.5	
67-66-3	CHLOROFORM	0.5	U
71-55-6	1,1,1-TRICHLOROETHANE	0.5	U
56-23-5	CARBON TETRACHLORIDE	0.5	U
107-06-2	1,2-DICHLOROETHANE	2.2	
79-01-6	TRICHLOROETHENE H	0.5	U
78-87-5	1,2-DICHLOROPROPANE	0.5	U
75-27-4	BROMODICHLOROMETHANE	0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	0.5	U
79-00-5	1,1,2-TRICHLOROETHANE	0.5	U
127-18-4	TETRACHLOROETHENE H	0.5	U
124-48-1	DIBROMOCHLOROMETHANE	0.5	U
108-90-7	CHLOROBENZENE H	0.5	U
75-25-2	BROMOFORM	0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	0.5	U
541-73-1	1,3-DICHLOROBENZENE H	0.5	U
106-46-7	1,4-DICHLOROBENZENE H	0.5	U
95-50-1	1,2-DICHLOROBENZENE H	0.5	U
71-43-2	BENZENE	0.5	U
108-88-3	TOLUENE	0.5	U
100-41-4	ETHYLBENZENE	0.5	U
1330-20-7	TOTAL XYLENES	1.0	U
100-42-5	STYRENE	0.5	U

233055.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: SSC5S33-35

Lab Name: Aquatec Inc.
Lab Sample ID: 233658
Date Analyzed: 09/15/94
Date Received: 09/09/94
% Moisture: 89
Matrix(soil/water): SOIL

Dilution Factor: 2.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 2.50 (g/mL) G
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/Kg	Q
75-71-8	DICHLORODIFLUOROMETHANE	1.2	U
74-87-3	CHLOROMETHANE	1.2	U
75-01-4	VINYL CHLORIDE H	21	
74-83-9	BROMOMETHANE	1.2	U
75-00-3	CHLOROETHANE	1.2	U
75-69-4	TRICHLOROFLUOROMETHANE	1.2	U
76131	FREON-113	1.2	U
75-35-4	1,1-DICHLOROETHENE H	1.2	U
75-09-2	METHYLENE CHLORIDE	1.2	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	1.2	U
75-34-3	1,1-DICHLOROETHANE	1.2	U
156-59-2	CIS-1,2-DICHLOROETHENE H	160	X
67-66-3	CHLOROFORM	1.2	U
71-55-6	1,1,1-TRICHLOROETHANE	1.2	U
56-23-5	CARBON TETRACHLORIDE	1.2	U
107-06-2	1,2-DICHLOROETHANE	1.2	U
79-01-6	TRICHLOROETHENE H	33	
78-87-5	1,2-DICHLOROPROPANE	1.2	U
75-27-4	BROMODICHLOROMETHANE	1.2	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	1.2	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	1.2	U
79-00-5	1,1,2-TRICHLOROETHANE	1.2	U
127-18-4	TETRACHLOROETHENE H	1.2	U
124-48-1	DIBROMOCHLOROMETHANE	1.2	U
108-90-7	CHLOROBENZENE H	1.2	U
75-25-2	BROMOFORM	1.2	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	1.2	U
541-73-1	1,3-DICHLOROBENZENE H	1.2	U
106-46-7	1,4-DICHLOROBENZENE H	1.2	U
95-50-1	1,2-DICHLOROBENZENE H	1.2	U
71-43-2	BENZENE	3.1	
108-88-3	TOLUENE	2.1	
100-41-4	ETHYLBENZENE	1.2	U
1330-20-7	TOTAL XYLENES	6.5	
100-42-5	STYRENE	1.2	U

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.

SSC5S33-35DL

Lab Name: Aquatec Inc.
Lab Sample ID: 233658D1
Date Analyzed: 09/25/94
Date Received: 09/09/94
% Moisture: 89
Matrix(soil/water): SOIL

