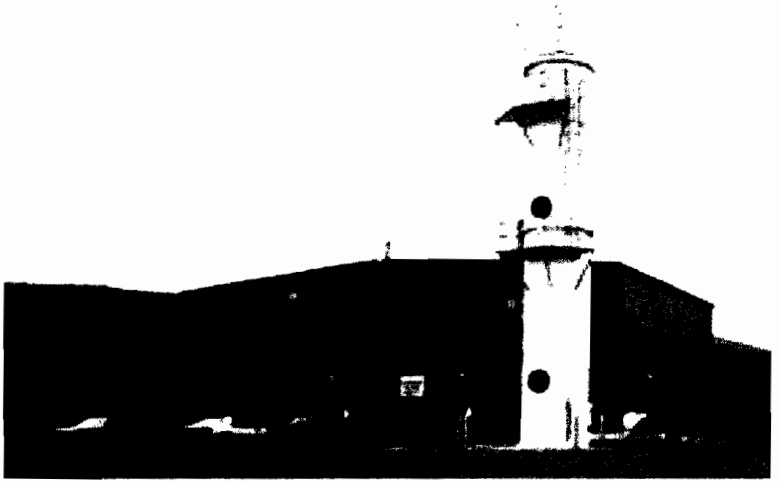
2000 ANNUAL REPORT

Old Bethpage
Solid Waste Disposal Complex
Groundwater Treatment Facility

TOWN OF OYSTER BAY
DEPARTMENT OF PUBLIC WORKS
SYOSSET, NEW YORK 11791

March 2001



LOCKWOOD
KESSLER &
BARTLETT, INC.
SYOSSET, NEW YORK 11791

2000
ANNUAL REPORT

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
GROUNDWATER TREATMENT FACILITY

TOWN OF OYSTER BAY
DEPARTMENT OF PUBLIC WORKS

Prepared By

Lockwood, Kessler & Bartlett, Inc.
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Syosset, New York 11791

MARCH 2001

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KARL J. LEUPOLD, P.E.
COMMISSIONER

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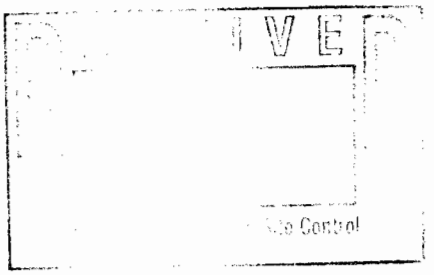
April 23, 2001



Mr. Gerald Rider, P.E., Chief
Operation, Maintenance & Support Section
NYS Department of Environmental Conservation
Division of Environmental Remediation
50 Wolf Road
Albany, NY 12233-7010

Re: 2000 Annual Report
Old Bethpage Landfill Groundwater Remediation
Consent Decree 83 CIV 5357
Contract No. PWC 04-00

Dear Mr. Rider:

Enclosed is one copy of the 2000 Annual Report for the Old Bethpage Landfill Groundwater Remediation. This report is submitted in satisfaction of the Town's Consent Decree requirements and summarizes the results from the groundwater treatment facility operations and monitoring activities performed during the 2000 calendar year.

In summary, the 2000 results indicate that the facility is operating according to design, and that groundwater quality is continuing to improve in response to the ongoing remediation. During 2000, a total of 463 million gallons of groundwater with an average volatile organic compound (VOC) concentration of 73.5 micrograms per liter (ug/L) was remediated at an average daily flow rate of 1.27 million gallons per day. The facility maintained an on-line performance of 77 percent during 2000 and achieved an overall treatment efficiency of 99.4 percent. The average total VOC concentration in the facility effluent was 0.39 ug/L.

Should you have any further questions, please do not hesitate to call Matthew Russo, Division of Engineering, at (516) 677-5886.

Very truly yours,

RICHARD W. LENZ, P.E.
FIRST DEPUTY COMMISSIONER
DEPARTMENT OF PUBLIC WORKS

KARL J. LEUPOLD, P.E.
COMMISSIONER
DEPARTMENT OF PUBLIC WORKS

KJL:RWL:MR:md
Attachment

pwc04-00 2000 annual rap report

LIST OF APPENDICES

A. Well Location Map

B. "TOWN OF OYSTER BAY, OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX, EVALUATION OF VOLATILE ORGANIC COMPOUNDS IN AIR AND SOIL GAS AND SOIL GAS PRESSURE READINGS, 2000 Annual Summary Report, RTP Environmental Associates, Inc., December 2000.

C. "ANNUAL SUMMARY, OLD BETHPAGE QUARTERLY GROUNDWATER MONITORING PROGRAM, JANUARY THROUGH DECEMBER 2000", Gannett Fleming Engineers and Architects, P.C., January 2001.

SECTION 1.0
INTRODUCTION

1.1 Purpose of this Document

Operation of the Groundwater Treatment Facility (GTF) located at the Old Bethpage Solid Waste Disposal Complex (OBSWDC) in Old Bethpage, Long Island, New York, commenced on April 1, 1992. Pursuant to the terms of Consent Decree 83 CIV 5357 with the State of New York, the Town of Oyster Bay (Town) is required to submit quarterly operating and annual summary reports for the GTF. The reports shall contain appropriate operational and summary data, respectively, to demonstrate compliance with the Consent Decree. This document is the annual summary report for calendar year 2000, and is submitted in satisfaction of Consent Decree requirements.

1.2 Scope of this Document

This report is divided into six sections and three appendices. Section 2.0 (Background Information) presents background information on site history and a summary of the Town's responsibilities, as outlined on Pages 22 and 23 in Appendix A of the Consent Decree. Section 3.0 (Groundwater Treatment Facility Operations) provides an overview of GTF operations and the scope of the various monitoring programs. Section 4.0 (Groundwater Monitoring Program) summarizes the results from the hydraulic monitoring and groundwater sampling activities performed during this reporting period. Section 5.0 (Air Stripper Stack Emissions Monitoring) presents the results from the mass-balance calculations and dispersion modeling performed by LKB for the air stripper exhaust. Section 6.0 (Discussion and Recommendations) discusses the results achieved by the GTF operation and monitoring programs during 2000, and provides recommendations based on the current findings. The appendices contain a well location map, and other consultants' annual summary reports for the groundwater and ambient air/soil gas monitoring programs. respectively.

SECTION 2.0
BACKGROUND INFORMATION

2.1 Site History

The OBSWDC has been in operation since 1958, and was used for the processing and disposal of all non-hazardous waste generated in the Town. The wastes were burned in two on-site incinerators, and excess materials were compacted and baled for disposal in the on-site Old Bethpage Landfill (Landfill). The Landfill also accepted incinerator ash and residue, as well as raw municipal solid waste bypassed around the incinerators during periods of maintenance downtime.

In April 1986, all landfilling and incineration activities ceased, and the Town began to ship, offsite, all solid waste collected that was not recycled. Presently, the site operations largely consist of operating the Town's scalehouse, solid waste transfer station, recycling program, clean fill disposal site, gas control system, power generating facility, leachate and groundwater treatment facilities, and vehicle maintenance garage.

In June 1988, the Town entered into Consent Decree 83 CIV 5357 with the State of New York. That document required the Town to perform the following actions:

- design, construct and operate the GTF, to contain, recover and remediate the off-site contaminated groundwater plume associated with the Landfill;
- design and construct an acceptable cap for the Landfill;
- continue to operate the leachate treatment facility;
- continue to operate the landfill gas migration control system; and
- perform various monitoring functions designed to assess the adequacy of the remediation efforts.

The GTF, which is located in the northeast corner of the OBSWDC (see Appendix A), began normal operations on April 1, 1992. The final capping activities at the top of the closed Landfill, initiated in early 1992, were completed in early 1993. As noted above,

the Town continues to operate the leachate treatment facility and the landfill gas migration collection system. As a result of these actions, the Landfill is now classified as a Class 4 site (Site is properly closed – requires continued management) by the New York State Department of Environmental Conservation (NYSDEC).

2.2 Consent Decree Requirements Pertaining to Groundwater Plume Remediation

2.2.1 Requirements for Groundwater Monitoring

The nature and extent of the area to be remediated (a.k.a., the "plume"), under the terms and conditions of the Consent Decree were defined in the report titled "OBSWDC Offsite Groundwater Monitoring Program, Old Bethpage, Long Island, New York", by Geraghty & Miller, Inc., and dated September 1986.

To verify hydraulic containment of the plume by the recovery well system, and assess the progress of the remediation, the Town implemented a groundwater monitoring program. In accordance with the requirements set forth in the Consent Decree, the groundwater monitoring program is comprised of the following elements:

Hydraulic Monitoring - Monthly rounds of water-level measurements in the required monitoring wells until equilibrium and appropriate drawdown has been established; followed by quarterly water-level monitoring in a reduced number of wells thereafter so long as hydraulic control of the plume is maintained.

Groundwater Quality Monitoring - A baseline comprehensive first round of monitoring in the required wells prior to start-up of the GTF; followed by quarterly monitoring of groundwater quality until the termination criteria, as defined in the Consent Decree, have been demonstrated; and termination/post-termination monitoring thereafter for a minimum of five full years (20 quarters).

A total of 16 rounds of monthly hydraulic monitoring were performed during the period from April 1992 through September 1993. Beginning with the October 1993 round, which was performed concurrently with the fourth quarter 1993 groundwater quality monitoring round, the frequency of hydraulic monitoring was reduced to quarterly.

Twenty-nine quarterly hydraulic monitoring rounds have been completed since October 1993.

The baseline first round of groundwater quality monitoring was performed during the period from July 30 through August 2, 1991. Quarterly monitoring of groundwater quality began in July 1992; approximately three months after start-up of the GTF, and a total of thirty-four quarterly rounds have been completed to date.

The following hydraulic and groundwater quality monitoring activities were completed during 2000 in fulfillment of Consent Decree requirements:

- four rounds of quarterly water-level measurements, collected on February 22, April 25, July 11, and October 4, 2000, respectively; and

- four rounds of quarterly groundwater quality samples, collected on February 23-24, April 25-27, July 12-18, and October 5-6, 2000, respectively.

Water-level measurements were collected from all of the wells originally specified in the Consent Decree, rather than in a reduced number of wells, as this information is required by the groundwater sampling protocol. Water-level measurements were also collected from Claremont Site Well Clusters EW-1, EW-2 and EW-3.

The groundwater samples from all four quarterly sampling rounds were analyzed for the volatile organic compound (VOCs), total (unfiltered) metals, dissolved (filtered) metals and leachate indicator parameters required by the Consent Decree. All 16 of the monitoring wells specified in the Consent Decree were sampled during each round, including Landfill Well LF-1, which was sampled for leachate indicator parameters only as per Consent Decree requirements. In addition, in keeping with a prior recommendation, Wells MW-9D and OBS-2 were sampled during the third quarter 2000 monitoring round to provide current data for the deep potentiometric zone of the aquifer at these locations downgradient of the Landfill.

2.2.2 Treatment Facility Discharge Limitations and Monitoring Requirements

The Consent Decree placed certain limitations on the effluent quality of the GTF. These are listed in Table 2 of that document, which is titled "Groundwater Aquifer and Treated Groundwater Discharge Requirements". Some effluent limitations were later modified in a letter to the Town from the New York State Department of Law, and in subsequent revisions to the New York State Part 703 Ambient Water Quality Standards, which were last updated in March of 1998. The current limits, for both VOCs and inorganic parameters, are listed in Tables 1 and 2 of this report, respectively. The Town began monthly SPDES monitoring of the GTF effluent in April of 1992 for the parameters listed in Tables 1 and 2, and continued during 2000. The town also performs monthly SPDES monitoring of the GTF influent for the VOCs listed in Table 1. A New York State-certified outside laboratory performed the SPDES influent and effluent analyses.

The Consent Decree also placed limitations on the air stripper stack emissions. These limits appear in the Consent Decree as Table 1, which is titled "Applicable Air Discharge Requirements for Air Stripper Treatment System", and is reproduced in this report as Table 3. The Town began quarterly monitoring of the air stripper stack emissions on May 28, 1992, and performed quarterly monitoring through the second quarter of 1998. Beginning with the third quarter of 1998, the Town suspended the air stripper stack emissions monitoring program indefinitely as this program is not specifically mandated by the Consent Decree, and review of the body of data generated to date indicated that it was no longer warranted. In lieu of stack testing, the Town now uses the water-quality data generated at an on-site laboratory and the operating data recorded by Town personnel to calculate air emissions from the stack and, if required, model air-quality impacts at the downwind property line.

In addition to the above requirements, the Town is required to perform certain self-monitoring functions related to recording comprehensive flow measurements for the GTF and maintaining a record of downtime. The Town has enhanced these abilities with the installation of an on-site laboratory. The laboratory is used to monitor the GTF influent and effluent three times per week, and groundwater at each recovery well on a weekly basis. This regular monitoring allows Town personnel to make process adjustments when necessary, and may also warn the operator of equipment malfunction, or the need for maintenance. Weekly monitoring of each recovery well will

TABLE 1

VOLATILE ORGANIC COMPOUNDS (VOCs)
EFFLUENT LIMITATIONS

CHEMICAL CONSTITUENT	ALLOWABLE CONCENTRATION (in parts per billion)
TOTAL VOCs (for discharge)	100
TOTAL VOCs (for groundwater)	50
BENZENE	1*
BROMODICHLOROMETHANE	50
BROMOFORM	50
CARBON TETRACHLORIDE	5
CHLOROBENZENE	5*
CHLORODIBROMOMETHANE	50
CHLOROETHANE	5*
CHLOROFORM	7*
DICHLOROBENZENE (each isomer)	3*
1,1 DICHLOROETHANE	5*
1,2 DICHLOROETHANE	0.6*
1,1 DICHLOROETHENE	5*
1,2 DICHLOROETHENE cis	5
1,2 DICHLOROETHENE trans	5*
1,2 DICHLOROPROPANE	1*
ETHYLBENZENE	5*
METHYLENE CHLORIDE	5*
TETRACHLOROETHENE	5*
TOLUENE	5*
1,1,1 TRICHLOROETHANE	5*
TRICHLOROETHENE	5
VINYL CHLORIDE	2
XYLENE (each isomer)	5*

Limits taken from Table 2, "Groundwater Aquifer And Treated Groundwater Discharge Requirements", of Consent Decree 83 CIV 5357, Appendix A.

* indicates value modified by 11/10/88 letter to the Town, and/or in subsequent revisions to the NYCRR Part 703 Groundwater Standards.

TABLE 2

INORGANIC EFFLUENT LIMITATIONS

LEACHATE INDICATOR	ALLOWABLE CONCENTRATION (in parts per million)
BARIUM	1
CADMIUM	0.005*
CHLORIDE	250
CHROMIUM (total or hexavalent)	0.05
COPPER	0.2*
CYANIDE	0.2
IRON	0.3
IRON AND MANGANESE	0.5*
LEAD	0.025
MAGNESIUM (no Class GA limit)	35
MANGANESE	0.3
MERCURY	0.0007*
SILVER	0.05
ZINC (no Class GA limit)	5
TOTAL DISSOLVED SOLIDS	500
NITRATE	10
SULFATE	250
PHENOLS (total)	0.001

Limits taken from Table 2, "Groundwater Aquifer And Treated Groundwater Discharge Requirements", of Consent Decree 83 CIV 5357, Appendix A.

* indicates value modified by 11/10/88 letter to the Town, and/or in subsequent revisions to the NYCRR Part 703 Groundwater Standards.

TABLE 3

APPLICABLE AIR DISCHARGE REQUIREMENTS FOR AIR STRIPPING TREATMENT SYSTEM*

Constituent	-Ambient Air Concentrations- NYSDEC Annual Guideline (ug/m3)
Vinyl Chloride	4.00E-01
Freon 13	3.00E-02
Methylene Chloride	1.17E+03
1,1-Dichloroethane	2.70E+03
1,2-Dichloroethene	2.63E+03
Chloroform	1.67E+02
1,1,1,-Trichloroethane	3.80E+04
Carbon Tetrachloride	1.00E+02
1,2-Dichloroethane	2.00E+01
Trichloroethylene	9.00E+02
1,2,-Dichloropropane	1.17E+03
Bromodichloromethane	3.00E-02
Tetrachloroethene	1.12E+03
Chlorodibromomethane	3.00E-02
Bromoform	1.67E+01
Benzene	1.00E+02
Toluene	7.50E+03
Ethyl Benzene	1.45E+03
(m) Xylene	1.45E+03
(o&p) Xylene	1.45E+03
(m) Dichlorobenzene	3.00E-02
(o) Dichlorobenzene	1.00E+03
(p) Dichlorobenzene	1.50E+03
Chloroethane	5.20E+04
1,1,-Dichloroethylene	6.67E+01
Chlorobenzene	1.17E+03
Ammonia	3.60E+02

* Established per New York State Department of Environmental Conservation Air Guide No. 1 for Toxic Air Contaminants. If any federal National Ambient Air Quality Standards or National Emission Standards for Hazardous Air Pollutants are promulgated which are more stringent than these State guidelines, the more stringent standard shall apply.

also assist the Town in establishing the initiation of termination monitoring, as proscribed in the Consent Decree. The Town is in the process of certifying its on-site laboratory to perform VOC analyses under the New York State Department of Health's Environmental Laboratory Approval Program. Certification will be granted after satisfactory performance of proficiency tests.

2.3 Other Consent Decree Requirements

2.3.1 Requirements for Ambient Air and Soil-Gas Quality Monitoring

"RAP Attachment 2" in the Consent Decree requires the Town to monitor ambient air and soil gas quality in the vicinity of the Landfill on a quarterly basis. These monitoring efforts took place on March 14-15, June 14-15, August 8-9, and October 12-13, 2000 respectively. A New York State-certified outside laboratory performed the analyses. The results were compared to the current version of NYSDEC Air Guide No. 1, effective October 16, 1995. These results were used to evaluate the impacts that the Landfill, together with all other OBSWDC operations, have on the local air quality.

In early 1998, it was recommended that the Town request approval from the NYSDEC to reduce the frequency of ambient air monitoring from quarterly to annual. This monitoring program is specifically mandated by the Consent Decree; however, review of the body of data generated to date indicates that a reduction in the frequency of this monitoring is warranted. Pending receipt of this approval, however, the Town is required to continue this monitoring program on a quarterly schedule.

2.3.2 Requirements for Thermal Oxidizer Stack Emissions Monitoring

"RAP Attachment 2" in the Consent Decree also requires the Town to perform annual monitoring of the stack emissions from the thermal oxidizer. The purpose of this monitoring is to ensure that the landfill gas collected by the Town's migration prevention system, which contain trace amounts of organic compounds, undergoes complete high temperature destruction. Thermal oxidizer stack emissions monitoring for 2000 took place on September 13th. The results of this test were reported in the 2000 third quarter report, and the consultant's report of the findings was submitted in its entirety as Appendix H of that report.

SECTION 3.0
GROUNDWATER TREATMENT FACILITY OPERATIONS

3.1 Theory of Operation

A system of five (5) groundwater recovery wells, designated RW-1 through RW-5, was installed at the leading edge of the off-site VOC plume associated with the Landfill, in Bethpage State Park. The locations of the recovery wells, in relation to the Landfill and other site features, are shown on the Well Location Map in Appendix A.

The combined flow from all wells is directed through common transmission piping to the air stripper wet well. A triplex pump arrangement delivers the collected groundwater to the top of the air stripper, which contains proprietary packing media. As the groundwater passes through and wets the packing, it is contacted with air directed into the bottom of the air stripper via a blower. Dissolved VOCs pass from the liquid phase (groundwater) into the gas phase (air), and exit the stripper through a stack.

The treated groundwater is directed into a receiving wet well, where another triplex pump arrangement delivers it to a series of Town-owned recharge basins. The primary recharge basin, Recharge Basin No. 1, contains a system of eight diffusion wells and is located upgradient of the Landfill on the west perimeter of the OBSWDC. The secondary recharge basin is Town Recharge Basin No. 33, which is located on Winding Road across from the east face of the Landfill. The Town also uses an unnamed temporary recharge basin located north-northeast of the GTF building on an as needed basis. The locations of these recharge basins are shown in Appendix A.

3.2 Physical Plant

The GTF consists of the following major components:

- five recovery wells, which deliver a combined maximum design flow of 1.5 million gallons per day (MGD);
- the treatment plant building, which houses the control room, laboratory, wet wells, pumps, acid-rinse system, and chemical holding tanks;

- the air stripper, which contains proprietary media;
- Recharge Basin No. 1, which contains eight diffusion wells; and
- transmission piping.

3.3 Initial Operating Conditions

On April 1, 1992, the GTF began pumping approximately 1.5 MGD of groundwater from the five recovery wells located in Bethpage State Park. Flow was processed through the air stripper operating at a nominal 1,050 gallons per minute (GPM) forward hydraulic flow and approximately 10,400 standard cubic feet per minute (SCFM) of atmospheric air. The treatment plant design and the initial operating conditions are based on continuous 24 hours per day, seven days per week operation.

3.4 Monitoring Functions Related to Groundwater Treatment

3.4.1 Daily Operations Reports

The control console located at the GTF provides continuous readouts to the operating personnel of pumpage rates from each recovery well, as well as various locations throughout the plant. Hourly, the operating personnel transfer these readings onto a "Daily Operations Report". One report is completed for each 8-hour shift. The report also provides a space for any written observations made by those personnel concerning plant operations. Copies of these reports were provided in Appendix B of the quarterly reports. The originals will be archived by the Town for at least five years following termination of the GTF, as per Consent Decree requirements.

The Town has developed computer software to assist in assembling these data into meaningful form for reporting purposes. On an ongoing basis, the Town enters the data into an Excel-based program, which sorts it into separate databases for further review and interpretation.

3.4.2 Organic Analyses Reports

The Town installed a gas chromatograph at the on-site laboratory to self-monitor the day to day treatment efficiency of the GTF. During 2000, influent and effluent samples were collected three times per week and analyzed for VOCs. In addition, weekly samples from each of the off-site recovery wells were collected and analyzed for VOCs.

The Town has also developed computer software to assist in assembling the VOC data into meaningful form for reporting purposes. At the conclusion of each analysis, the software enters all data into an Excel-based program, which sorts it into separate databases for further review and interpretation, and prints out a computer-generated "Organic Analyses Report" for inclusion in the quarterly reports. The Organic Analyses Reports for 2000 have been previously submitted as Appendix C of the respective quarterly reports.

3.4.3 Inorganic Analyses Reports

The Town also installed at the on-site laboratory, equipment to self-monitor selected inorganic water-quality parameters. These tests are performed to forewarn the operating personnel of changes in the influent or effluent, which may signal potential equipment problems requiring maintenance, or the need for other corrective action. Therefore, soluble iron is occasionally monitored through the air stripper to quantify the potential for iron fouling of the packing media. Dissolved oxygen is measured in the effluent to assure proper blower operation and to verify thorough aeration of the influent. Results from this testing are entered onto an "Inorganic Analyses Report" for inclusion in the quarterly reports. The Inorganic Analyses Reports for 2000 have been previously submitted as Appendix D of the respective quarterly reports.

3.4.4 State Pollution Discharge Elimination System (SPDES) Reports

In addition to self-monitoring, the Town sends monthly facility influent and effluent samples to a New York State-certified laboratory for organic and inorganic (effluent only) analyses. The analyses performed are those listed in Table 6 of the Consent Decree, titled "Analytical Methods", which is reproduced here in Table 4 as it appears in that document. The 2000 SPDES reports were submitted as Appendix E of the respective quarterly reports.

TABLE 4

Analytical Methods

Parameter	Analytical Method	Sample Preservation	Holding Time
Chloride	SM 407 A	None	28 Days
Ammonia	SM 417B, EPA 350.2	Cool to 4°C pH 2 w/H_2SO_4	28 Days
Iron SM 303B,	EPA 236.1	Field filter, Cool to 4°C, pH 2 w/HNO_3	6 Months
Hardness	SM 314B, EPA 130.2	Cool to 4°C	6 Months
Alkalinity	SM 403, EPA 310.1	Cool to 4°C	14 Days
pH (measured in field)	SM 423	None	Analyze Immediately
Specific Conductance (measured in field)	SM 205	Cool to 4°C	28 Days
VOCs	EPA 601 and 602	Cool to 4°C	14 Days
Metals and others*	EPA 40 CFR 136.3 (Individual Analyses)	As per Individual method	As per Individual method

*Aluminum, Copper, Lead, Manganese, Nickel, Sodium, Zinc, Chromium (VI), Chromium, Mercury, Potassium, Magnesium, Calcium, Total Dissolved Solids, Nitrate, Sulfate, Carbonate, Total Kjeldahl Nitrogen, Bicarbonate Alkalinity, Cyanide, Phenols, and Barium.

3.4.5 Air Stripper Stack Emissions Monitoring

Air stripper stack emissions monitoring for 2000 was performed by LKB using the water-quality data generated by the Town's on-site laboratory and the GTF operational data recorded by Town personnel. A mass-balance approach was used to calculate VOC emissions from the air stripper stack. Dispersion modeling was performed to determine air-quality impacts at the downwind property boundary. The results from the air stripper stack emissions monitoring were submitted as Section 5.0 of the respective quarterly reports. A summary of the 2000 air stripper stack emissions monitoring results is provided in Section 5.0 of this report.

3.5 Other Monitoring Functions

3.5.1 Ambient Air and Soil-Gas Quality Monitoring

The 2000 quarterly ambient air and soil-gas quality monitoring rounds were performed on March 14-15, June 14-15, August 8-9, and October 12-13, respectively. The ambient air testing procedure involves the taking of simultaneous, measured samples for VOC analyses, upwind and downwind of the Landfill. These results are used to evaluate the impacts that the Landfill, together with other OBSWDC operations, have on the local air quality. The soil gas quality testing provides useful information regarding the effectiveness of the landfill gas collection system. The 2000 quarterly ambient air and soil gas quality reports have been submitted previously as Appendix F of the respective quarterly monitoring reports. The consultant's annual summary report for this program is reproduced in its entirety as Appendix B of this report.

3.5.2 Thermal Oxidizer Stack Emissions Monitoring

The annual thermal oxidizer stack emissions test was performed on September 13, 2000. The testing procedure involves the taking of simultaneous, measured samples for VOC analyses from the thermal oxidizer stack. Simultaneously, the burner operating conditions (i.e. temperature, landfill gas flow and quality, combustion airflow, etc.) during the test are also monitored. The analytical results, after adjustment to standard conditions, demonstrate the degree of trace organics destruction achieved by the equipment. The consultant's report of his findings for this test was submitted previously as Appendix H of the 2000 third quarter report.

SECTION 4.0
GROUNDWATER MONITORING PROGRAM

4.1 General

In compliance with the Consent Decree for the Landfill, the following groundwater monitoring activities were performed during calendar year 2000:

- four rounds of quarterly water-level measurements collected on February 22, April 25, July 11, and October 4, 2000, respectively; and

- four rounds of quarterly groundwater quality sampling performed on February 23-24, April 25-27, July 12-18, and October 5-6, 2000, respectively.

The results from each monitoring round were submitted as Appendix G of each quarterly report. The consultant's annual summary report for 2000 is reproduced in Appendix C of this report. The results from each monitoring round are presented in Sections A through D of Appendix C, respectively.

4.1.1 Field Sampling Protocols

Except as noted in the quarterly monitoring reports, the field sampling protocols used during each 2000 monitoring round were those previously submitted to the NYSDEC by the Town in July of 1991. Quality Assurance/Quality Control (QA/QC) procedures utilized during each 2000 monitoring round consisted of one field blank analyzed for all parameters, and daily trip blanks analyzed for VOCs only. The blank samples were used to gauge the level of background contamination, if any, from sources other than the wells. In addition, one anonymous replicate sample was collected during each sampling round and analyzed for all parameters to determine the laboratory precision of the analytical results. All field procedures were in conformance with Sections IV.A, B and C in Appendix A of the Consent Decree.

4.1.2 Elevation of Well Screen Intervals

Elevations of the well screen intervals (in feet, relative to Mean Sea Level (MSL)) were assigned to the following zones for data correlation and water-level mapping purposes:

- Water Table Zone: 76 to 43 feet above MSL;
- Shallow Potentiometric Zone: 30 feet above to 30 feet below MSL; and
- Deep Potentiometric Zone: 65 to 157 feet below MSL.

The recovery well screen intervals range in elevation from 4 feet above MSL to 128 feet below MSL, and therefore intersect both the shallow and deep potentiometric zones.

4.2 Hydraulic Monitoring

The purposes of the hydraulic monitoring are: 1) to delineate the effective capture zone of the groundwater recovery wells so that hydraulic containment of the VOC plume can be demonstrated; and 2) to determine the extent of mounding around the recharge basin(s), and the effect of that mounding, if any, on local groundwater flow patterns.

The following wells were incorporated into all four 2000 hydraulic monitoring rounds:

- The 23 off-site monitoring wells (e.g., MW-5A, MW-5B, etc.);
- Existing Phase II and III wells (LF-1 through LF-4 and TW-1 through TW-3);
- Nassau County Monitoring Well N-9980 (N-9936), at Melville Road;
- Village of Farmingdale Supply Wells 1-3, 2-2 and 2-3;
- Observation Wells OBS-1 and OBS-2;
- Recovery Wells RW-1 through RW-5;
- Upgradient/Recharge Basin Wells M-29A&B and M-30A&B;
- Replacement Wells M-29A-R, M-30B-R and TW-3-R; and
- Claremont Site Well Clusters EW-1, EW-2 and EW-3.

With the exception of Well MW-7A, which was dry at the time of the first quarter monitoring round, and Well MW-9A, which was dry during all four quarterly monitoring rounds, all of the monitoring wells specified in the Consent Decree were measured

during each of the hydraulic monitoring rounds performed during 2000. Well MW-9A has a damaged screen and is approximately two feet shallower than its original depth, presumably due to the accumulation of gravel pack material in the bottom of the well. The loss of two feet of well depth may account for this well being dry during 2000.

Static water levels were measured to the nearest 0.01 foot with an electronic water-level meter as the in-situ sampling pumps prevented the use of the steel tape and chalk method specified in the Consent Decree. The water-level data collected during 2000 are provided in Appendix C, and are summarized in Table 5 of this report.

The water-level data were converted to elevations relative to MSL and plotted according to well depth on a Location Plan. The water-level elevations were then contoured to produce the water table, shallow potentiometric and deep potentiometric surface maps shown in Figures 1 through 3 in each section of Appendix C. The approximate areal extent of the total VOC plume (based on the 2000 data) and the limiting flow lines of the effective capture zone were also drawn on these figures. Contour lines are dashed where the data points are less than optimum, and the limiting flow lines drawn though these areas are approximate.

4.2.1 Overview of 2000 Water-Level Data

Water-level elevations across the site exhibited upward trends during 2000 (Table 5). This pattern is opposite that observed during 1999 (when a drought occurred), and can be attributed to the above-normal, temporally distributed precipitation and subsequent recharge that occurred during 2000. Specifically, comparison of precipitation data for 2000 to published monthly evapotranspiration rates indicates that except for the period from mid-June through mid-July, at least some aquifer recharge occurred during each month of 2000. This recharge produced the relatively large magnitude water-level increases observed during 2000, which averaged 1.95 feet.

The rate of water-level increase was considerably higher during the first six months of 2000. This reflects the greater amount of recharge that occurred during the winter of 1999-2000, when evapotranspiration by plants is minimal. Due to the time required for recharge to percolate from the land surface to the water table, a time lag of several months exists between when recharge occurs and the effect is seen on water levels in the various wells.

TABLE 5

SUMMARY OF 2000 WATER-LEVEL DATA

Well Number	Screened Interval	2000 Water-Level Data*				Net Change** During 2000
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
MW-5A	1	59.42	62.53	62.28	62.28	2.86
MW-5B	2	59.32	62.40	62.29	62.26	2.94
MW-6A	1	59.24	61.98	62.02	62.21	2.97
MW-6B	2	59.29	61.81	61.82	62.01	2.72
MW-6C	2	59.38	62.01	61.88	61.18	1.80
MW-6D	2	59.53	62.01	61.95	62.23	2.70
MW-6E	3	59.48	61.87	61.85	62.09	2.61
MW-6F	>3	59.08	61.43	61.33	61.71	2.63
MW-7A	1	DRY	57.89	59.09	59.03	1.14
MW-7B	3	54.63	57.01	57.16	58.00	3.37
MW-8A	1	59.91	61.31	62.03	61.95	2.04
MW-8B	2	60.08	61.73	62.26	62.34	2.26
MW-8C	3	60.61	62.54	62.79	63.12	2.51
MW-9A	1	DRY	DRY	DRY	DRY	N/A
MW-9B	2	56.20	58.54	58.62	58.85	2.65
MW-9C	3	55.97	58.24	57.54	57.98	2.01
MW-9D	>3	56.23	58.42	58.10	58.54	2.31
MW-10A	1	60.57	61.13	62.43	62.39	1.82
MW-10B	2	60.25	60.88	61.89	62.00	1.75
MW-10C	3	60.34	61.08	61.81	62.00	1.66
MW-10D	3	60.52	61.30	61.34	61.87	1.35
MW-11A	>2 & <3	51.82	55.00	54.84	54.45	2.63
MW-11B	3	51.70	54.87	54.70	54.34	2.64
M-29A-R	1	67.94	67.95	69.07	69.20	1.26
M-29B	1	71.34	71.71	72.86	72.99	1.65
M-30A	1	59.95	59.05	60.59	60.51	0.56
M-30B-R	1	61.26	60.50	61.99	62.04	0.78
N-9980	1 & 2	NM	47.91	48.08	48.22	0.31
LF-1	2	61.30	63.95	63.39	62.74	1.44
LF-2	2	62.34	63.21	63.34	62.55	0.21
LF-3	2	65.25	65.35	65.84	66.67	1.42
LF-4	2	66.15	65.53	66.34	66.64	0.49
OBS-1	3	56.20	58.48	58.26	58.36	2.16
OBS-2	3	54.71	57.13	56.80	56.98	2.27
RW-1	2 & 3	50.04	51.33	50.86	50.36	0.32
RW-2	2 & 3	57.17	58.66	48.08	47.21	-9.96
RW-3	2 & 3	44.33	45.62	44.89	58.84	14.51
RW-4	2 & 3	46.72	48.80	49.89	49.01	2.29
RW-5	2 & 3	49.43	50.14	60.91	61.59	12.16
TW-1	1	65.27	66.50	67.85	67.36	2.09
TW-2	1	61.71	63.11	63.35	63.69	1.98
TW-3-R	1	61.01	62.95	63.02	63.29	2.28
EW-1A	1	60.89	62.47	63.13	63.16	2.27
EW-1B	>1&<2	61.10	62.49	63.13	63.13	2.03
EW-1C	2	61.00	62.83	63.22	63.43	2.43
EW-2A	1	60.98	61.53	62.44	62.42	1.44
EW-2B	>1&<2	61.10	61.70	62.58	62.61	1.51
EW-2C	2	61.00	61.69	62.54	62.59	1.59
EW-3A	1	59.39	59.96	61.68	61.42	2.03
EW-3B	>1&<2	59.37	60.12	61.30	61.37	2.00
EW-3C	2	59.40	60.17	61.32	61.40	2.00

1 - Water-Table Zone (76 to 43 feet above Mean Sea Level (MSL)).
2 - Shallow Potentiometric Zone (30 feet above to 30 feet below MSL).
3 - Deep Potentiometric Zone (65 to 157 feet below MSL).
* - All water-level data are in feet relative to MSL.
** - Net Change is in feet, values for Wells MW-7A and N-9980 are based on 2nd quarter data.
NM - not measured, N/A - not applicable.

Including the wells around the various recharge basins, which may be influenced by mounding, water-level elevations in the 41 monitoring and observation wells at 19 locations across the site for which comparative data are available increased by an average of 1.95 feet during 2000. The magnitude of the average increase in each of the three aquifer zones increased with depth, and ranged from 1.80 feet for the water table zone to 2.29 feet for the deep potentiometric zone.

Water-level elevations in the recovery wells varied according to their on-line performance, and did not exhibit a discernable trend related to recharge.

Water-level elevations in all three aquifer zones were consistently highest in wells located north and west of the Landfill, and lowest in wells located south and east of the Landfill, confirming that the horizontal groundwater flow direction was from northwest to southeast across the site during 2000 with the exception of the radially inward flow within the effective capture zone of the recovery welllfield. This groundwater flow direction is consistent with previous data for the site, as well as the regional data reported by the United States Geological Survey. Although localized mounding occurs in the shallower zones of the aquifer in the vicinity of actively used recharge basins, the discharge of treated groundwater to the basins does not appear to have a significant effect on groundwater flow patterns in the deeper zones of the aquifer.

Based on the average decrease in water-level elevation between upgradient Well LF-4 and downgradient Well MW-11A (12.14 feet) and the distance between the wells (8,100 feet), the horizontal hydraulic gradient in the shallow potentiometric zone is approximately 0.0015. The hydraulic gradient is consistent with that observed for other areas of Long Island. Previous aquifer tests by Geraghty & Miller, Inc. determined that the groundwater flow velocity in the vicinity of the site is approximately 0.5 feet per day.

Review of the water-level data in Table 5 further indicates that the natural vertical hydraulic gradient in this area, which is downward, is altered by pumpage from the Town's recovery wellfield, and unusual recharge conditions. Specially, at well clusters located outside the radius of influence of the Town's recovery wellfield, water-level elevations generally decrease with increasing well depth, indicating a downward vertical hydraulic gradient. In contrast, at well clusters located within the radius of influence of the recovery wellfields (e.g., Well Cluster MW-9), water-level elevations remain constant or increase with increasing well depth, indicating flat or upward vertical

hydraulic gradients, respectively. These influences can be attributed to long-term pumping at the Town's recovery wellfield, which has lowered hydraulic head pressures in the shallow and deep potentiometric zones, where the recovery wells are screened. The presence of flat or upward vertical hydraulic gradients at certain locations indicates that groundwater is no longer moving downward in the aquifer as it migrates downgradient at these locations. Note that a flat vertical hydraulic gradient exists at Well Cluster MW-10 and between the "B" and "C" wells at the Claremont Site's Well Cluster EW-3, indicating that the Town's recovery wellfield may also be influencing groundwater flow patterns at these locations.

In addition, beginning in 2000, relatively strong upward hydraulic gradients were observed at Well Cluster MW-8. Previously, downward gradients were observed at this well cluster, which is located outside the radius of the Town' recovery wellfield. The upward gradients observed at this well cluster during 2000 are believed to reflect hydraulic influences from the Claremont Site's recovery wells, which are located a short distance to the south.

Review of the various water-level maps in Appendix C indicates that the overall size and position of the capture zone remained consistent during 2000, although some variation was noted from quarter to quarter. The GTF maintained an average on-line performance of 77 percent during, and remediated approximately 463 million gallons of groundwater at an average influent flow rate of 1.27 MGD. Moreover, the water level maps shown in Appendix C indicate that the full extent of the Landfill VOC plume was being captured during 2000.

4.3 Groundwater Quality and Quarterly Monitoring

In fulfillment of Consent Decree requirements, four rounds of quarterly groundwater sampling were conducted on February 23-24, April 25-27, July 12, 13 and 18, and October 5-6, 2000, respectively.

As per Consent Decree requirements, the following 16 wells were sampled during each round:

Off-Site Wells:	MW-5B
	MW-6A, MW-6B, MW-6C, MW-6E and MW-6F
	MW-7B
	MW-8A and MW-8B
	MW-9B and MW-9C
	MW-11A and MW-11B
Observation Well:	OBS-1
Upgradient Well:	M-29A-R
Landfill Well:	LF-1

In keeping with a previous recommendation, Wells MW-9D and OBS-2 were also sampled during the third quarter round to provide current data for the deep potentiometric zone of the aquifer at these locations downgradient of the Landfill.

The groundwater samples from all four quarterly monitoring rounds were analyzed for the VOCs, total (unfiltered) metals, dissolved (filtered) metals and leachate indicator parameters listed in Table 4. The only exceptions were the samples from Well LF-1, which were analyzed for leachate indicator parameters only as per Consent Decree requirements, and the sample from Well OBS-2, which was analyzed for VOCs only.

The analytical results from each quarterly monitoring round are summarized in Sections A through D of Appendix C, respectively. The certified laboratory data reports were included in Appendix G of the respective quarterly reports. No artifact compounds or blank contaminants were reported during any of the 2000 quarterly monitoring rounds, and duplicate sample results were reported to be within acceptable limits for all analyses. Low concentrations (2 ppb) of total VOCs were detected in Well MW-11A during the first, second and third quarter monitoring rounds. However, they are believed to represent local groundwater quality conditions at this location. Well MW-11A was non-detectable for VOCs during the fourth quarter 2000 monitoring round.

The groundwater recovery system was designed to capture and treat the VOC portion of the Landfill plume. Therefore, the data analysis focuses on VOC contamination. Analysis of the metal and leachate indicator results was limited to a comparison of those data to VOC plume dimensions, and a compilation of exceedances of the groundwater aquifer requirements for these parameters based on the limitations provided in Table 2.

The VOC data collected during the four 2000 quarterly monitoring rounds were evaluated on the basis of their observed 2000 ranges, and comparison to pre-2000 quarterly monitoring results and the 1991 baseline sampling data. To facilitate this evaluation, summary tables have been incorporated into the text of this report. These tables are intended to demonstrate annual and long-term trends in the data, and therefore differ from those used in the quarterly reports. Specifically, the 2000 VOC data are presented as the minimum, maximum and average concentrations detected, rather than as specific results for each quarter. The pre-2000 VOC data are presented as average concentrations for both 1999 and the combined period from 1992-1999, rather than as historical minimum, maximum and average values. The baseline 1991 data are presented as the actual concentrations detected.

Also, it should be noted that the ranges and averages given for Well OBS-1 reflect only those quarters for which data are available. During 2000, Well OBS-1 was sampled during all four quarterly monitoring rounds. Well OBS-1 has been sampled during 23 of the 34 monitoring rounds performed since start-up of the GTF. Well OBS-2 was sampled as a substitute well during the eleven quarterly monitoring rounds when Well OBS-1 was damaged and could not be sampled. Well OBS-2 was not sampled as a substitute well during 2000, but was sampled for VOCs only during the third quarter monitoring round. Moreover, Well MW-9D has only been sampled three times since start-up of the GTF, during the third quarter rounds of 1998, 1999 and 2000. The ranges and averages given for Well MW-9D are based on the results from these three sampling events.