Dilution Factor: 5.0

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 1.00 (g/mL) G
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L) ug/Kg	Q
75-71-8	DICHLORODIFLUOROMETHANE	2.8	U
74-87-3	CHLOROMETHANE	2.8	U
75-01-4	VINYL CHLORIDE H	28	D
74-83-9	BROMOMETHANE	2.8	U
75-00-3	CHLOROETHANE	2.8	U
75-69-4	TRICHLOROFLUOROMETHANE	2.8	U
76131	FREON-113	2.8	U
75-35-4	1,1-DICHLOROETHENE H	2.8	U
75-09-2	METHYLENE CHLORIDE	2.8	U
156-60-5	TRANS-1,2-DICHLOROETHENE H	2.8	U
75-34-3	1,1-DICHLOROETHANE	2.8	U
156-59-2	CIS-1,2-DICHLOROETHENE H	230	D
67-66-3	CHLOROFORM	2.8	U
71-55-6	1,1,1-TRICHLOROETHANE	2.8	U
56-23-5	CARBON TETRACHLORIDE	2.8	U
107-06-2	1,2-DICHLOROETHANE	2.8	U
79-01-6	TRICHLOROETHENE H	40	D
78-87-5	1,2-DICHLOROPROPANE	2.8	U
75-27-4	BROMODICHLOROMETHANE	2.8	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H	2.8	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H	2.8	U
79-00-5	1,1,2-TRICHLOROETHANE	2.8	U
127-18-4	TETRACHLOROETHENE H	2.8	U
124-48-1	DIBROMOCHLOROMETHANE	2.8	U
108-90-7	CHLOROBENZENE H	2.8	U
75-25-2	BROMOFORM	2.8	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	2.8	U
541-73-1	1,3-DICHLOROBENZENE H	2.8	U
106-46-7	1,4-DICHLOROBENZENE H	2.8	U
95-50-1	1,2-DICHLOROBENZENE H	2.8	U
71-43-2	BENZENE	5.5	D
108-88-3	TOLUENE	2.8	U
100-41-4	ETHYLBENZENE	2.8	U
1330-20-7	TOTAL XYLENES	5.6	U
100-42-5	STYRENE	2.8	U

233658D.XLS

601/602 VOLATILE ORGANICS ANALYSIS SHEET

Client I.D.: TB

Lab Name: Aquatec Inc.
Lab Sample ID: 232956
Date Analyzed: 09/06/94
Date Received: 08/31/94
% Moisture:
Matrix(soil/water): WATER

Dilution Factor: 1

Contract No.: 94000
Case No.: 94000
SDG No: 46393
Sample wt/vol: 5.0 (g/mL) ML
Soil Extract Volume: (uL)
Soil Aliquot Volume: (uL)

CAS No.	Compund Name	(ug/Kg or ug/L)	ug/L	Q
75-71-8	DICHLORODIFLUOROMETHANE		0.5	U
74-87-3	CHLOROMETHANE		0.5	U
75-01-4	VINYL CHLORIDE H		0.5	U
74-83-9	BROMOMETHANE		0.5	U
75-00-3	CHLOROETHANE		0.5	U
75-69-4	TRICHLOROFLUOROMETHANE		0.5	U
76131	FREON-113		0.5	U
75-35-4	1,1-DICHLOROETHENE H		0.5	U
75-09-2	METHYLENE CHLORIDE		0.5	U
156-60-5	TRANS-1,2-DICHLOROETHENE H		0.5	U
75-34-3	1,1-DICHLOROETHANE		0.5	U
156-59-2	CIS-1,2-DICHLOROETHENE H		0.5	U
67-66-3	CHLOROFORM		5.4	
71-55-6	1,1,1-TRICHLOROETHANE		0.5	U
56-23-5	CARBON TETRACHLORIDE		0.5	U
107-06-2	1,2-DICHLOROETHANE		0.5	U
79-01-6	TRICHLOROETHENE H		0.5	U
78-87-5	1,2-DICHLOROPROPANE		0.5	U
75-27-4	BROMODICHLOROMETHANE		0.5	U
10061-01-5	CIS-1,3-DICHLOROPROPENE H		0.5	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE H		0.5	U
79-00-5	1,1,2-TRICHLOROETHANE		0.5	U
127-18-4	TETRACHLOROETHENE H		0.5	U
124-48-1	DIBROMOCHLOROMETHANE		0.5	U
108-90-7	CHLOROBENZENE H		0.5	U
75-25-2	BROMOFORM		0.5	U
79-34-5	1,1,2,2-TETRACHLOROETHANE		0.5	U
541-73-1	1,3-DICHLOROBENZENE H		0.5	U
106-46-7	1,4-DICHLOROBENZENE H		0.5	U
95-50-1	1,2-DICHLOROBENZENE H		0.5	U
71-43-2	BENZENE		0.5	U
108-88-3	TOLUENE		0.5	U
100-41-4	ETHYLBENZENE		0.5	U
1330-20-7	TOTAL XYLENES		1.0	U
100-42-5	STYRENE		0.5	U

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Blasland & Bouck Engineers
6723 Towpath Road
Box 66
Syracuse, NY 13214

Attention : Mr. Pat Farr

Date : 09/26/94
ETR Number : 46393
Project No.: 94000
No. Samples: 12
Arrived : 08/31/94