Consistent with the quarterly reports, the following subsections discuss the distribution of total VOC concentrations, as well as the nature and extent of the three distinct VOC groupings which have historically been detected in groundwater: volatile halogenated organics, excluding tetrachloroethene (VHOs); aromatic hydrocarbons; and tetrachloroethene. Plume maps depicting the approximate areal extent of these VOC groupings, based on the results from each 2000 quarterly monitoring round, are provided in Figures 4 through 6 in each section of Appendix C, respectively.

4.3.1 Analysis of 2000 Total VOC Data

VOCs were detected in eight of the 17 wells sampled for VOCs during 2000, including seven of the 15 wells sampled quarterly (MW-6B, MW-6C, MW-6E, MW-7B, MW-8A, MW-11A and OBS-1), and Well MW-9D, which was sampled during the third quarter monitoring round. With the exception of Well MW-8B, which was non-detectable for VOCs during 2000 but has previously contained low concentrations of VOCs, these are the same wells in which VOCs were detected last year. VOCs were not detected in the third quarter sample from Well OBS-2.

Moreover, in addition to Wells MW-5B, MW-6A, MW-9C and OBS-2, in which VOCs were previously detected but are currently at non-detectable levels, and Well Clusters MW-10 and EW-3; which contained VOCs during the expanded third quarter 1998 monitoring round, these are the wells in which VOCs have historically been detected.

The distribution of total VOCs detected in the wells sampled during 2000, contrasted against previous data, is summarized in the following table:

TOTAL VOC CONCENTRATIONS IN 2000 GROUNDWATER SAMPLES*

Well Number	Observed (Min.)	2000 (Max.)	Range (Avg.)	1999 Average	1992-1999 Average	Baseline 1991 Data
MW-6B	12	30	21	16	16	105
MW-6C	10	17	14	14	7	31
MW-6E	ND	3	0.8	2.5	9	53
MW-7B	45	109	74	79	123	157
MW-8A	27	220	128	427	424	507
MW-9D	95	95	95	104	85	ND
MW-11A	ND	2	1.5	3	0.5	ND
OBS-1	50	89	64	142	179	8

* all concentrations in parts per billion (ppb), ND = not detectable.

Note that, relative to the 1999 averages, the 2000 average concentrations were lower or comparable for all wells except Well MW-6B. These decreases in average total VOC concentration are consistent with the overall temporal decrease in groundwater VOC concentrations observed across the site since start-up of the GTF.

The slight increase in the average total VOC concentration in Well MW-6B during 2000, relative to 1999, reflects the normal variation seen in this well since 1997. The low total VOC concentrations in Well MW-11A are believed to represent local groundwater quality conditions at this location.

Comparison of the 2000 average total VOC concentrations to the 1992-99 averages indicates temporal decreases in total VOC concentration for Wells MW-6E, MW-7B, MW-8A and OBS-1. These decreases in average total VOC concentration are also consistent with the gradual downward trends observed in these wells since start-up of the GTF. Similar downward trends were observed for Wells MW-5B, MW-6A, MW-9C and OBS2, which are now non-detectable for VOCs. The 2000 average total VOC concentrations in the other wells were higher than the 1992-1999 averages. For Wells MW-6B and MW-6C, this is because the 1992-1999 averages for these wells are biased low as a result of the plume dilution caused by the previous continuous discharge of treated groundwater to Town Recharge Basin No. 33. Overall, total VOC concentrations in these two wells have also been gradually decreasing since start-up of the GTF. The higher "average" noted for Well MW-9D reflects both the limited amount of data for this well and variation in the concentration of the plume at this location. For Well MW-11A, the increase reflects that fact that this well was non-detectable for VOCs prior to March 1998.

Compared to the baseline 1991 data, the 2000 average total VOC concentrations were lower for all wells except Wells MW-9D, MW-11A and OBS-1. The relative increases noted for Wells MW-9D and OBS-1 reflect continued downgradient plume migration toward the Town's recovery wellfield subsequent to start-up of the GTF. The relative increase noted for Well MW-11A reflects the sporadic detection of low levels of VOCs in this well since March of 1998.

Overall, total VOC concentrations in the wells sampled quarterly were relatively consistent during 2000. This is expected because as the groundwater remediation proceeds, the magnitudes of changes in VOC concentration observed on a quarter to quarter basis become less pronounced. However, it should be noted that an order or magnitude decrease in total VOC concentrations was observed in Well MW-8A during 2000. This decrease is believed to be attributable to hydraulic influences associated with the Claremont Site's recovery wellfield, which is located a short distance to the south of this well cluster and is screened in the same aquifer zone as Well MW-8A.

Figures 1, 2 and 3 in Sections A through D of Appendix C show the approximate areal extent of the total VOC plume in each aquifer zone, based on the results from each quarterly monitoring round, respectively. The current dimensions of the plume include the data from the additional wells sampled during the third quarter 1998 monitoring round. As shown in these figures, the occurrence of VOCs in the water-table zone is limited to the area immediately downgradient of the Claremont Site. In contrast, the occurrence of VOCs in the shallow potentiometric zone extends from the Landfill downgradient to the recovery wellfield, and shows the greatest areal extent of the three aquifer zones. It should be noted, however, that the portion of the plume shown around Wells MW-10B and EW-3C is attributed to the Claremont Site. The occurrence of VOCs in the deep potentiometric zone is limited to the area downgradient of the Landfill and in the immediate vicinity of the Town's recovery wellfield.

Apart from the portion of the plume in the vicinity of Wells MW-10B and EW-3C that is attributed to the Claremont Site, the current plume dimensions are somewhat smaller relative to the 1991 plume boundaries. These findings, together with the temporal decrease in total VOC concentrations observed since start-up of the GTF, indicate that groundwater quality is continuing to improve in response to the ongoing remediation.

The Consent Decree specifies a Groundwater Aquifer Requirement of 50 ppb for total VOCs. This limit was exceeded in at least one sample from Wells MW-7B, MW-8A, MW-9D and OBS-1 during 2000. Although total VOC concentrations in the three wells monitored quarterly have historically exceeded this limit, the magnitudes of the exceedances have been gradually decreasing since start-up of the GTF, and the total VOC concentrations in these wells no longer exceed this limit during every quarter. The exceedance noted for Well MW-9D can be attributed to the continued downgradient migration of the deeper portion of the Landfill plume toward the Town's recovery wellfield subsequent to start-up of the GTF.

4.3.2 Analysis of 2000 VHO Data

VHOs were detected in six of the eight wells in which VOCs were detected during 2000, including five of the wells sampled quarterly (MW-6C, MW-7B, MW-8A, MW-11A, and OBS-1), and Well MW-9D, which was sampled during the third quarter round. With the exception of Well MW-8B, which was non-detectable for VHOs in 2000 but contained a

1-ppb total VHO concentration during the third quarter of 1999, these are the same wells in which VHOs were detected last year.

Moreover, in addition to Wells MW-5B, MW-6A, MW-6B, MW-6E, MW-9C and OBS-2, in which VHOs have previously been detected but are currently at non-detectable levels, these are the wells in which VHOs have been detected more than once during quarterly monitoring. VHOs were also detected in Wells MW-10B, MW-10C, MW-10D and LF-1 during the expanded third quarter 1998 monitoring round.

The distribution of total VHOs detected in the wells sampled during 2000, contrasted against previous data, is summarized in the following table:

TOTAL VHO CONCENTRATIONS IN 2000 GROUNDWATER SAMPLES*

Well Number	Observed (Min.)	2000 (Max.)	Range (Avg.)	1999 Average	1992-1999 Average	Baseline 1991 Data
MW-6C	ND	1	0.5	3	0.5	1
MW-7B	1	12	7	3	18	17
MW-8A	1	19	9	47	188	65
MW-9D	64	64	64	71	53	ND
MW-11A	ND	2	1.5	3	0.5	ND
OBS-1	14	20	16	47	82	13

* all concentrations in parts per billion (ppb), ND = not detectable.

Note that, relative to the 1999 average concentrations, the 2000 average concentrations were lower for all wells except Well MW-7B. With respect to the wells sampled quarterly, these decreases are consistent with the overall temporal decrease in total VHO concentrations observed across the site since start-up of the GTF. Moreover, the 2000 results for Wells MW-8A and OBS-1 are the lowest total VHO concentrations detected in these wells since the start of quarterly monitoring. The relative increase in total VHO concentrations in Well MW-7B is believed to be attributable to minor fluctuations in the position of the plume. The slight decrease in the "average" total VHO concentration in Well MW-9D during 2000, relative to 1999, most likely reflects variation in plume concentration at this location.

Comparison of the 2000 average total VHO concentrations to the 1992-99 averages and the baseline 1991 data indicates relative decreases in concentration for Wells MW-6C, MW-7B and MW-8A, and relative increases for Well MW-9D and MW-11A. The relative decreases noted for Wells MW-6C, MW-7B and MW-8A are consistent with the overall decrease in groundwater total VHO concentrations observed since start-up of the GTF. The relative increase noted for Well MW-9D is believed to reflect variation in plume concentration. The relative increase noted for Well MW-11A reflects the fact that this well was non-detectable for VHOs prior to 1998, however, the low levels of VHOs detected in this well are attributed to local groundwater quality conditions at this location. The average 2000 total VHO concentration in Well OBS-1 is lower than the 1992-1999 average but higher than the 1991 baseline concentration. This reflects the fact that total VHO concentrations initially increased in this well from 1992 through 1995, but have been gradually decreasing since 1996.

During 2000, total VHO concentrations decreased by an order of magnitude in Well MW-8A, increased by an order of magnitude in Well MW-7B and remained essentially unchanged in Well OBS-1. Total VHO concentrations were relatively consistent in Wells MW-6C and MW-11A during 2000, but decreased to non-detectable levels by the fourth quarter monitoring round.

Figure 4 in Sections A through D of Appendix C shows the approximate areal extent of total VHOs in groundwater based on the results from each quarterly monitoring round. As shown, the current dimensions of the VHO plume are generally comparable to the 1999 findings, and the plume maps include the data from the additional wells sampled during the expanded third quarter 1998 monitoring round. Note that the configuration of the VHO plume has changed somewhat relative to the baseline 1991 plume boundaries. Specifically, in addition to the "hole" associated with the lack of VHO detections in Well MW-5B, the eastern side of the plume has been extended to reflect the VHO detections in Well Clusters MW-10 and EW-3, which are associated with the off-site plume from the Claremont Site.

A total of eleven specific VHO compounds were detected in groundwater during 2000. Seven of these VHOs (1,2-dichloroethene, trichloroethene, 1,1,1-trichloroethane, vinyl chloride, 1,1-dichloroethane, 1,1-dichloroethene and 1,2-dichloroethane) were detected in the wells sampled quarterly. In general, these are the VHOs that have historically been detected in groundwater. The other four VHOs (dichlorodifluoromethane,

chloroethane, fluorotrichloromethane and methylene chloride) were only detected in the third quarter 2000 sample from Well MW-9D, and only two (dichlorodifluoromethane and chloroethane) were detected at a concentration higher than 1 ppb.

The nature and extent of the seven VHO compounds detected in the wells sampled quarterly during 2000 are summarized below:

VHO COMPOUNDS DETECTED IN 2000 GROUNDWATER SAMPLES*

Compound	Detection** Frequency	Observed 2000 Range (Min.)	(Max.)	(Avg.)	Grndwtr Limits***
1,2-dichloroethene	9/18	1	18	9.2	5
Trichloroethene	16/18	1	12	3.8	5
1,1,1-trichloroethane	4/18	1	5	2.3	5
vinyl chloride	3/18	1	4	2	2
1,1-dichloroethane	3/18	1	11	4.3	5
1,1-dichloroethene	3/18	1	1	1	5
1,2-dichloroethane	2/18	1	1	1	0.6

* all concentrations in ppb.

** frequency each compound was detected in the samples in which these seven VHOs were detected.

*** see Table 1.

Note that, with respect to the wells sampled quarterly, these VHOs were detected at the greatest frequencies and highest concentrations in Wells MW-8A and OBS-1. All of these VHOs were detected in the third quarter 2000 sample from Well MW-9D.

The pattern of VHO detections in Wells MW-8A and OBS-1 is similar to the 1999 quarterly monitoring results. The VHOs detected in Well MW-9D can be attributed to the continued downgradient migration of the deeper portion of the Landfill plume at this location towards the Town's recovery wellfield.

In the wells monitored quarterly, trichloroethene and 1,1,1-trichloroethane were detected at the greatest frequencies and highest concentrations in Well MW-8A, while 1,2-dichloroethene and vinyl chloride were detected at the greatest frequencies and highest concentrations in Well OBS-1. The other VHOs were also detected in these two wells but at much lower concentrations. Relatively high concentrations of chloroethene

1,2-dichloroethene, 1,1-dichloroethane, vinyl chloride, and dichlorodifluoromethane were also detected in the third quarter sample from Well MW-9D. This pattern is consistent with the 1999 quarterly monitoring results.

The highest concentration of 1,2-dichloroethene was detected in Well OBS-1 during the first quarter monitoring round. The highest concentrations of trichloroethene and 1,1,1-trichloroethane were detected in Well MW-8A during the first quarter monitoring round. The highest concentrations of 1,1-dichloroethane and vinyl chloride were detected in the third quarter sample from Well MW-9D.

Exceedances of the Groundwater Aquifer Requirements imposed by the Consent Decree were noted for Wells MW-7B, MW-8A, MW-9D and OBS-1. For Well MW-7B, the exceedances included trichloroethene during the third and fourth quarter rounds. For Well MW-8A, the exceedances included trichloroethene during the first and second quarter rounds, and 1,1,1-trichloroethane during the first quarter round. For Well MW-9D, exceedances were noted for chloroethane, 1,2-dichloroethane, 1,1-dichloroethene 1,2-dichloroethene, dichlorodifluoromethane and vinyl chloride. For Well OBS-1, the exceedances included 1,2-dichloroethene during all four quarterly monitoring rounds. For Well MW-9D, exceedance were noted for chloroethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,2-dichloroethene, dichlorodifluoromethane, and vinyl chloride. A slight exceedance for 1,2-dichloroethane was also noted for the third quarter sample from Well MW-6C. The number and magnitudes of the exceedances noted during 2000 are less than those observed during 1999, which is in keeping with the gradual reduction in groundwater VOC concentrations observed since start-up of the GTF.

4.3.3 Analysis of 2000 Aromatic Hydrocarbon Data

Aromatic hydrocarbons were detected in six of the eight wells in which VOCs were detected during 2000, including five of the wells sampled quarterly (MW-6B, MW-6C, MW-6E, MW-8A and OBS-1), and Well MW-9D, which was sampled during the third quarter monitoring round.

These are the same wells in which aromatic hydrocarbons were detected last year. Moreover, in addition to Wells MW-5B, MW-9C and OBS-2, in which low levels of aromatic hydrocarbons were previously detected but are currently at non-detectable levels, these are the wells in which aromatic hydrocarbons have been detected during

quarterly monitoring. Aromatic hydrocarbons were also detected in Landfill Wells LF-1 and LF-2 during the expanded third quarter 1998 monitoring round.

The distribution of total aromatic hydrocarbons detected in wells sampled during 2000, contrasted against previous data, is summarized below:

TOTAL AROMATIC HYDROCARBONS IN 2000 GROUNDWATER SAMPLES*

Well Number	Observed (Min.)	2000 (Max.)	Range (Avg.)	1999 Average	1992-1999 Average	Baseline 1991 Data
MW-6B	12	30	21	16	16	48
MW-6C	10	16	14	11	6	30
MW-6E	ND	3	0.8	3	6	37
MW-8A	ND	1	0.3	0.3	1.4	2
MW-9D	28	28	28	30	29	ND
OBS-1	30	59	41	79	90	110

* all concentrations in ppb, ND = not detectable.

Note that, relative to the 1999 average concentrations, the 2000 average concentrations were lower in Wells MW-6E, MW-9D and OBS-1, unchanged in Well MW-8A, and higher in Wells MW-6B and MW-6C. The decreases in average total aromatic hydrocarbon concentration in Wells MW-6E and OBS-1 during 2000, relative to 1999, reflect the downward trends in concentration observed in these wells during 2000. The 1999 and 2000 averages for Well MW-8A reflect single detections of 1 ppb during the first quarter of 1999 and the third quarter of 2000, respectively. This well was otherwise non-detectable for aromatic hydrocarbons during 1999 and 2000. The increase in average total aromatic hydrocarbon concentrations in Wells MW-6B and MW-6C during 2000, relative to 1999, reflect the continued slight upward trends in concentration observed in these wells during 2000. These increasing trends are believed to be associated with the continued return of groundwater quality conditions in the deeper wells at this location to those observed prior to the continuous discharge of treated groundwater to Town Recharge Basin No. 33 during the period from October 1994 through October 1996. The 2-ppb decrease in concentration observed for Well MW-9D, relative to the third quarter 1999 results, is believed to reflect variation in plume concentration.

Comparison of the 2000 average total aromatic hydrocarbon concentrations to the 1992-99 averages indicates temporal increases in concentration for Wells MW-6B and MW-6C, and temporal decreases for Wells MW-6E, MW-8A and OBS-1. The relative increases noted for Wells MW-6B and MW-6C reflect the fact that these wells were non-detectable for aromatic hydrocarbons during the period from mid 1995 through 1996, which causes the 1992-99 averages for these wells to be biased low. The temporal decreases noted for the other wells reflect the gradual decrease in groundwater aromatic hydrocarbon concentrations observed since start-up of the GTF. The 1-ppb relative decrease noted for Well MW-9D reflects variation in plume concentration, as noted previously.

Comparison of the 2000 average concentrations to the 1991 baseline data indicates decreases for all wells except Well MW-9D, which increased from non-detectable to 28 ppb. As noted previously, this increase reflects downgradient migration of the deeper portion of the Landfill plume towards the Town's recovery wellfield at this location subsequent to start-up of the GTF.

During 2000, total aromatic hydrocarbon concentrations showed fluctuating, but generally increasing trends in Wells MW-6B and MW-6C, and a decreasing trend in Well OBS-1. The increasing trends in Wells MW-6B and MW-6C reflect the continued return of groundwater quality conditions in the deeper wells at this location to those observed prior to the continuous discharge of treated groundwater to Town Recharge Basin No. 33 during the period from October 1994 through October 1996. The decreasing trend in Well OBS-1 is consistent with the decreasing trend seen in this well since 1996.

Figure 5 in Sections A through D of Appendix C shows the approximate areal extent of the aromatic hydrocarbon plume based on the results from each of four 2000 quarterly monitoring rounds, respectively. Comparison of these figures to previous findings indicates that the dimensions of the aromatic hydrocarbon plume have decreased somewhat relative to the baseline 1991 plume boundary.

A total of six aromatic hydrocarbon species were detected during 2000: benzene, chlorobenzene, 1,4-dichlorobenzene, 1,3-dichlorobenzene, 1,2-dichlorobenzene and xylene. In general, these are the aromatic hydrocarbon species that have historically been detected in groundwater.

The nature and extent of aromatic hydrocarbon compounds in groundwater, based on the 2000 data, are summarized below:

AROMATIC HYDROCARBONS DETECTED IN 2000 GROUNDWATER SAMPLES*

Compound	Detection** Frequency	Observed 2000 Range (Min.)	(Max.)	(Avg.)	Grndwtr Limits***
Benzene	13/15	2	58	15.5	1
Chlorobenzene	15/15	1	14	4.8	5
1,4-dichlorobenzene	11/15	1	5	2.5	3
1,3-dichlorobenzene	7/11	1	6	2.3	3
1,2-dichlorobenzene	4/15	1	2	1.3	3
Xylene (total)	3/15	1	11	5	5

* all concentrations in parts per billion (ppb).

** frequency each compound was detected in samples in which aromatic hydrocarbons were detected.

*** see Table 2.

Benzene was detected in Wells OBS-1, MW-6B and MW-6C during all four 2000 quarterly monitoring rounds, and in the third quarter sample from Well MW-9D. The highest levels of benzene were consistently detected in Well OBS-1. Chlorobenzene was detected in Wells MW-6B, MW-6C and OBS-1 during all four 2000 quarterly monitoring rounds, in Wells MW-6E and MW-8B during the third quarter monitoring round, and in the third quarter sample from Well MW-9D. The highest concentrations of chlorobenzene were consistently detected in Wells MW-6B and MW-6C. Dichlorobenzenes were primarily detected in Wells MW-6B and MW-6C, and only sporadic 1-ppb concentrations were detected in Wells MW-6E and OBS-1. 1-4-dichlorobenzene is the isomer detected most often and at the highest concentration. Xylene was detected in Well MW-6B during the second and fourth quarter monitoring rounds, and in the third quarter sample from Well MW-9D. The highest concentration of xylene was detected in the sample from Well MW-9D.

Exceedances of the Groundwater Aquifer Requirements imposed by the Consent Decree were noted for benzene, chlorobenzene, 1,4-dichlorobenzene, 1,3-dichlorobenzene and xylene. All of these exceedances occurred in Wells MW-6B, MW-6C, MW-9D and OBS-1. All of the detections of benzene exceeded the 1-ppb limit. Exceedances for chlorobenzene occurred in Well MW-6B during the all four quarterly

monitoring rounds. Chlorobenzene was also detected at the 5 ppb limit in Well MW-6C during the second, third and fourth quarter monitoring rounds. The exceedances for 1,4-dichlorobenzene occurred in Wells MW-6B during the second quarter monitoring round, and in Well MW-6C during the second and fourth quarter monitoring rounds. 1,4-dichlorobenzene was also detected at the 3-ppb limit in the first quarter samples from Wells MW-6B and MW-6C. The exceedances for 1,3-dichlorobenzene occurred in Wells 6B and MW-6C during the third quarter monitoring round. One exceedance for xylene occurred in the third quarter sample from Well MW-9D. No exceedances were noted for 1,2-dichloroethene during 2000.

4.3.4 Analysis of 2000 Tetrachloroethene Data

Tetrachloroethene was detected in Wells MW-7B, MW-8A and OBS-1 during all four 2000 quarterly monitoring rounds, and in the third quarter sample from Well MW-9D. With the exception of Well MW-8B, which was non-detectable for tetrachloroethene during 2000 but contained sporadic low levels of tetrachloroethene during 1999, these are the same wells in which tetrachloroethene was detected last year.

The highest concentrations of tetrachloroethene were detected in Wells MW-8A (26-210 ppb) and MW-7B (44-97 ppb), while somewhat lower levels were detected in Well OBS-1 (6-10 ppb). Only a trace level (3 ppb) of tetrachloroethene was detected in Well MW-9D. Tetrachloroethene concentrations in Well MW-8A decreased by an order of magnitude during the second half of 2000. In contrast, tetrachloroethene concentrations in Well MW-7B fluctuated during 2000, and Well OBS-1 showed a gradually decreasing trend consistent with last year's findings. The trace level of tetrachloroethene detected in Well MW-9D is consistent with past data for this well.

Figure 6 in Sections A through D of Appendix C shows the approximate areal extent of the tetrachloroethene plume based on the results from each of the 2000 quarterly monitoring rounds, respectively. As shown, the tetrachloroethene plume extends from the area upgradient of Well MW-8A, downgradient to Recovery Wells RW-3, RW-4 and RW-5. All four figures are similar, and include the results from the additional wells sampled during the expanded third quarter 1998 monitoring round. The current extent of the tetrachloroethene plume is consistent with that shown by pre-2000 quarterly monitoring rounds, and corresponds to the eastern component of the tetrachloroethene plume delineated by the baseline 1991 monitoring data. The western component of the

tetrachloroethene plume, which was delineated on the baseline 1991 results as a separate plume, is shown as an extension of the eastern component of the tetrachloroethene plume in Figure 6 in each section of Appendix C to more accurately reflect the distribution of tetrachloroethene in groundwater.

All concentrations of tetrachloroethene detected in Wells MW-7B, MW-8A and OBS-1 during 2000 exceeded the 5-ppb Groundwater Aquifer Requirement.

4.3.5 Delineation of the VOC Plume

The position of the total VOC plume, which is a composite of the three site-specific VOC groupings, has been delineated on the water table and potentiometric surface maps in Figures 1 through 3 in each section of Appendix C. The outlines (shaded areas) represent the approximate areal extent of the total VOC plume based on the findings of the respective 2000 quarterly monitoring rounds. A review of the total VOC plume outlines in these figures indicates that the approximate length of the plume downgradient of the landfill is 2,500 feet, and the maximum width of the plume is about 3,900 feet. Overall, the dimensions of the plume are consistent with the 1999 data.

4.3.6 Analysis of 2000 Inorganic Data

Inorganic data collected during the 2000 quarterly monitoring rounds are summarized in Tables 4 and 5 of each section in Appendix C. Overall, the distribution of leachate indicators in the aquifer remained relatively constant during 2000, and was similar to that of previous quarterly monitoring efforts and the 1991 baseline sampling round. It is noted, however, that the extent and concentration of leachate indicator parameters in groundwater appear to also be decreasing over time at most locations in response to the ongoing groundwater remediation. However, it is noted that the frequency of detection and concentration of certain leachate indicators in Wells MW-8A and MW-8B increased during 2000. The increasing trends observed for these two wells are believed to reflect hydraulic influences associated with the Claremont Site's recovery wellfield, which is located a short distance south of these wells. It appears that pumpage from this wellfield is causing the Landfill plume in this area to shift eastward.

The overall distribution of inorganic parameters within the aquifer during 2000 was evaluated based on the nature and occurrence of exceedances of the Groundwater Aquifer Requirements listed in Table 2. During 2000, exceedances were noted for ammonia, chloride, iron, manganese, mercury, phenols, sodium, sulfate and total dissolved solids. Exceedances occurred in Wells MW-5B, MW-6B, MW-6C, MW-6E, MW-6F, MW-7B, MW-8A, MW-8B, MW-9B, MW-9C, MW-9D, MW-11A, LF-1 and OBS-1. Nearly all of the exceedances occurred in wells located directly downgradient of the Landfill, and primarily occurred in Wells MW-5B and OBS-1, and Well Clusters MW-6, MW-8 and MW-9. The exceedance in Well MW-7B was limited to iron during the third quarter monitoring round. The exceedance in Well MW-11A was limited to manganese during the third quarter monitoring round, and is believed to represent local groundwater quality conditions at this location. One exceedance for mercury occurred in the third quarter sample from Well MW-9D.

4.4 Hydraulic Evaluation of the Groundwater Remediation System

4.4.1 Effective Capture Zone

Figures 1 through 3 in each section of Appendix C show the configuration of the water table, and the shallow and deep potentiometric surfaces, respectively, relative to the position of the total VOC plume based on the findings of the 2000 quarterly monitoring rounds. In addition, the limiting flow lines depicting the capture zone are shown on the shallow and deep potentiometric surface maps.

Note that, due to downtime associated with repair and maintenance of the various recovery wells and treatment system appurtenances, the GTF was not fully operational during the second, third and fourth quarters of 2000. As a result, the capture zone was not developed to its maximum extent during this period. Nevertheless, analysis of the limiting flow lines in Figures 1 through 3 in each section of Appendix C indicates that the Landfill VOC plume was being captured during this period.

Review of the 2000 water-level data, and prior data, indicates that the current capture zone developed soon after start-up of the GTF, and that its size and shape has remained stable over time. For example, comparison of the water-level data for the April 30, 1992 round (i.e., the first monthly water-level round following start-up of the GTF) with the pre-pumping water-level data from the October 1991 round, indicates

that water levels in the vicinity of the capture zone initially declined an average of 10.5 feet in response to pumping. Specifically, pre-pumping water levels ranged from approximately 65.3 to 66.8 feet above MSL, whereas pumping water levels ranged from approximately 52.2 to 57.3 feet above MSL.

Since the April 30, 1992 round, the average water-level elevation in the recovery wells during pumping conditions has ranged from a low of 47.5 feet above MSL following the 1995 drought, to a high of 56.5 feet above MSL following the 1997-98 El Nino winter. Water-level elevations in the recovery wells also show what appear to be relatively minor fluctuations that can be correlated to normal seasonal variations in recharge.

During the period from April 1, 1992 through October 4, 2000, various recovery wells have been temporarily off-line on the dates that the hydraulic monitoring rounds were conducted. While off-line, water levels in these wells recovered approximately 7 to 12 feet relative to the other wells, but remained approximately 3 to 5 feet below their pre-pumping levels due to the drawdown associated with the other recovery wells.

Including the wells around the various recharge basins, which may be influenced by mounding, water-level elevations in the 41 monitoring and observation wells at 19 locations across the site for which comparative data are available increased by an average of 1.95 feet during 2000, and averaged approximately 6.5 feet lower relative to the average of the July and October 1991 (pre-pumping) baseline water-level data for each well. Moreover, the drawdown in the capture zone during 2000 averaged 14.8 feet relative to the water-level elevation in the recovery wells prior to start-up of the GTF.

Based upon the limiting flow lines of the capture zones, as presented in Figures 2 and 3 of each section of Appendix C, the average facility flow of 1.27 MGD (see Section 6.0) during 2000 has adequately maintained hydraulic control over the Landfill VOC plume. Furthermore, control of the VOC plume has been maintained during the thirty-five operating quarters since start-up of the GTF, where average facility flow has varied from approximately 0.90 to 1.44 MGD regardless of the seasonal effects. Therefore, the frequency of hydraulic monitoring can continue to be safely reduced to the present quarterly from the original monthly schedule.

4.4.2 Effects of Mounding Due to Recharge

During the period from start-up through early October of 1994, treated groundwater from the GTF was discharged continuously to Recharge Basin No. 1. During that period, water levels in the shallow monitoring wells located around the basin increased in response to the mounding. During the period from mid October 1994 through October 1996, the GTF effluent was discharged continuously to Town Recharge Basin No. 33 while clean-out and repair of Recharge Basin No. 1 was performed. During this period, water levels in the shallow monitoring wells near this basin also showed a mounding effect. The localized mounding around Town Recharge Basin No. 33 appears to have had a minimal effect on horizontal groundwater flow directions in the shallow and deep potentiometric zones. The effects of this mounding, if any, on vertical groundwater flow patterns could not be determined from the hydraulic monitoring data. However, the water-quality data for monitoring wells located downgradient indicated that recharge to that the basin was diluting the Landfill plume. Evidence of that dilution was the overall decrease in both VOC and inorganic leachate indicator parameter levels in downgradient Well MW-5B and Well Clusters MW-6 and MW-9 during 1996.

On October 30, 1996, the Town returned Recharge Basin No. 1 to service, and stopped discharging to Recharge Basin No. 33 on a full-time basis. The hydraulic and water-quality data collected since then indicate that water-quality patterns have returned to those observed prior to that change in the recharge scenario. However, it is also anticipated that as a result of the previous plume dilution the duration of remediation may be increased.

During the fourth quarter of 1998, LKB noted that the water level in Recharge Basin No. 1 had risen somewhat. While this was likely due in part to the excellent on-line performance of the GTF achieved during the second half of 1998, it also indicated that the sidewall of the basin was beginning to resist flow. In response, Landfill personnel began directing flow to the temporary recharge basin located north-northeast of the GTF air stripper. A subsequent inspection of the exposed sidewall of Recharge Basin No. 1 confirmed the presence of silting sufficient to have caused the observed reduction in flow. LKB recommended that the Town begin a phased cleaning of the recharge basins. The Town has since completed cleaning of Recharge Basin No. 33.

During 1999, LKB noted that the water level in Well LF-3, which is located between the GTF and Winding Road, appeared to be influenced by the recharge of treated groundwater to the temporary recharge basin. Landfill personnel resumed discharging to Recharge Basin No. 1 on October 18, 1999. The November 15, 1999 water-level data for the wells around Recharge Basin No. 1 indicate that mounding is once again occurring in this area. The current water-level data for Well LF-3 indicates that the mound in the vicinity of the temporary recharge basin has dissipated.

During 2000, the mounding effects associated with the various recharge basins were not as pronounced due to a somewhat decreased flow rate associated with recovery well downtime, and the fact that the effluent from the GTF was distributed among the available recharge basins.

4.4.3 Evaluation of System Pumpage

System pumpage during 2000 was evaluated based on the information regarding total system pumpage and individual recovery well flow presented in the quarterly monitoring reports. During 2000, the average daily flow through the air stripper was 1.27 MGD. The GTF was not fully operational during 2000 due to repair and maintenance of the various recovery wells and treatment system appurtenances. The majority of the downtime recorded was associated with Recovery Well RW-2 being off-line for repairs during the period form late February through early May for repair of an underground electrical short, Recovery Well RW-5 being off-line from early May through the end of the year pending replacement of its underground high-voltage power supply line, and Recovery Well RW-3 being off-line to replace a failed pump during the period from mid September through mid November. There was also limited downtime due to maintenance and repair of the various treatment system appurtenances, weather-related shutdowns, and two Town holidays. Quarterly pumpage records and system flow data for 2000 were summarized by LKB and reproduced as Table 5 in each section of Appendix C.

SECTION 5.0
AIR STRIPPER STACK EMISSIONS MONITORING RESULTS

LKB used the water-quality data generated at the Town's on-site laboratory and the operational data recorded by Town personnel to calculate the average concentrations of individual VOCs in the air stripper stack exhaust during each quarter of 2000. The results were compared to the stack discharge limits established by the Consent Decree and the short-term and annual guideline concentrations (SGCs and AGCs, respectively) listed in the latest version of NYSDEC Air Guide No. 1.

The results from this comparison indicated that while the stack discharge limits and SGCs were consistently satisfied, the concentrations of one or more VOCs were higher than their respective AGCs during all four quarters of 2000. Therefore, air dispersion modeling was performed to calculate the concentrations of VOCs at the downwind property boundary.

The same model (Industrial Source Complex – Short Term Model (a.k.a., "ISCST3")) and receptor grid were used to maintain consistency with previous monitoring efforts. However, six years of weather data from Islip-MacArthur Airport (1989-1994) were used in the assessment model, rather than the one year of weather data from the OBSWDC (1985) previously utilized, as these data were believed to be more representative of average current conditions based on the extent of the data and their timeliness.

Based on the results from the modeling, the maximum downwind impacts occurred just to the northeast of the air stripper at the OBSWDC property line, along Winding Road. Comparison of the predicted impacts to the NYSDEC Air Guide No. 1 limits indicated that the concentrations of all VOCs at the worst-case downwind receptor were well below their respective SGC and AGC during all four quarters of 2000.

Review of the 2000 monitoring efforts indicates that using the influent/effluent data from the on-site laboratory and the operational data recorded by Town personnel to calculate air stripper stack emissions is a valid approach, and that modeling of these results is an appropriate method of predicting the downwind impacts. Therefore, this methodology will continue to be used for future air stripper stack emissions monitoring.

SECTION 6.0
DISCUSSION AND RECOMMENDATIONS

6.1 Discussion

6.1.1 Facility Operations

Review of the operational data provided in the quarterly reports indicates that the GTF maintained an average on-line performance of 77 percent during 2000. A total of 463 million gallons of groundwater were pumped, treated and recharged, at an average daily flow rate of 1.27 MGD (Figure 1).

The GTF's performance on a quarterly basis is summarized below:

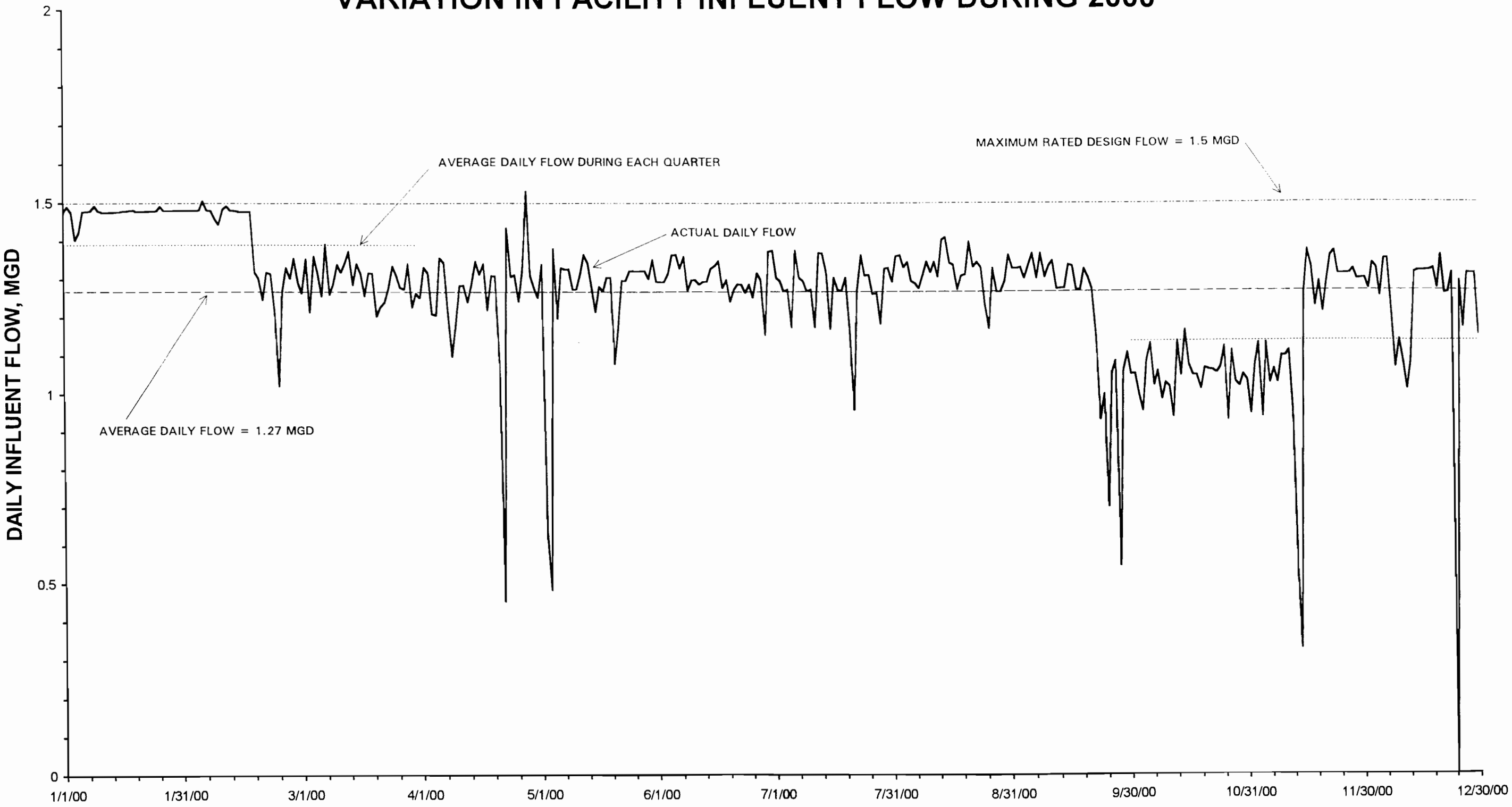
Reporting Period	On-Line Performance (%)	Avg. Daily Flow (MGD)	Total Flow (MG)
1st Quarter of 2000	90.5	1.39	127
2nd Quarter of 2000	78.2	1.26	115
3rd Quarter of 2000	76	1.17	110
4th Quarter of 2000	63	1.14	105

Determination of the on-line performance of the GTF is based on the percentage of the total available operating time that the GTF was actually on-line during the reporting period. The total available pump operating time during 2000 was 43,800 hours, based on five recovery wells operating 24 hours per day for 365 days. The total downtime recorded on the Daily Operations Reports during 2000 was10,121 hours.

As shown in Figure 1, nearly all of the downtime occurred during the last three quarters of 2000. This downtime was primarily associated with shorts in the underground high-voltage power supply lines to Recovery Wells RW-2 and RW-5, and a failed pump in Recovery Well RW-3, but included routine maintenance and repair of the various treatment system appurtenances, weather-related shutdowns and two Town holidays. Recovery Wells RW-2 and RW-3 were returned to service. The Town is currently in the process of procuring a contractor to replace the power supply line for Recovery Well RW-5, which is too damaged to repair.

FIGURE 1

VARIATION IN FACILITY INFLUENT FLOW DURING 2000



CALENDAR YEAR, 2000

TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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Data File: e:\personal\jgerlach\rap-data\flowdata.xls

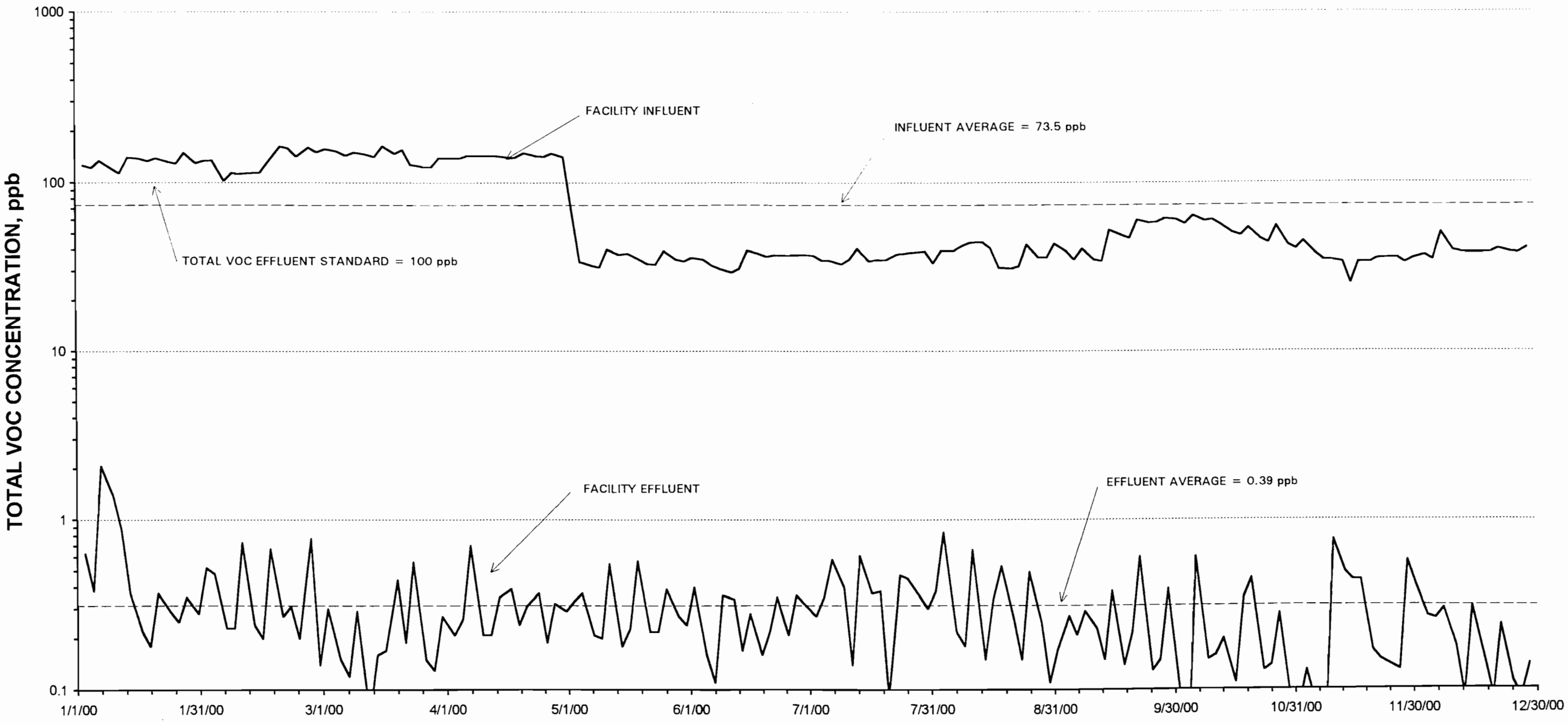
Based on the Town laboratory's data, which were quality checked with the monthly SPDES analyses, the total VOC concentration of the GTF influent averaged 73.5 ppb during 2000, and the total VOC concentration of the effluent averaged 0.39 ppb during 2000 (Figure 2). The total VOC concentration of the GTF influent varied according to which recovery wells were on-line, but otherwise remained relatively constant during 2000. The abrupt decrease in influent total VOC concentration in early May shown in Figure 2 is associated with Recovery Well RW-5, which has a relatively high total VOC concentration, going off-line for repairs. The relative proportions of the individual VOC species comprising the plume also remained consistent during 2000 (Figure 3).