Case:94000 SDG:46393

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter		Result
232952	SSB3(10-12):(Soil)		
	IN847	TOC by Lloyd Kahn	2.0 h
	IN623	Solids, Total	85.2 c
232954	SSB3(20-22):08/30/94 (Soil)		
	IN847	TOC by Lloyd Kahn	1.42 h
	IN623	Solids, Total	91.5 c
232955	SSB3(32-34):08/30/94 (Soil)		
	IN847	TOC by Lloyd Kahn	2.1 h
	IN623	Solids, Total	88.3 c

Comments/Notes

h = % W/W dry
c = %W/W as received

< Last Page > Submitted By : Kare R. Cavigni Aquatec Inc.

000049

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Blasland & Bouck Engineers
6723 Towpath Road
Box 66
Syracuse, NY 13214

Attention : Mr. Pat Farr

Date : 09/26/94
ETR Number : 46398
Project No.: 94000
No. Samples: 8
Arrived : 09/02/94

Case:94000 SDG:46393

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
233056	SSC5S(10-12):08/31/94 @1320(Soil)	
IN847	TOC by Lloyd Kahn	0.88 h
IN623	Solids, Total	78.5 c
233057	SSC5S20-22:08/31/94 (Soil)	
IN847	TOC by Lloyd Kahn	1.34 h
IN623	Solids, Total	85.9 c

Comments/Notes

h = % W/W dry
c = %W/W as received

< Last Page > Submitted By : Karen R Chirgwin Aquatec Inc.

55 South Park Drive • Colchester, VT 05446 • Tel: 802-655-1203 • Fax: 802-655-1248

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Blasland & Bouck Engineers
6723 Towpath Road
Box 66
Syracuse, NY 13214

Attention : Mr. Pat Farr

Date : 09/26/94
ETR Number : 46481
Project No.: 94000
No. Samples: 20
Arrived : 09/08/94

Case:94000 SDG:46393

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
233460	SSA7S20-22:09/07/94 (Soil)	
IN847	TOC by Lloyd Kahn	0.73 h
IN623	Solids, Total	81.1 c
233461	SSA7S28-30:09/07/94 (Solid)	
IN847	TOC by Lloyd Kahn	0.86 h
IN623	Solids, Total	84.2 c

Comments/Notes

h = % W/W dry
c = %W/W as received

< Last Page > Submitted By : Karen R Chirgwin Aquatec Inc.

000021

Inchcape Testing Services
Aquatec Laboratories

Laboratory Locations
55 South Park Drive
Colchester, VT 05446

75 Green Mountain Drive
South Burlington, VT 05403

150 Herman Melville Boulevard
New Bedford, MA 02740

Analytical Report

Blasland & Bouck Engineers
6723 Towpath Road
Box 66
Syracuse, NY 13214

Attention : Mr. Pat Farr

Date : 09/26/94
ETR Number : 46525
Project No.: 94000
No. Samples: 10
Arrived : 09/09/94

Case:94000 SDG:46393

Standard analyses were performed in accordance with Methods for Analysis of Water and Wastes, EPA-600/4/79-020, Test Methods for Evaluating Solid Waste, SW-846, or Standard Methods for the Examination of Water and Wastewater. All results are in mg/l unless otherwise noted.

Lab No./ Method No.	Sample Description/ Parameter	Result
233654	SSC534-36:09/08/94 (Soil)	
IN847	TOC by Lloyd Kahn	1.30 h
IN623	Solids, Total	85.1 c
233659	SSB6S10:09/08/94 (Soil)	
IN847	TOC by Lloyd Kahn	1.25 h
IN623	Solids, Total	78.4 c

Comments/Notes

h = % W/W dry
c = %W/W as received

< Last Page > Submitted By : Kare R. Chigon Aquatec Inc.

55 South Park Drive • Colchester, VT 05446 • Tel: 802-655-1203 • Fax: 802-655-1248

END OF DATA VALIDATION REPORT

Appendix D
Solute-Transport Model

Introduction

This Appendix presents the results of a two-dimensional, numerical solute-transport model that was developed to estimate the extent of the dissolved plume of volatile organic compounds (VOCs) extending from the former source area at the West Lot Site in Utica, New York. Previous ground-water studies at the Site indicated the presence of chlorinated and aromatic VOCs in the shallow ground water in the area downgradient (south-southwest) of the former source area, which was near existing monitoring well MW-Ar (OBG, June 1992). As described in this Remedial Investigation Report, vertical sampling results of ground-water within the sand and gravel (glacial kame) deposit indicate that the dissolved VOC plume downgradient of the source area is most concentrated in the upper 10 feet of the approximately 30-foot thick, saturated sand and gravel unit, which is underlain by a clayey till layer. Within the plume at the Site, the compound detected at the highest concentration is cis-1,2-dichloroethene (1,2-DCE), which was used as an indicator compound to simulate the extent of the overall plume. The analytical results of ground-water samples obtained at the Site indicate that the VOC plume extends to the property line with the adjacent New York State Department of Transportation [formerly the Town of New Hartford Dump Site, which is a listed site (2A) by the New York State Department of Environmental Conservation].