With respect to the individual recovery wells, total VOC concentrations in Recovery Wells RW-1, RW-2 and RW-3 showed fluctuation but gradual decreasing trends during 2000. Their trends are consistent with the overall temporal decrease in groundwater VOC levels observed since start-up of the GTF. Total VOC concentrations in Recovery Wells RW-4 showed a fluctuating but generally increasing trend during 2000. This trend is in contrast to the overall decreasing trend observed for this well during the period from start-up of the GTF through mid 1999. Total VOC concentrations in Recovery Well RW-5 showed a fluctuating but generally decreasing trend during the period from January through April 2000, which is in contrast to the increasing trend observed in this well since 1997 (Figure 4).

The treatment efficiency of the GTF air stripper averaged 99.4 percent during 2000 (Figure 5), which is comparable to that achieved in previous years. Removal efficiencies have remained high for three reasons. Firstly, a five-well recovery system tends to dampen out large variations in influent VOC concentrations to the air stripper. Secondly, the amount of VOC loading to the air stripper has been gradually decreasing over time in response to the ongoing remediation. Lastly, a high awareness exists among operating personnel regarding maintenance of the stripper internals through observation of the tower packing, where iron deposit fouling can cause a drop in process efficiency. Acid washes of the tower internals are a regular maintenance procedure. The latest was performed in February 2000.

FIGURE 2

COMPARISON OF INFLUENT/EFFLUENT TOTAL VOC CONCENTRATIONS DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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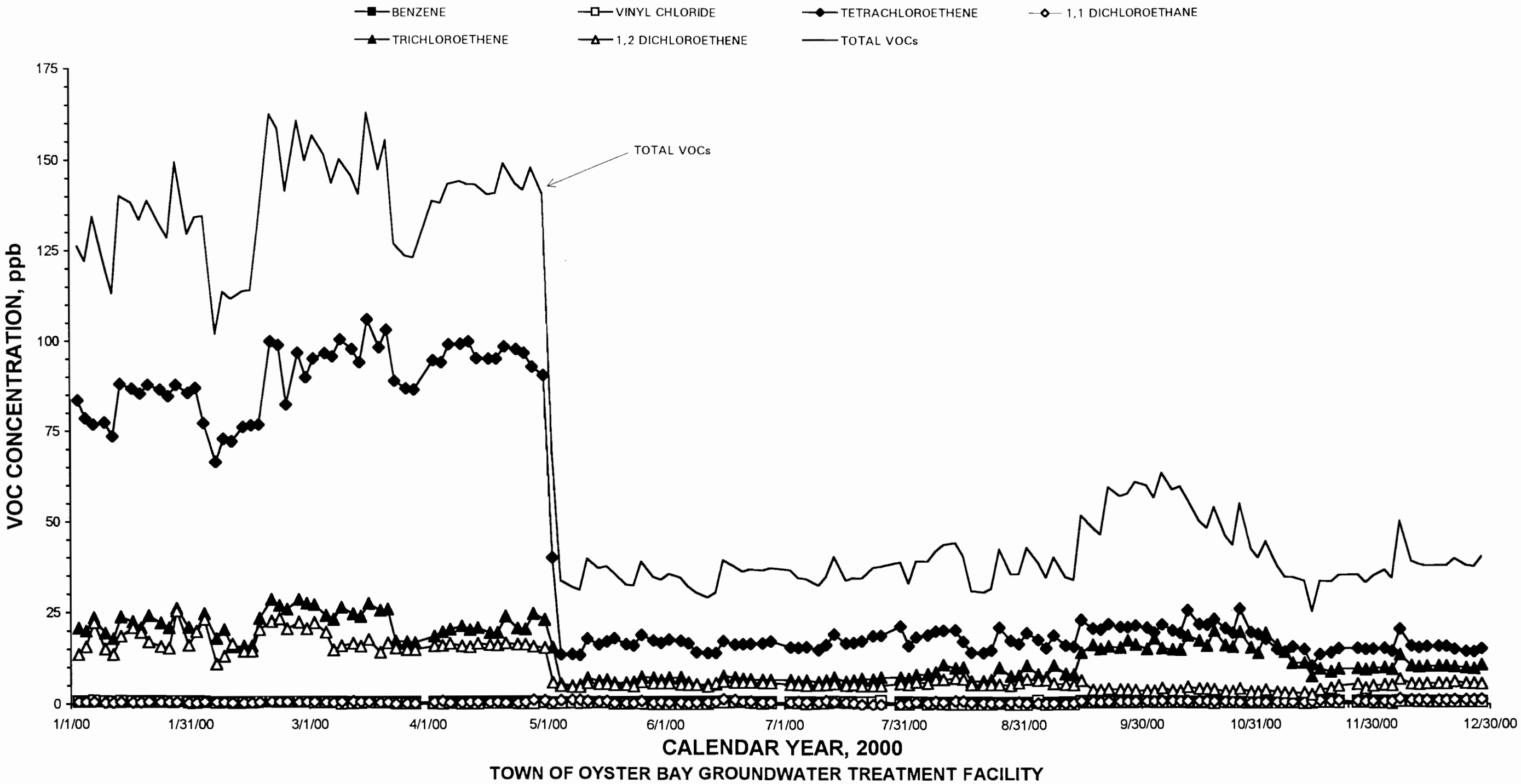
FIGURE 3

VARIATION IN FACILITY INFLUENT VOC CONCENTRATIONS DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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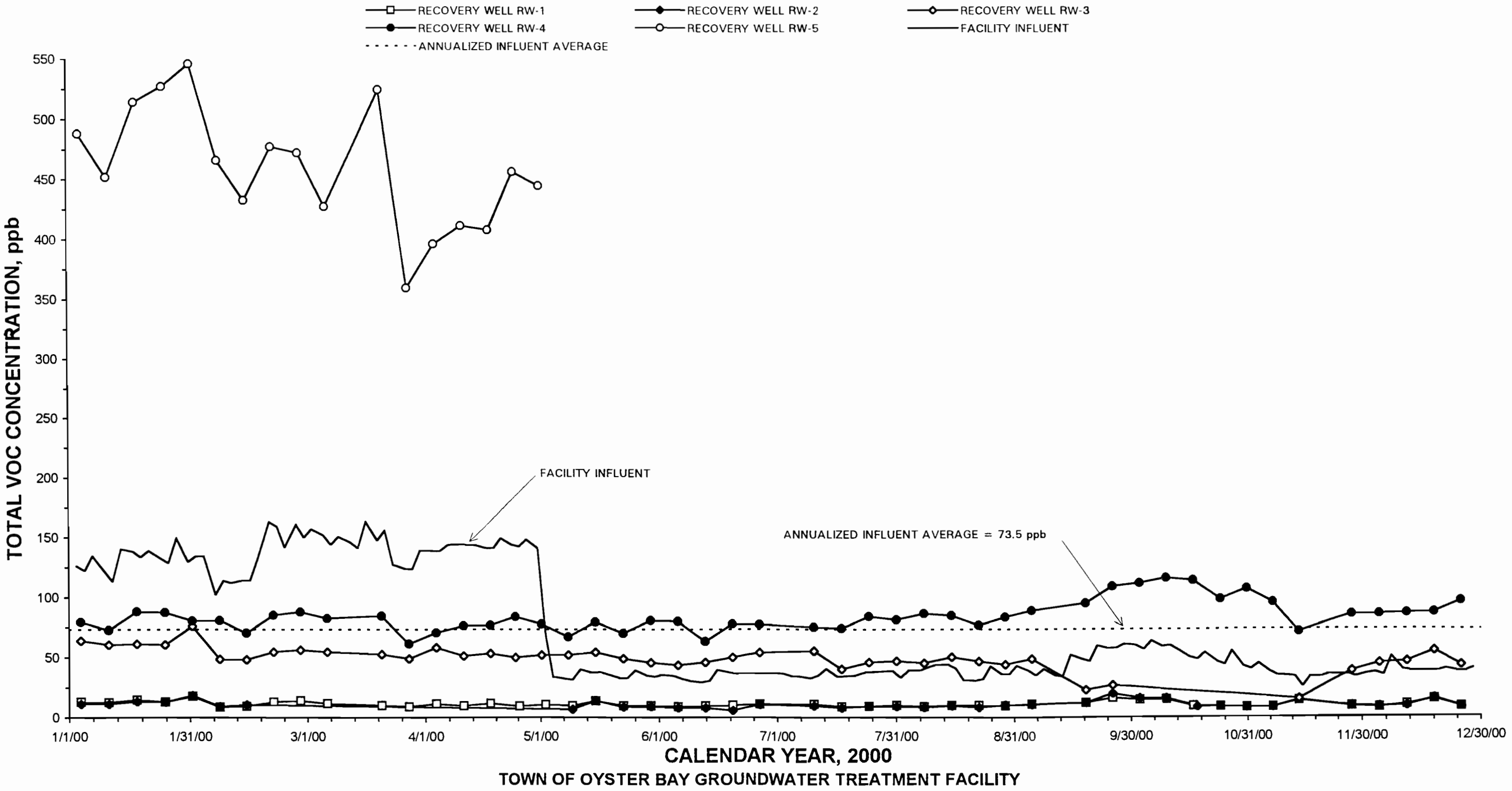
FIGURE 4

VARIATION IN WELLFIELD TOTAL VOC CONCENTRATIONS DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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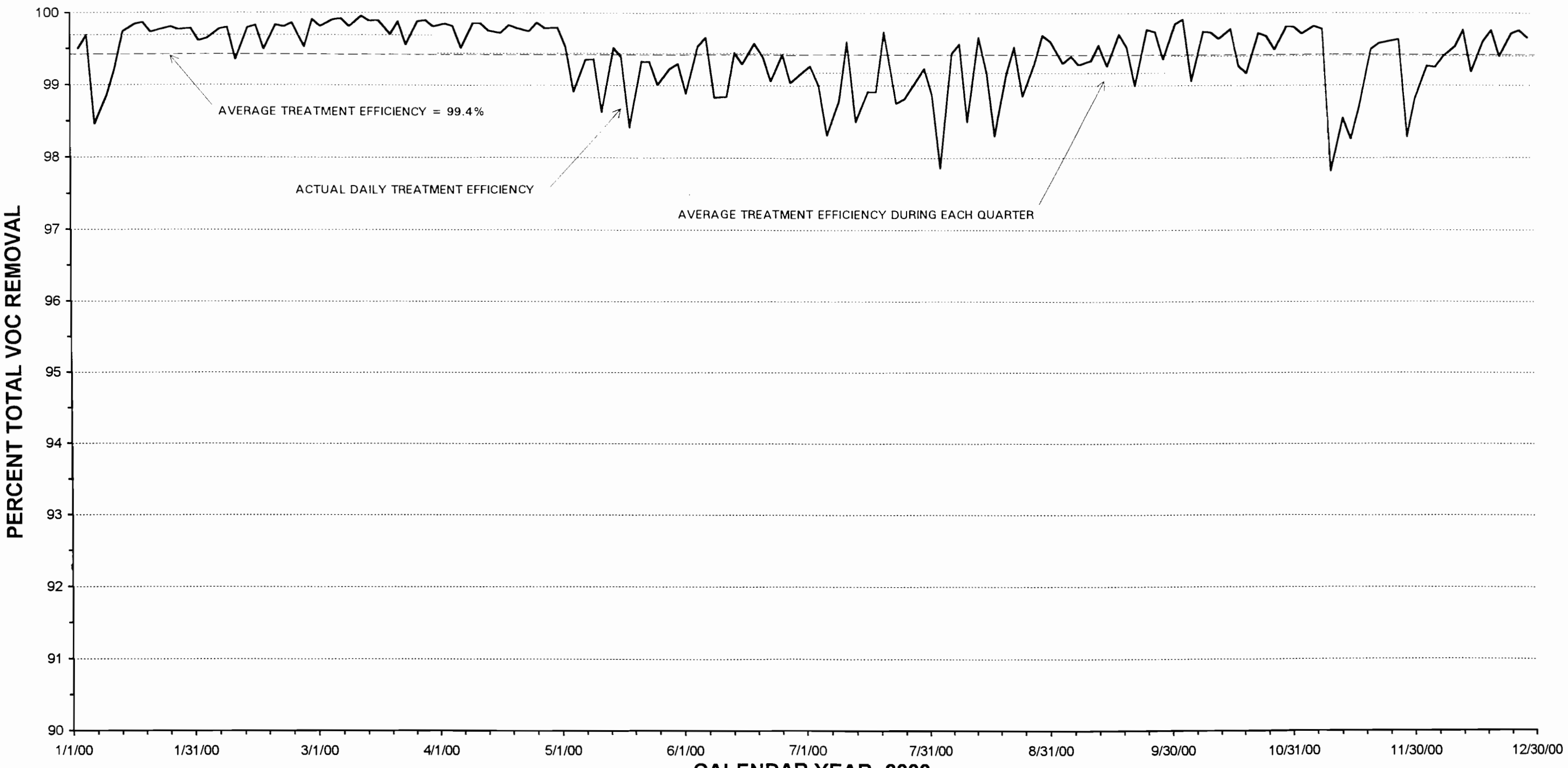
FIGURE 5

VARIATION IN TREATMENT EFFICIENCY DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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The VOC results from the 12 monthly SPDES effluent samples collected during 2000 did not detect any VOCs above the certified laboratory's method detection limits, which are lower than the Groundwater Aquifer Limits listed in Table 1. Moreover, the results from the self-monitoring effluent analyses performed three times per week at the Town's on-site laboratory did not detect any VOCs above the limits listed in Table 1. Therefore, based on the results from the SPDES monitoring and self-monitoring performed during 2000, no additional treatment units are required to remove VOCs from the GTF effluent since all Consent Decree limits continue to be satisfied.

The inorganic and leachate indicator parameter results from the 12 monthly SPDES effluent samples collected during 2000 indicate that the concentrations of the parameters analyzed for also less than the Groundwater Aquifer Requirements listed in Table 2, with the exception of ammonia. The results from the self-monitoring effluent analyses performed at the Town's on-site laboratory also indicate that the ammonia concentration of the GTF effluent was higher than the limits specified in Table 2. The concentrations of ammonia detected are believed to be attributable to runoff from the horse stable located on Winding Road. This issue is being addressed by the property owner and the Nassau County Department of Public Works.

The concentrations of ammonia detected in the GTF effluent are less than the 10 mg/L SPDES total nitrogen limitation (applicable in Nassau County). Moreover, samples from Well M-29A-R, located adjacent to Recharge Basin No. 1 and screened at the water table, do not show elevated levels of ammonia-nitrogen. Biological assimilation of nitrogen in the recharge basin may account for its absence in the shallow groundwater near the recharge basin.

Based on this assessment of the inorganic and leachate indicator parameter results, no additional treatment units are currently proposed to remove iron or other inorganic or leachate indicator parameters from the GTF effluent.

The 2000 air stripper stack emission monitoring results (Section 5.0) indicates that the concentrations of one or more VOCs exceeded the Consent Decree limits and/or the NYSDEC Air Guide No. 1 limits at the stack during each monitoring quarter. However, dispersion modeling of the results indicates that air-quality impacts at the worst case off-site receptor are well below applicable limits. Therefore, on the basis of these

findings, no additional treatment units are currently required to remove VOCs from the air stripper stack exhaust since all applicable guideline values are currently satisfied.

6.1.2 Hydraulic Control of the VOC Plume

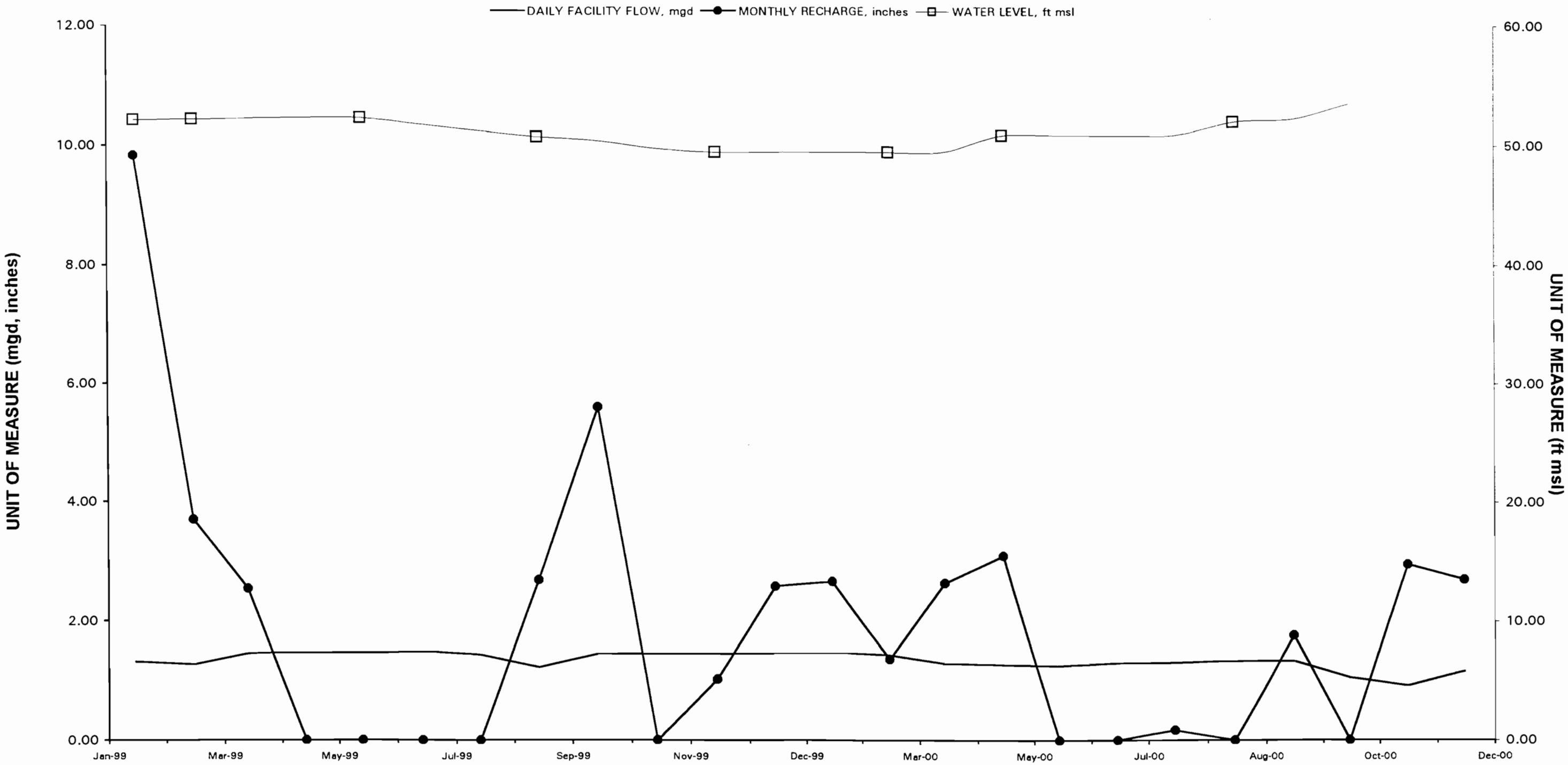
In order to evaluate and compare the respective effects of system flow and recharge on water levels within the capture zone, data on system pumpage, recharge and water-level elevations were compiled for 1999-2000, and summarized graphically in Figure 6. Facility flow data were compiled from the "Daily Operations Reports" and are presented in Figure 6 as the average flow for the days on which the hydraulic monitoring rounds were conducted. Recharge was estimated as the monthly precipitation corrected for evapotranspiration. Precipitation data were obtained from a meteorological station located approximately 2 miles east of the site. Evapotranspiration (ET) data were obtained from the local U.S. Soil Conservation Service office in the form of historical monthly ET values for grass, which is the dominant ground cover at both the OBSWDC and adjacent Bethpage State Park. The water-level data shown in Figure 6 represent the average water-level elevations recorded for the five recovery wells during each hydraulic monitoring round.

Review of Figure 6 indicates that facility flow is the primary factor influencing water-level elevations in the capture zone. Specifically, the average water-level elevation in the recovery wells remains very constant over time, despite the seasonal variations in recharge to the aquifer. Also note that there is a time lag several months between when recharge occurs and its effect is seen on water level elevations in the recovery wellfield, and the magnitude of the effect is minimal relative to the amount of recharge.

Based on the above evaluation, facility flow is the main variable that exerts hydraulic control over water-level elevations, and therefore, the VOC plume. While recharge has a secondary influence on water levels over time, it has a relatively minor effect on exerting hydraulic control over the plume. Moreover, evaluation of the data supports the recommendation that if the average facility flow is maintained at the current levels, regardless of seasonal recharge, hydraulic monitoring can continue to be safely reduced to quarterly from the original monthly schedule. This specific revision to the current monitoring procedures is provided for in the Consent Decree, and was implemented beginning with the fourth quarter 1993 monitoring round.

FIGURE 6

CORRELATION OF RECOVERY WELL AND HYDRAULIC DATA



CALENDAR YEARS 1999 and 2000

TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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Source File: 8086-f6.xls

As discussed previously in Section 4.4.1, analysis of the limiting flow lines and plume boundaries for the 2000 data indicates that hydraulic control of the Landfill VOC plume was maintained during all four operating quarters. Moreover, as shown in Figures 1 through 3 in each section of Appendix C, although the GTF was not fully operational during the last three quarters of 2000, the capture zone appears to have been sufficient to maintain hydraulic control of the Landfill VOC plume. Although somewhat smaller, the configuration of the capture zone was comparable to previous operating years.

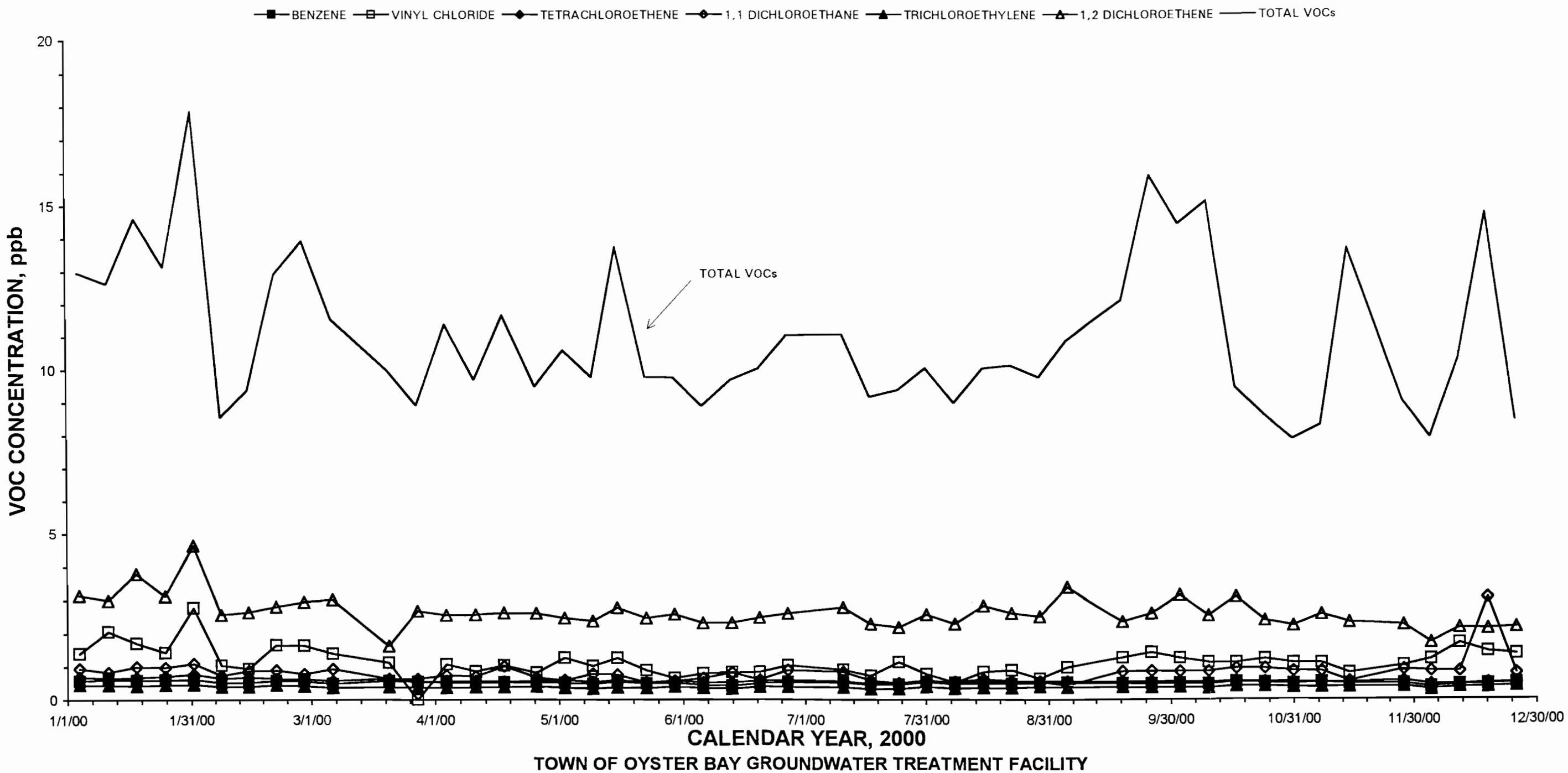
6.1.3 Variation in Wellfield VOC Concentrations

During 2000, the Town continued to monitor VOC concentrations in each recovery well on a weekly basis. These data are summarized for each recovery well in Figures 7 through 11, respectively. Review of these figures indicates that total VOC concentrations in Recovery Wells RW-1, RW-2 and RW-3 showed short-term fluctuations, but overall decreasing trends during 2000. Total VOC concentrations in Recovery Wells RW-4 also showed short-term fluctuations but an overall increasing trend during 2000. Recovery Well RW-5 showed a fluctuating but overall decreasing trend during the period from January through April, when this well was on-line. The decreasing trends observed for Recovery Wells RW-1, RW-2 and RW-3 during 2000 are consistent with the overall decreasing trends observed in these wells since start-up of the GTF. The increasing trend observed for Recovery Well RW-4 is in contrast with the overall decreasing trend observed in this well during the period from start-up of the GTF though the first half of 1999. The decreasing trend observed in Recovery Well RW-5 during the first four months of 2000 is in contrast to the increasing trend observed in this well since 1997.

As shown in Figures 7 through 11, the trends in total VOC concentration for Recovery Wells RW-1 and RW-2 can be attributed to a variety of VHOs, whereas the trend for Recovery Well RW-3 is associated primarily with two compounds, 1,2-dichloroethene and tetrachloroethene. The trend for Recovery Well RW-4 is also associated primarily with two compounds, trichloroethene and tetrachloroethene. The trend for Recovery Well RW-5 is associated almost entirely with tetrachloroethene. The trends observed for the recovery wells are consistent with the monitoring well data described previously in Section 4.3.

FIGURE 7

VARIATION IN VOC CONCENTRATIONS AT RECOVERY WELL RW-1 DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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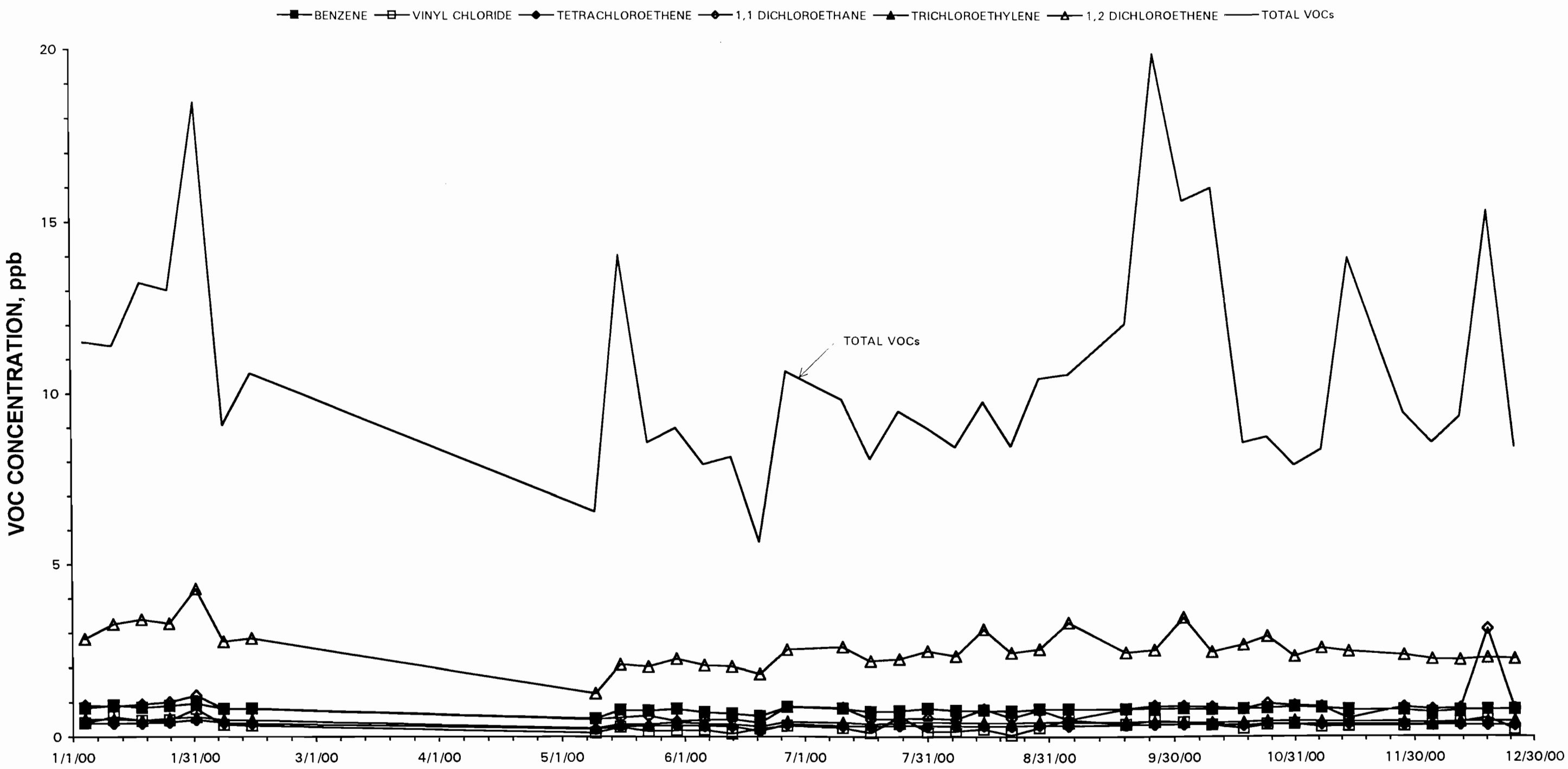
Data File: e:\personal\jgerlach\rap-data\recwell1.xls

FIGURE 8

VARIATION IN VOC CONCENTRATIONS AT RECOVERY WELL RW-2 DURING 2000



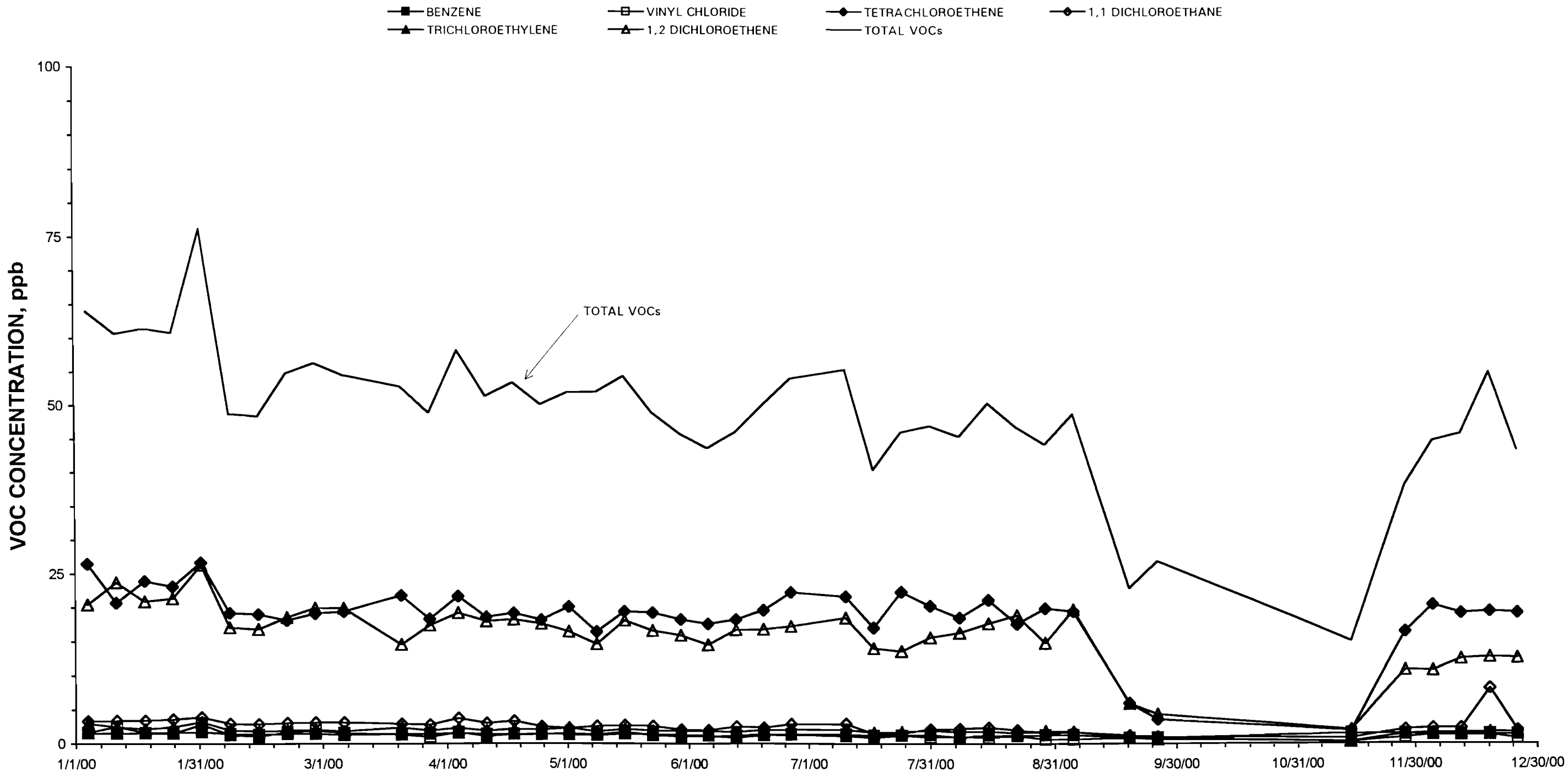
CALENDAR YEAR, 2000

TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

Location: e:\personal\jgerlach\8086-35\00ANN\an00f8.xlc
Data File: e:\personal\jgerlach\rap-data\recwell2.xls

FIGURE 9

VARIATION IN VOC CONCENTRATIONS AT RECOVERY WELL RW-3 DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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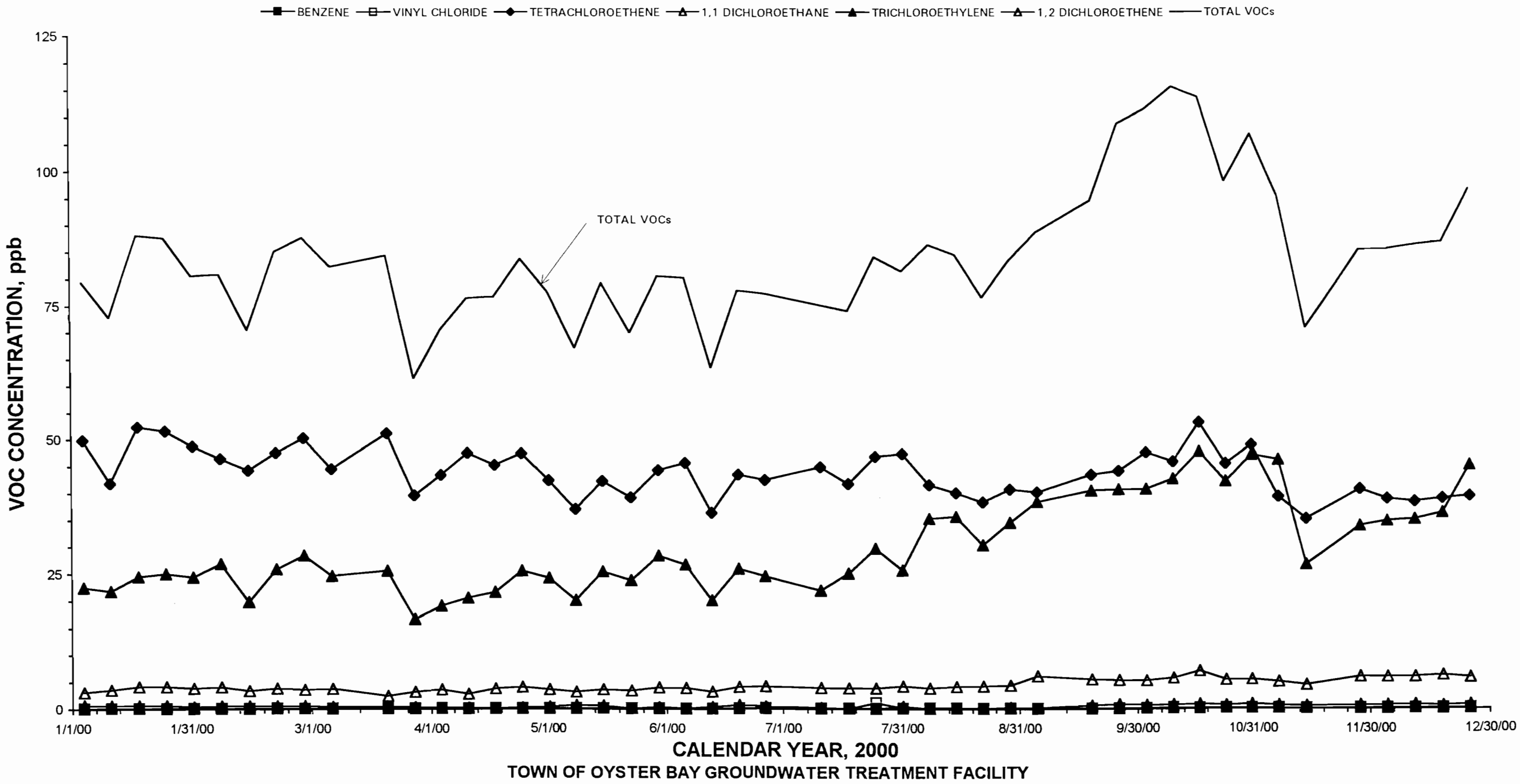
Data File: e:\personal\jgerlach\rap-data\recwell3.xls

FIGURE 10

VARIATION IN VOC CONCENTRATIONS AT RECOVERY WELL RW-4 DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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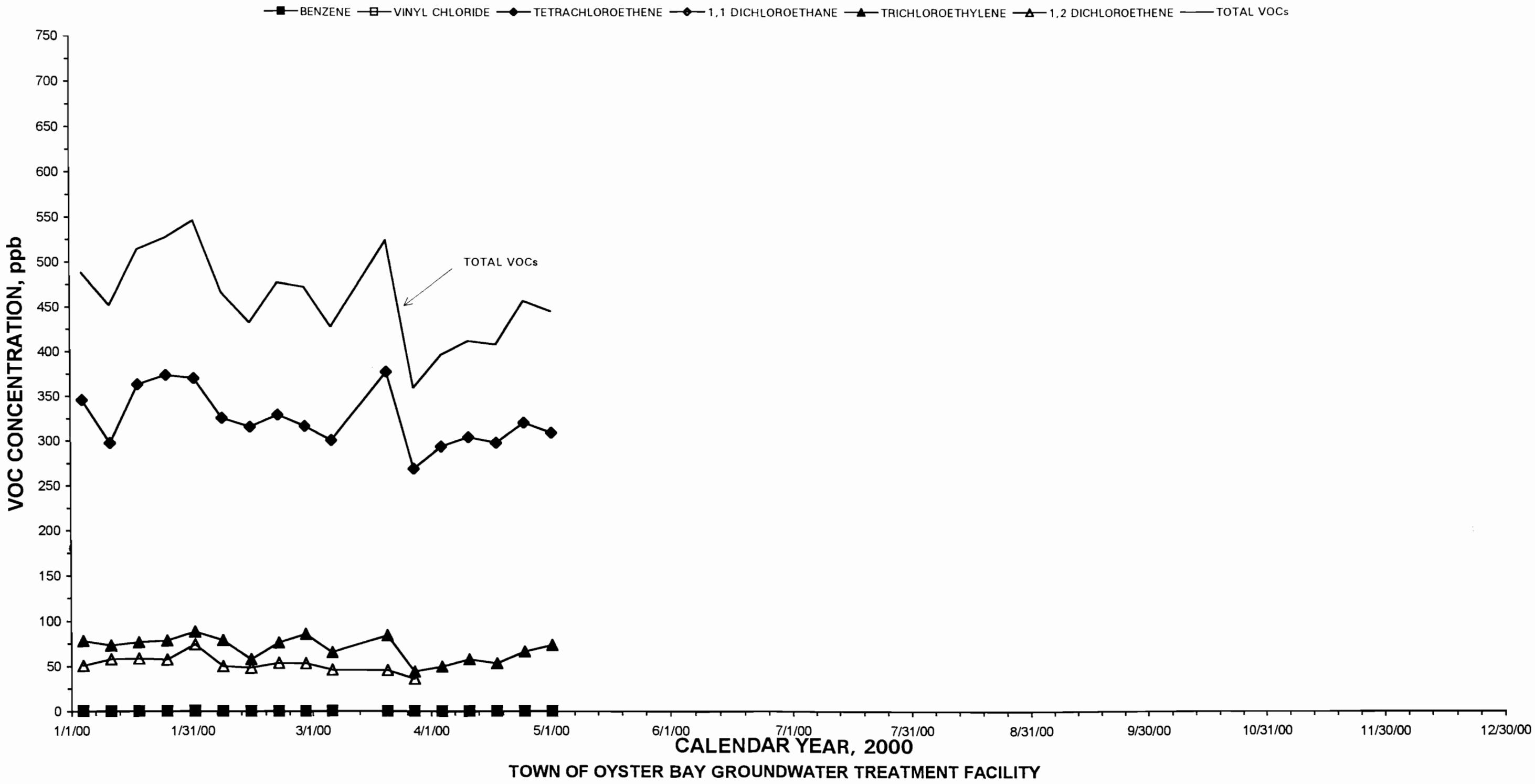
Data File: e:\personal\jgerlach\rap-data\recwell4.xls

FIGURE 11

VARIATION IN VOC CONCENTRATIONS AT RECOVERY WELL RW-5 DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

Location: e:\personal\jgerlach\8086-35\00ann\an00f11.xlc
Data File: e:\personal\jgerlach\rap-data\recwell5.xls

6.1.4 Remediation of Potential Groundwater Plumes from Other Sources

Review of the available data regarding the distribution of VOCs in groundwater indicates that a portion of the VOC plume being remediated by the GTF is not attributable to the Landfill, but associated instead with one or more adjacent properties. Specifically, the concentrations of VOCs detected in groundwater have not been homogeneously distributed as would be expected from hydrodynamic dispersion of a plume originating entirely from the Landfill.