In accordance with NYSDEC approval, the solute transport modeling described in this Appendix was performed to estimate the extent of the dissolved VOC plume in the area downgradient of the Site, using the transport behavior of 1,2-DCE, which is present at the highest concentration, and provides a conservative indication of plume concentrations. The model output file is provided as Attachment D-1 to this appendix.

USGS-MOC Model Description

The USGS-MOC solute-transport modeling software (Konikow and Bredehoeft, 1978), which was used to simulate the transport behavior of 1,2-DCE, consists of two elements: a ground-water flow component and a solute-transport component. Both use a rectangular, uniformly-spaced, block-centered, finite-difference grid. The model first solves the ground-water flow equations using the user-specified boundary conditions and flow parameters. It then solves the solute transport equations using the method of characteristics (MOC). The USGS-MOC model assigns a concentration value to uniformly-distributed "particles" that are present in each model cell. Movement of particles is governed by transport equations containing terms for advection, dispersion, sorption-based retardation, and first-order decay. For each time step, every particle is moved a distance proportional to the length of the time increment and the computed fluid velocity at the present location of the particle. As particles are moved, the concentrations in the cells are recomputed, for each time step until the user-specified time is reached.

West Lot Site Solute-Transport Model Design

The ground-water flow and transport model grid for the Site model was oriented to follow the interpreted center flow line of the dissolved phase 1,2-DCE plume (Figure 1). This center flow line was identified based on the locations where the highest 1,2-DCE concentrations were detected downgradient of the former source area, as well as ground-water elevation (hydraulic gradient) data from the West Lot and NYSDOT sites measured on March 13, 1995. The inferred center flow line of the plume therefore follows a curvalinear path through the source area (at well MW-Ar), and the approximate locations of monitoring well MW-D and hydropunch sampling locations B-3 and C-5. For simplicity, the plume was simulated within a rectilinear model system, and was translated into the Site coordinates following the center line of the plume.

The MOC model grid contains 20 rows by 20 columns, with each square cell 100 feet on a side (Figure 2). The minimum model coordinate values are located in the southwestern corner, the maximum coordinates in the northeastern corner. The highest concentrations of dissolved phase 1,2-DCE were generally encountered detected in samples from the upper one-third of the approximately 30-foot sand and gravel aquifer. The MOC model therefore was designed to simulate the transport of the concentrated, shallow portion of the plume by assuming a 10-foot thick flow zone, representing the upper ten feet of the sand and gravel formation. Boundary conditions used in the model to reproduce the observed hydraulic gradient at the Site included specified head boundaries of 503 and 482 feet (MSL) along the north and south boundaries of the model grid, respectively, and no-flow boundaries along the sides of the model domain. The center flow line in the model follows a straight path along the line downgradient from the simulated source area (See "H, " for "high concentration center" on Figure 2).

Table 1 contains a summary of the flow and solute-transport parameters used in the model, which were obtained from existing reports, published literature, or model calibration.

Model Calibration

Model calibration is the process of adjusting the model parameters to obtain a reasonable but non-unique match between measured site-specific data (calibration targets) and model calculations (Walton, 1992). To estimate the extent of the 1,2-DCE plume sources at the Site, the USGS-MOC model was calibrated to match the piezometric head conditions along the interpreted center line of the plume and the ground-water concentrations at the on-site monitoring wells.