The current distribution of VOCs in groundwater, based on the 2000 quarterly monitoring data, continues to be indicative of this scenario. Specifically, much higher concentrations of tetrachloroethene and several VHOs which are breakdown products of tetrachloroethene, were detected on the east side of the plume in Monitoring Wells MW-7B and MW-8A, and Recovery Wells RW-3, RW-4 and RW-5.

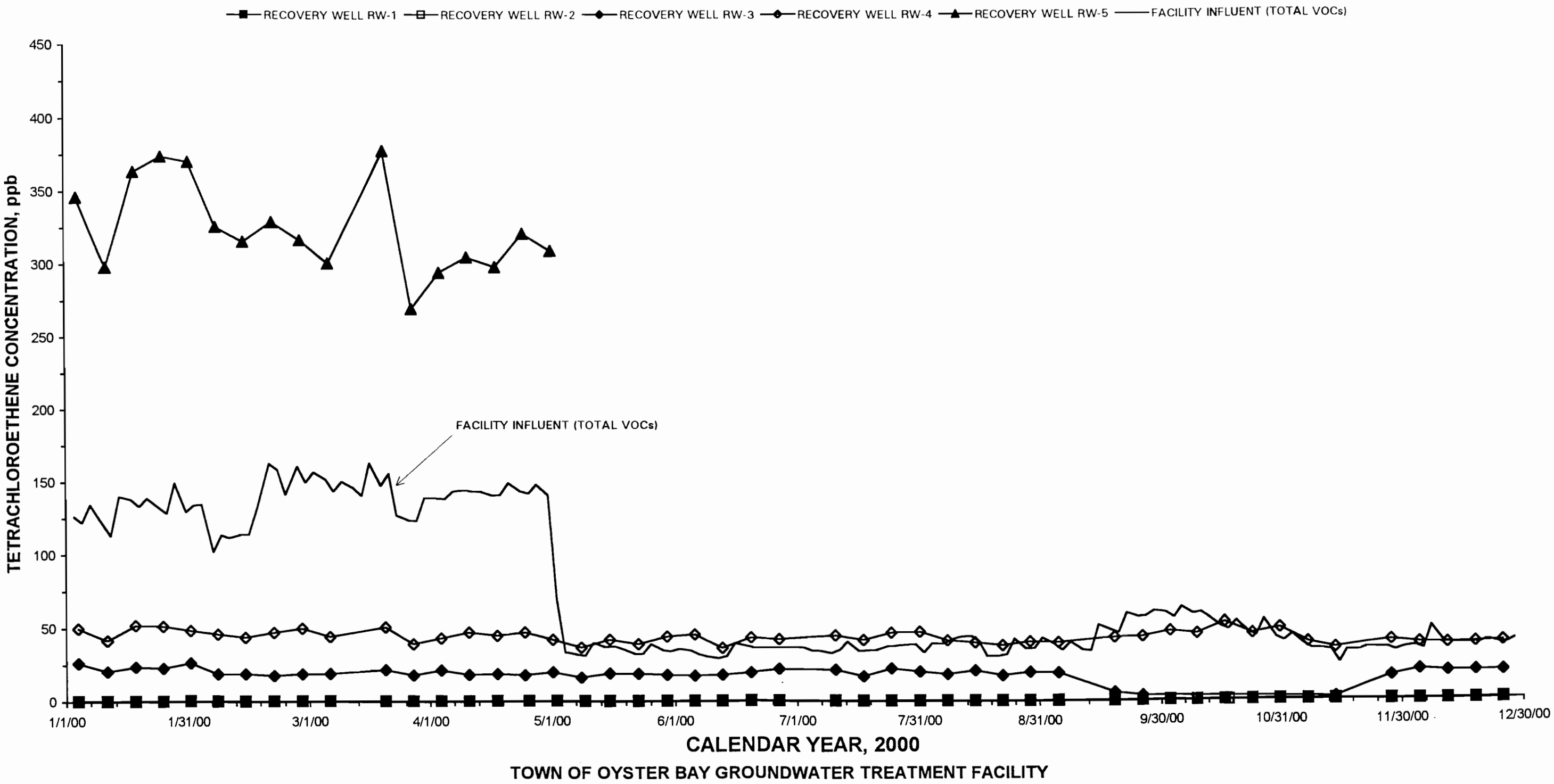
The fact that high total VOC concentrations have been consistently detected in Well MW-8A, which is screened in the water-table zone, and not in Well MW-8B, which is screened in the shallow potentiometric zone, indicates that this well cluster is located immediately downgradient of a separate VOC source near the east side of the Landfill. In contrast, at Well Cluster MW-6, which is located immediately downgradient of the Landfill, VOCs were not detected in the water-table zone monitoring well (Well MW-6A) during 2000.

The Claremont Site is located directly upgradient of Well Cluster MW-8, at the northerly end of what has been referred to as the "eastern tetrachloroethene plume". Tetrachloroethene is the major contaminant historically associated with the Claremont Site, although previous investigations have identified high concentrations of other VHO compounds, such as trichloroethene, in soil and groundwater.

With respect to the Town's recovery wellfield, the Claremont Site is located closest to, and hydraulically upgradient from, Recovery Well RW-5, and at increasing distance from Recovery Wells RW-4, RW-3, etc. The detected concentrations of tetrachloroethene, as well as several other VHO compounds, show a marked decrease with increasing distance from the Claremont Site. This relationship is illustrated in Figure 12, which demonstrates the wide variation in tetrachloroethene concentrations detected in the individual recovery wells during 2000. Figure 13 is a cross-section plot

FIGURE 12

VARIATION IN WELLFIELD TETRACHLOROETHENE CONCENTRATIONS DURING 2000



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

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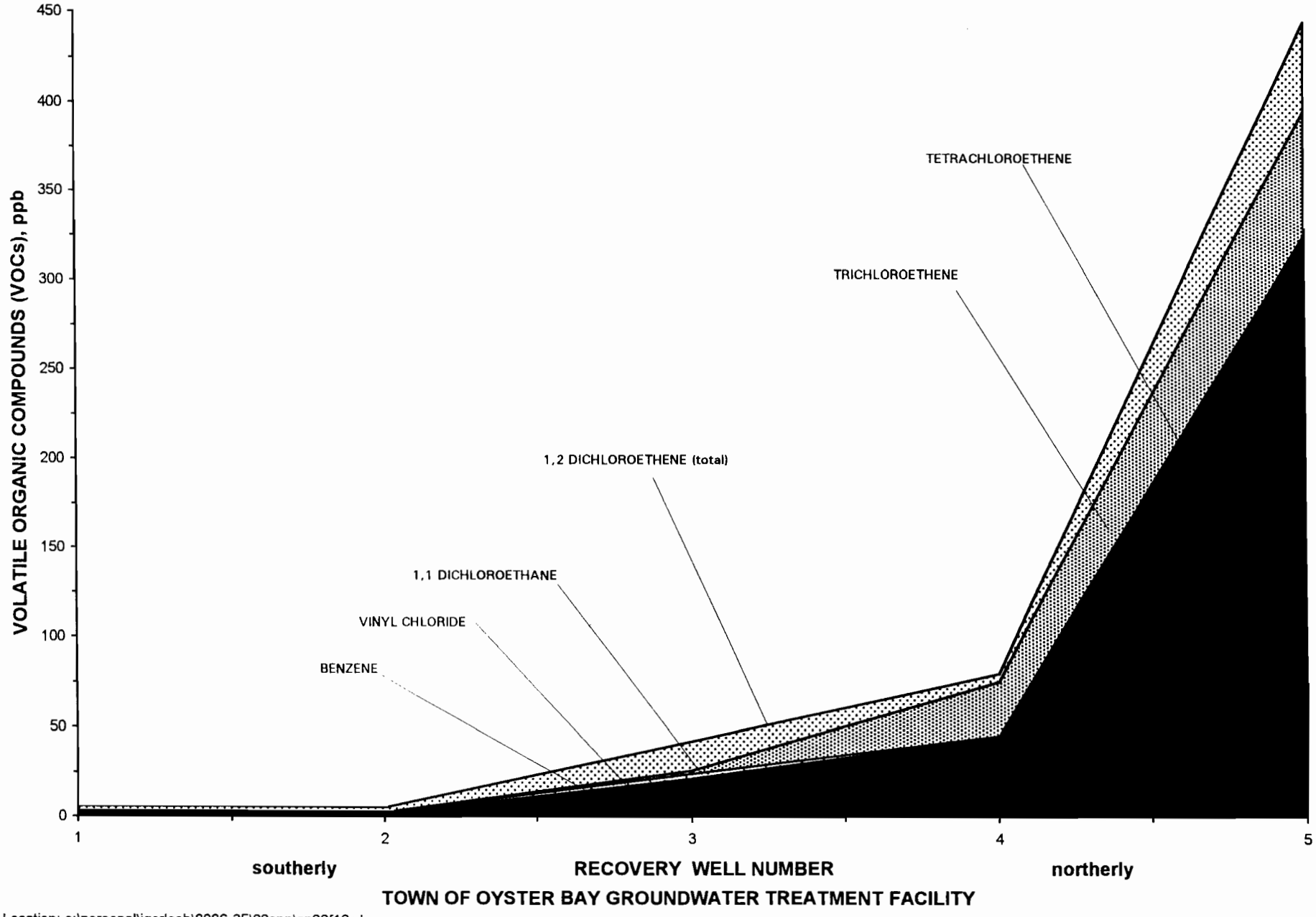
Data Files: e:\personal\jgerlach\ rap-data\recwell1-5.xls, vocinout.xls

FIGURE 13

AVERAGE DISTRIBUTION OF VOCs ACROSS RECOVERY WELLFIELD DURING 2000



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showing the average annual concentration of selected VOCs at each recovery well, and clearly illustrates the increasing concentration of tetrachloroethene in the direction of the Claremont Site. When the influence of tetrachloroethene is removed from the cross-section, as illustrated in Figure 14, a total VOC distribution more typical of the chemical constituents historically associated with the OBSWDC is revealed.

Aromatic hydrocarbons, in contrast to VHOs and tetrachloroethene, were primarily detected at lower concentrations, in wells located downgradient of the Landfill and the adjacent Nassau County Fireman's Training Center.

6.1.5 Overview of Other Monitoring Program Results

The results from the ambient air and soil-gas quality monitoring performed during 2000 indicate that the Landfill, and all other OBSWDC operations together, do not have a significant impact on air quality. The results from the thermal oxidizer test indicate that the thermal oxidizer continues to operate according to design and that the current air quality limits are satisfied.

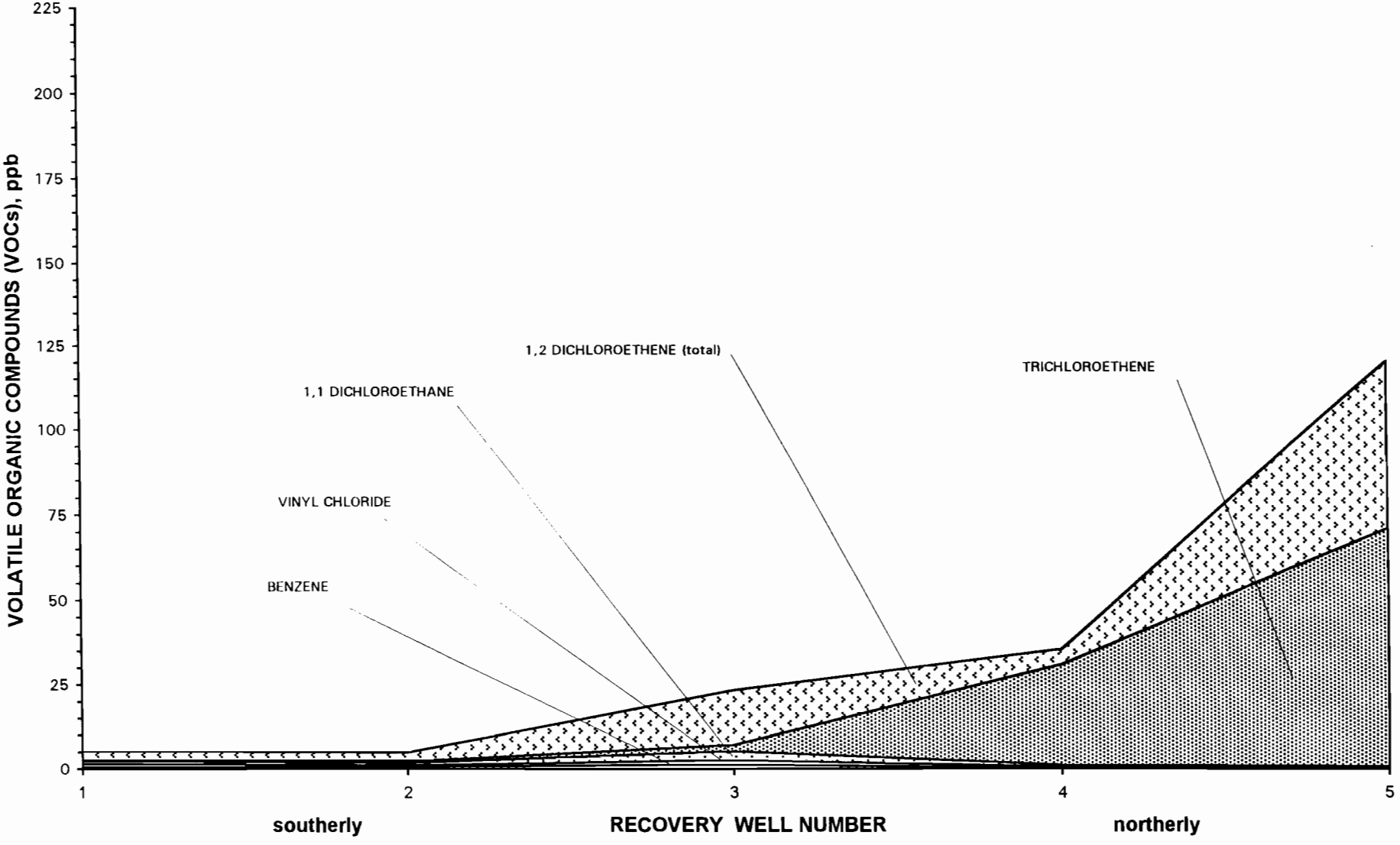
6.2 Recommendations

6.2.1 Groundwater Treatment Facility

Under the current operating conditions, the analytical results compiled during 2000 do not support the need for additional groundwater or air stripper exhaust treatment units at this time. However, continued quantitative, maintenance and facility improvements need to be identified and implemented, as required. In this regard, it is recommended that the Town proceed with certification of its on-site laboratory under New York State's Environmental Laboratory Approval Program (ELAP) as an effective means to expedite analyses and control project costs. It is also recommended that the Town continue to periodically inspect the air stripper internals, as described in the operating manual for this facility, and perform acid washes of the air stripper internals on an as needed basis. With respect to the various recharge basins utilized for the project, it is recommended that the Town continue the phased cleaning of the basins so that sufficient recharge capacity is maintained. With respect to the recovery wells, it is recommended that Recovery Well RW-5 be returned to service as soon as possible.

AVERAGE DISTRIBUTION* OF VOCs ACROSS RECOVERY WELLFIELD DURING 2000

* excludes tetrachloroethene



TOWN OF OYSTER BAY GROUNDWATER TREATMENT FACILITY

FIGURE 14

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Data File: e:\personal\jgerlach\rap-data\crossect.xls

The hydraulic and water-quality data collected during 2000 indicate that conditions downgradient of Town Recharge Basin No. 33 have returned to those observed in 1994, prior to the discharge of treated groundwater to that basin. However, since the dilution effect associated with that discharge could potentially prolong the duration of the remediation, it is recommended that the data from subsequent monitoring rounds continue to be evaluated with respect to this issue.

The hydraulic and water-quality data collected during 2000 also indicate that pumpage from the Claremont Site's recovery wellfield is influencing groundwater flow patterns in the vicinity of Well Cluster MW-8. Specifically, during 2000, upward hydraulic gradients were observed at this well cluster. Prior to start-up of the Claremont Site's recovery wells, hydraulic gradients in this area were downward. Also, during 2000, total VOC concentrations in Well MW-8A showed an order of magnitude decrease, while the levels of several inorganic leachate indicators increased in Wells MW-8A and MW-8B. Based on these data, it appears that the landfill plume in this area is shifting eastward in response to the lowered hydraulic head pressures created by pumpage from the Claremont Site's recovery wellfield. It is recommended that the hydraulic and water-quality data collected during 2001 be evaluated in more detail regarding this issue.

Since the overall dimensions of the Landfill plume have decreased in response to the ongoing remediation, some reduction in flow from the recovery wellfield may be possible without compromising hydraulic control of the Landfill plume. Flow reduction may be accomplished by throttling flow from the wellfield or selected wells, taking one or more wells out of operation for some period of time, or a combination of these techniques. Although some cost savings can be realized if flow reduction is implemented, the real benefit is in reducing the hydraulic loading on the various recharge basins.

6.2.2 Groundwater Monitoring Program

Based on the present demonstrated hydraulic control over the Landfill VOC plume regardless of the normal variation in total system flow and seasonal groundwater recharge, it is recommended that the frequency of hydraulic monitoring continue to be reduced to quarterly from monthly, as previously discussed in Section 6.1.2. It is also recommended that water-level measurements continue to be collected from Well

Clusters EW-1, EW-2 and EW-3, located downgradient of the Claremont Site, as part of the quarterly monitoring activities to provide current data at these locations.

During 2000, the hydraulic and water-quality data collected at Well Cluster MW-8 indicated that the on-site groundwater treatment system at the Claremont Site is altering hydraulic and water-quality conditions in the eastern portion of the plume area. It is therefore recommended that the quarterly groundwater quality monitoring program be continued without change so that the potential impacts of that system on the Town's system can be documented. It is also recommended that Well MW-9D, which is not part of the quarterly monitoring program but contains significant concentrations of Landfill-related contaminants, continue to be sampled annually to provide data on the deeper portion of the Landfill plume in this area. Any future reduction in the testing frequency specified in the Consent Decree will require the concurrence of the regulatory agencies. Any improvements in sampling/analytical protocols should be incorporated into the program as they are developed, after approval by the regulatory agencies.

6.2.3 Thermal Oxidizer Stack Emissions Monitoring Program

The Town is required to continue this program on an annual basis, as proscribed by the Consent Decree. All monitoring results will be compared to the latest version of NYSDEC Air Guide No. 1. Improvements in sampling/analytical protocols should be incorporated into the program as they are developed after approval by the regulatory agencies.