Flow Calibration

The steady-state flow component of the model was calibrated to piezometric head data measured at monitoring wells at the Site and the downgradient NYSDOT property on March 13, 1995. To model the spatially-varying hydraulic gradients indicated by the piezometric data, the flow domain was divided into three discrete zones of differing hydraulic conductivity. The highest conductivity zone, K1 ($3x10^{-2}$ cm/sec), is located at the northeast portion of the model (e.g., the Site). This medium to high permeability is based on the low gradient conditions, and slug test and specific-capacity test data obtained at the Site (ERM-Northeast, 1992). Zone K2 ($1.5x10^{-2}$ cm/sec), located along the property boundary between the West Lot and NYSDOT sites, was determined by hydraulic gradient calibration. The lowest hydraulic conductivity, K3 ($7.5x10^{-3}$), was used for the portion of the flow system on the NYSDOT property based on the results of slug tests performed at the NYSDOT (ABB and YEC, April 1994) as well as gradient calibration. The slight decrease in hydraulic conductivity in the area downgradient of the West Lot is supported by field descriptions of finer-grained (more silty) materials in the upper portion of the saturated zone on the NYSDOT property (ABB and YEC, April 1994), and by the observed steepening of the hydraulic gradient downgradient of the West Lot. Final calibrated piezometric head levels along the plume center flow line are shown in Figure 3.

Solute-Transport Calibration

The source of 1,2-DCE in the model was assumed to be a steady-state, constant-concentration source situated in the former VOC source area, near well MW-Ar. The source area consists of the former burn pit, where solvents and waste-oils reportedly were disposed and burned in the 1950s and 1960s. Based on this time frame, the solute-transport simulations were run for an assumed, approximate transport period of 40 years.

To determine the extent of the plume sourced at the former burn pit at the West Lot, the solute-transport component was calibrated iteratively by reviewing the model results, adjusting the solute-transport parameters, and re-running the model. These procedures were repeated until the best qualitative match was observed between the simulated concentrations and target concentrations observed at monitoring wells on the Site. Monitoring wells on NYSDOT property were not used in model calibration due to the uncertain history of site usage and potential disposal practices during prior use as the Town of New Hartford Dump Site. The results of solute-transport calibration are summarized in Table 2.

Solute-transport calibration was conducted primarily with respect to the ratio of transverse to longitudinal dispersivity and the first-order decay half-life. The dispersivity ratio was initially assumed to be approximately 0.10 based on literature data (Waterloo, 1993), but was reduced slightly to 0.08 during model calibration. The first-order decay half-life due to anaerobic dehalogenation was initially estimated as approximately 88 to 338 days (Barbee, 1994), but had to be increased to 8.6 years to match the observed concentrations, indicating that the upper portion of the aquifer may be too oxygen-rich or nutrient poor for anaerobic dehalogenation to occur to any significant degree.

Model Results

The MOC model output was contoured using the United States Environmental Protection Agency (USEPA) GEOEAS software (Englund and Sparks, 1988). Figure 2 shows the calibrated plume from the MOC model. This computed plume was transformed back onto the original coordinate system, and overlain on the Site plan to produce a map of the simulated plume (Figure 4). The simulated 1,2-DCE concentration contours indicate that the VOC plume sourced at the Site may extend onto the NYSDOT property to a location approximately 600 feet downgradient of the Site. The delineation of the plume boundary is supported by the historical non-detectable concentrations of VOCs at MW-1 and MW-5 (located on the 10-acre parcel) and at temporary well point WP-1 (located near the property line approximately 100 feet southeast of MW-F) which was installed and sampled by O'Brien & Gere Engineers, Inc.

References

ABB Environmental Services, and YEC, Inc. April 1994. Preliminary Site Assessment, Evaluation Report of Initial Data, New Hartford Village Dump, New Hartford, New York. Two volumes.

Barbee, G.C. 1994. Fate of Chlorinated Aliphatic Hydrocarbons in the Vadose Zone and Ground Water, Ground-Water Monitoring Review, vol. 14, no. 1, pp 129-140.

Englund, E., and A. Sparks. 1988. GEO-EAS geostatistical environmental assessment software. U.S. Environmental Protection Agency EPA600/4-88/033.

ERM-Northeast. October 1992. Letter to Mr. Thomas Smith, Esq., Re: French Road Facility Hydrogeological Investigation, ERM-Northeast Project No. 380.063.

Gelhar, L. W. 1986. Stochastic subsurface hydrology from theory to applications. Water Resources Research 22: 135S-145S.

Konikow, L. F., and J. D. Bredehoeft. 1978. Computer model of two-dimensional solute transport and dispersion in ground water. United States Geological Survey Water Resources Investigation 281-359/159.

O'Brien and Gere, Engineers, Inc. July 1992. Focused remedial investigation: General Electric Aerospace, West Lot Site, General Electric Company, Utica, New York.

Walton, W.C. 1992. Groundwater Modeling Utilities, Lewis Publishers, Chelsea, Michigan, 640 p.

O'Brien & Gere Engineers, Inc., April 16, 1993. Letter to Mr. Brian A. Kent Re: West Lot Site Additional Investigations.