6.2.4 Ambient Air and Soil-Gas Quality Monitoring Program

In Early 1998, it was recommended that the Town request approval from the NYSDEC to reduce the frequency of ambient air monitoring from quarterly to annual. Pending receipt of such approval, the Town is required to monitor on a quarterly basis.

6.2.5 Air Stripper Stack Emissions Monitoring Program

The results presented in Section 5.0 indicate that the current methodology is viable for modeling air quality impacts from the GTF at the OBSWDC property line. Therefore, it is recommended that this methodology continue to be used for subsequent reports.

APPENDIX A

WELL LOCATION MAP

APPENDIX B

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
EVALUATION OF VOLATILE ORGANIC COMPOUNDS
IN AIR AND SOIL GAS AND SOIL GAS PRESSURE READINGS

2000 Annual Summary Report

RTP Environmental Associates, Inc.
December 2000

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

EVALUATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR AND SOIL GAS AND SOIL GAS PRESSURE READINGS

2000 Annual Summary Report

Prepared for:

Town of Oyster Bay
Department of Public Works
Syosset, New York

Prepared by:

RTP Environmental Associates, Inc.®
400 Post Avenue
Westbury, New York

December 2000

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

EVALUATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR AND SOIL GAS AND SOIL GAS PRESSURE READINGS

2000 Annual Summary

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TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

EVALUATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR AND SOIL GAS AND SOIL GAS PRESSURE READINGS

1.0 INTRODUCTION

The Town of Oyster Bay (the Town) has contracted RTP Environmental Associates, Inc. to conduct a supplemental gas monitoring program of volatile organic compounds (VOCs) and soil gas pressures during 2000 on a quarterly basis at the Old Bethpage Landfill. The landfill is located within the Old Bethpage Solid Waste Disposal Complex (OBSWDC). The ambient air, soil gas and soil gas pressure monitoring program was designed to comply with several requirements stipulated in the New York State Consent Decree (83CIV5357) RAP Attachment 2. The details of the specific monitoring methods used, laboratory analyses performed and the results for all program phases including VOC monitoring, have been presented in the 2000 quarterly reports. The quarterly reports have been forwarded to the Town as they were completed. The other monitoring efforts being conducted to complete the Consent Decree requirements were reported separately. This evaluation has been prepared to review and summarize the ambient air and soil gas VOC concentration and soil gas pressure data that were collected during the 2000 monitoring efforts.

The OBSWDC is located in the Town of Oyster Bay, New York. The OBSWDC is comprised of a landfill, power generating facility, thermal oxidizer, leachate and groundwater treatment systems, clean fill disposal site, solid waste recycling center, solid waste transfer station, vehicle maintenance garage and scale house. The OBSWDC is bordered on the north by Bethpage Sweethollow Road, on the west by Round Swamp Road and on the east by Winding Road. A concrete plant and the Nassau County Firemen's Training Center (NCFTC) are located along the southern border of the OBSWDC and a campground is located along the northwest border. An industrial park adjoins the northeastern border of the OBSWDC and other industrial areas exist nearby to the north and west. These other industrial areas do not have common boundaries with the OBSWDC, however, these locations are sources of air pollutants that impact the area. Therefore, several other potential sources contributing VOCs in the immediate and general vicinity of the OBSWDC influence the ambient concentrations being monitored.

To control landfill emissions, the landfill has undergone significant changes as part of the closure process. A gas collection system was installed along the perimeter of the landfill and portions began operating in 1981 and a capping program was initiated in 1983. The capping program involved placing an impervious clay cap over the landfill. The capping program was completed in January, 1993. The perimeter gas collection system was expanded in 1995. Six landfill gas extraction wells (LGV23, LGV24, LGV25, LGV26, LGV27 and LGV28) were installed and became operational August 16, 1995. These wells were located along the western and southern perimeters of the capped landfill and they were designed to contain gas migration and to maintain acceptable methane levels at the thermal oxidizer. Four (4) additional perimeter gas collection wells (LGV29, LGV30, LGV31 and LGV32) were installed and became operational during 1996 along the west side of Haul Road, near Briden Construction. The perimeter loop around the landfill was also completed during 1996.

The thermal oxidizer was installed in 1987 to combust the landfill gas collected by the perimeter collection system. A contractor is also currently mining gas from the landfill for energy production. All of these activities have, and will continue to, restrict or mitigate the release of gas from the landfill and thereby reduce landfill gas and associated air pollutant emissions.

As stipulated in the Consent Decree, ambient air and soil gas concentrations and soil gas pressure levels are currently measured on a quarterly basis at selected points around the landfill. The results are reported quarterly and are summarized in this report. The air emissions from the thermal oxidizer were tested on a quarterly basis initially and are now tested on an annual basis. The test results for the thermal oxidizer have been reported separately.

2.0 ANALYSIS OF DATA

2.1 Analysis of the 2000 Data Base

The established target compound list (TCL) for this study was based on the Volatile Organic Sampling Train (VOST) method developed by the United States Environmental Protection Agency (USEPA) to quantify various VOC emissions. The standard VOST sampling train was modified slightly to make a portable unit for in-field use. The sampling train and the sampling and analysis protocols along with all

the details on data collection, analysis and other documentation are provided in the quarterly reports.

The sampling events were scheduled to observe concentrations during various seasons of the year. As a conservative step, the sampling events took place during periods of steady or falling atmospheric pressure. These periods would coincide with the greatest potential for releases of VOCs from the landfill. Sampling for each quarterly test occurred over a consecutive 24-hour period. Table 2.1 provides the months during which the quarterly test efforts for each year of the sampling program were conducted. Monitoring for the 2000 sampling program which is evaluated herein, occurred in March, June, August and October 2000.

The program TCL is provided in Table 2.2 along with toxicity and guideline concentration values. The TCL has been modified during the course of the monitoring effort because of changing State requirements, analytical capabilities and continuing data review as related to the tentatively identified compounds being detected. Compounds are occasionally added to the standard method TCL when they are consistently detected in ambient and/or soil gas samples.

Several changes to the TCL and analytical procedures had been made for the 1997 program and these changes apply to the 2000 program as well. The designation for cis-1,2-dichloroethene was changed from a tentatively identified compound to a target compound as the result of preceding tests. The combined 1-ethyl-2-methylbenzene and 1-ethyl-4-methylbenzene isomers are reported as 2/4-ethyltoluene (total) as a means of simplifying the data reduction reporting process, and because the combined isomer concentration is required for direct comparison to the NYSDEC guideline value. Furthermore, a practical quantitation limit (PQL) was introduced by the analytical laboratory H2M, for several compounds as a result of lowering the minimum detection limit from twenty (20) nanograms to five (5) nanograms. The PQL represents the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. H2M introduced a target tentatively identified compound (TIC) minimum detection limit of twenty-five (25) ng which also can be applied to additional TICs when less than six (6) are detected. Otherwise, the lowest mass loading of the top six (6) additional TICs is considered to be the additional TIC minimum detection limit of a particular sample.

The New York State Department of Environmental Conservation (NYSDEC) provides both short-term (1-hour) and long-term (annual average) guideline concentration values for most of the compounds being

TABLE 2.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

PROGRAM EFFORTS ACCORDING TO CALENDAR QUARTER

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1990-1991	July	October	February	May
1992-1993	October	March	May	August
1994	April	July	September	December
1995	March	May	July	October
1996	March	June	August	November
1997	February	April	August	November
1998	March	May	August	November
1999	March-April	May	July	November
2000	March	June	August	October

Note:
The first two years of the program did not follow the calendar year schedule.

TABLE 2.2

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

2000 PROGRAM TARGET COMPOUND LIST
AND NYSDEC AMBIENT GUIDELINES

VOC COMPOUND NAME	TOXICITY	CURRENT SGC (ug/m3)		CURRENT AGC (ug/m3)		FORMER AGC (ug/m3)
Acetone	L	140,000	(R)	14,000	(R)	35,600
Benzaldehyde*						
Benzene	H	32	(R)	0.12	(E)	100
Bromodichloromethane	H			0.02	(D)	0.03**
Bromoform	M	1,200	(T)	0.9	(E)	11.9**
Bromomethane	M	4,500	(T)	5.0	(D)	
2-Butanone	M	140,000	(T)	300	(E)	1,967
Carbon Disulfide	M	710	(R)	10	(I)	100
Carbon Tetrachloride	H	1,300	(R)	0.07	(E)	100
Chlorobenzene	M	11,000	(T)	20	(E)	1,170
Chloroethane	L	63,000	(T)	13,000	(E)	52,000
Chloroethyl Vinyl Ether*						
Chloroform	M	980	(R)	0.04	(E)	167
Chloromethane	M	22,000	(D)	770	(D)	2,100
Dibromochloromethane	M			0.1	(d)	0.03**
1,2-Dichlorobenzene (o)	M	36,000	(T)	200	(E)	1,000
1,3-Dichlorobenzene (m)	M	36,000	(A)	200	(A)	714**
1,4-Dichlorobenzene (p)	M	14,000	(T)	700	(D)	
1,1-Dichloroethane	L	96,000	(T)	500	(E)	9,524**
1,2-Dichloroethane	M	950	(R)	0.039	(E)	0.2
1,1-Dichloroethene	H	2,000	(T)	0.02	(E)	66.7
cis-1,2-Dichloroethene	M	190,000	(A)	1,900	(A)	1,880**
trans-1,2-Dichloroethene	M			360	(D)	360**
1,2-Dichloropropane	M	83,000	(T)	0.15	(D)	833**
1,3-Dichloropropene, cis & trans isomers	H	1,100	(T)	20.0	(I)	
Ethylbenzene	M	100,000	(T)	1,000	(E)	1,450
2/4-Ethyltoluene (total) ***				0.1	(d)	0.03**
Freon 13*	L	560,000	(A)	700	(A)	133,333**
2-Hexanone		950	(R)	9.5	(R)	
Methylene Chloride	M	41,000	(T)	27	(D)	1,170
4-Methyl-2-Pentanone	M	48,000	(R)	480	(R)	488**
Styrene	M	20,000	(P)	1,000	(I)	716
1,1,2,2-Tetrachloroethane	M	1,600	(T)	0.02	(E)	23.3
Tetrachloroethene	M	40,000	(T)	1.2	(D)	1,120
Toluene	L	45,000	(T)	400	(E)	7,500
1,1,1-Trichloroethane	L	450,000	(T)	1,000	(E)	38,000
1,1,2-Trichloroethane	M	13,000	(T)	0.06	(E)	150
Trichloroethene	M	33,000	(R)	0.45	(D)	900
Trichlorofluoromethane	L	560,000	(T)	700	(E)	700
Vinyl Chloride	H	1,300	(T)	0.02	(E)	0.4
Xylenes (Total)	M	100,000	(T)	300	(I)	1,450 (S)

TABLE 2.2
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

PROGRAM TARGET COMPOUND LIST AND NYSDEC AMBIENT GUIDELINES

2000 PROGRAM TARGET COMPOUND LIST

NOTES:

* Tentatively Identified Compound (TIC) using EPA SW846 Method 8240. Freon 13 is listed as Chlorotrifluoromethane in the analytical results, Appendix D of the quarterly reports.

** Proposed Value.

*** 2/4-Ethyltoluene= combined 1-ethyl-2-methylbenzene and 1-ethyl-4-methylbenzene isomers

SGC - Short-term guideline concentration (current as of January 2000).

AGC - Annual guideline concentration (current as of January 2000, former as of 1986, 9/89 Edition).

Toxicity - H for high; M for moderate; and L for low as defined by NYSDEC.

(A) - AGC/SGC based on NYSDEC structure-activity analogy.

(D) - AGCSGC derived from NYSDEC, Divison of Air Resources, Bureau of Air Toxics, Toxics Assessment Section.

(E) - AGC/SGC based on derivation by USEPA.

(I) - AGC/SGC based upon Heast Inhalation RfC(RFC).

(P) - AGC/SGC based upon proposed ACGIH TLV.

(R) - AGC/SGC derived from NIOSH REL-TWA (1988).

(S) - AGC/SGC listed is Federal or NYS Standard.

(T) - AGC/SGC derived from ACGIH TLV-TWA (1990-1991).

(d) - AGC assigned special computer High Toxicity "de minimus" limit.

monitored. Short-term guideline concentration (SGCs) values are significantly higher than annual guideline concentration (AGCs) values, and therefore, the program concentrates on longer term averages based on 24-hour samples as stipulated in the Consent Decree. The October 16, 1995 Air Guide-1 AGC and SGC values have been used throughout the 2000 quarterly reports as well as in this report. Based on discussion with NYSDEC Central Office staff, these values continue to be current as of January 2000.

The ambient air monitoring program incorporates repositioning of sampling equipment to best define the overall contributions associated with the OBSWDC during each quarterly 24-hour test effort. Normally, two (2) collocated samples were taken at an upwind location and three (3) samples were taken at two (2) locations downwind of the OBSWDC. Therefore, upwind concentrations can be compared directly to downwind concentrations to conservatively determine the impact of the OBSWDC on the ambient air.

2.2 Analysis of 2000 Ambient Air Quality Data

Ambient air quality levels were monitored for each 24-hour sampling period at three (3) sampling locations during the 2000 sampling events. Samplers were positioned at two (2) locations generally downwind of the OBSWDC as prescribed by the Consent Decree. Two (2) collocated low volume samples and an individually located low volume sample were collected in the downwind areas during the test efforts. Collocated samples were used as precision checks and in a screening procedure to assure high concentration constituents do not invalidate an analysis. In this case, at the upwind location and one (1) downwind location, collocated samplers were positioned to provide duplicate samples for QA/QC purposes.

Table 2.3 provides data for the 2000 monitoring program at the primary downwind sampling locations. The primary downwind location presented for each quarter was chosen based on the highest total speciated target VOCs for the downwind samples per test effort. These data represent the annual average ambient air concentrations downwind of the OBSWDC. The samples were collected over a 24-hour period using a 0.25 liter per minute nominal sampling rate. The individual quarterly 24-hour samples were averaged to provide an estimated annual average concentration for locations downwind of the OBSWDC. As shown in Table 2.3, the annual average value of five (5) TCL constituents exceeded the level of their respective current AGCs specified by the NYSDEC.

TABLE 2.3

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

SUMMARY OF 24-HOUR DOWNWIND AMBIENT AIR VOST SAMPLE RESULTS

2000 Annual Summary

Quarterly I.D.	1st	2nd	3rd	4th	ANNUAL AVERAGE	CURRENT	FORMER	CURRENT
Sample Identification*	D2	D3**	D2	D1	DOWNWIND VALUE	AGC	AGC	SGC
Lower Quantitation Limit (ug/m^3)	0.0130	0.0331	0.0136	0.0307	0.0263	---	---	---
Target TIC Lower Quantitation Limit (ug/m	0.0648	0.1656	0.0678	0.1534	0.1320	---	---	---
Practical Quantitation Limit (ug/m^3)	0.0207	0.0530	0.0217	0.0245	0.0421	---	---	---

Constituent/Units	(ug/m^3)	(ug/m3)	(ug/m3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
Acetone***	5.70E-01	5.50E-01	1.06E+00	1.99E+00	1.04E+00	14,000	35,600	140,000
Benzaldehyde****						---	---	---
Benzene	**1.11E+00**	**5.13E-01**	**1.38E+00**	**2.88E+00**	**1.47E+00**	0.12	100	32
Bromodichloromethane						0.02	0.03*****	
Bromoform***	3.11E-02				3.26E-02	0.9	11.9*****	1,200
Bromomethane	2.59E-02				2.58E-02	5.0	---	4,500
2-Butanone***	3.89E-01	1.95E-01	8.40E-01	1.29E+00	6.78E-01	300	1,967	140,000
Carbon Disulfide	1.81E-02		5.42E-02	3.99E-02	3.63E-02	10	100	710
Carbon Tetrachloride	**1.04E+00**	**7.22E-01**	**6.23E-01**	**8.59E-01**	**8.10E-01**	0.07	100	1,300
Chlorobenzene	1.55E-02				2.32E-02	20	1,170	11,000
Chloroethane	2.07E-02				2.45E-02	13,000	52,000	63,000
Chloroethyl Vinyl Ether****						---	---	---
Chloroform	**7.51E-02**	**8.28E-02**	**2.06E-01**	**2.45E-01**	**1.52E-01**	0.04	167	980
Chloromethane	1.63E-01	1.09E-01	1.17E-01	1.29E-01	1.29E-01	770	2,100	22,000
Dibromochloromethane						0.1	0.03*****	---
1,2-Dichlorobenzene (o)						200	1,000	36,000
1,3-Dichlorobenzene (m)						200	714*****	36,000
1,4-Dichlorobenzene (p)	1.04E-01	7.95E-02	3.25E-01	5.21E-01	2.57E-01	700	---	14,000
1,1-Dichloroethane						500	9,524*****	96,000
1,2-Dichloroethane	**1.01E-01**	**6.29E-02**	**1.08E-01**	**1.01E-01**	**9.34E-02**	0.039	0.2	950
1,1-Dichloroethene						0.02	67	2,000
cis-1,2-Dichloroethene		4.64E-02	4.07E-02		3.27E-02	1,900	1,880*****	190,000
trans-1,2-Dichloroethene						360	360*****	---
1,2-Dichloropropane						0.15	833*****	83,000
1,3-Dichloropropene, cis & trans isomers						20.0	---	1,100
Ethylbenzene	4.66E-01	3.28E-01	5.15E-01	1.35E+00	6.65E-01	1,000	1,450*****	100,000
2/4-Ethyltoluene (total)	**8.03E-01**	**7.12E-01**		**2.91E+00**	**1.11E+00**	0.1	0.03*****	---
Freon 13****						700	33,333****	560,000
2-Hexanone***						9.5	---	950
Methylene Chloride	4.66E-01	9.27E-01	6.23E-01	1.96E+00	9.95E-01	27	1,170	41,000
4-Methyl-2-Pentanone***	2.85E-02	1.42E-01	5.96E-02		6.38E-02	480	488*****	48,000
Styrene	3.37E-02	3.97E-02	2.28E-01	2.94E-01	1.49E-01	1,000	716	20,000
1,1,2,2-Tetrachloroethane						0.02	23.3	1,600
Tetrachloroethene	5.44E-01	4.14E-01	8.67E-01	**1.81E+00**	9.09E-01	1.2	1,120	40,000
Toluene	2.28E+00	1.94E+00	2.98E+00	7.06E+00	3.56E+00	400	7,500	45,000
1,1,1-Trichloroethane	4.40E-01	3.77E-01	3.25E-01	4.60E-01	4.01E-01	1,000	38,000	450,000
1,1,2-Trichloroethane						0.06	150	13,000
Trichloroethene	6.48E-02	2.52E-01	2.41E-01	**4.60E-01**	2.54E-01	0.45	900	33,000
Trichlorofluoromethane	1.50E+00	1.25E+00	1.30E+01	1.99E+00	4.44E+00	700	---	560,000
Vinyl Chloride						0.02	0.4	1,300
Xylenes (Total)	1.94E+00	1.54E+00	2.03E+00	6.44E+00	2.99E+00	300	1,450	100,000

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TABLE 2.3
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

SUMMARY OF 24-HOUR DOWNWIND AMBIENT AIR VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Annual Summary

Quarterly I.D.	1st	2nd	3rd	4th	ANNUAL AVERAGE	CURRENT	FORMER	CURRENT
Sample Identification*	D2	D3**	D2	D1	DOWNWIND VALUE	AGC	AGC	SGC
TIC Lower Quantitation Limit (LQL)	0.065	0.166	0.068	0.153		---	---	---
Constituent/Units	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
Butane	9.07E-01			2.33E+00	8.68E-01	45,000	45,000	450,000
2-Methyl-Butane		1.06E+00		3.07E+00	1.07E+00	8,300	8,300	83,000
2-Methoxy-2-Methyl-Propane	8.29E-01	1.06E+00		3.07E+00	1.26E+00	50	4.0	34,000
2-Methyl-Pentane		8.28E-01		2.76E+00	9.30E-01	4,200	830	83,000
Dichlorodifluoromethane	1.06E+00				3.62E-01	200		1,200,000
C3 Substituted Benzene (RT=13.47-16.63)	6.99E-01	1.09E+00		2.02E+00	9.71E-01			
Chlorodifluromethane		4.04E+00			1.08E+00			
Isobutane	6.74E-01	1.16E+00			5.14E-01	28,000	28,000	450,000
Hexane		9.27E-01			3.03E-01	240	420	42,000
1,1,2-Trichloro-1,2,2-trifluoroethane		7.95E-01			2.70E-01			
C8 Hydrocarbon RT-7.51				2.09E+00	5.96E-01			
Unknown Hydrocarbon (RT= 2.03)		6.46E-01			2.33E-01			
Undecane			4.34E+00		1.18E+00			
Unknown Hydrocarbon (RT= 12.74)			5.42E+00		1.45E+00			
Unknown Hydrocarbon (RT=13.45)		7.95E-01			2.70E-01			
Unknown Hydrocarbon (RT= 14.11)		1.09E+00			3.44E-01			
C12 Hydrocarbon(RT= 14.25)	8.55E-01				3.10E-01			
C11 Hydrocarbon (RT= 13.12-13.88)			4.34E+00		1.18E+00			
C10 Hydrocarbon (RT= 11.79-12.50)			1.60E+01		4.10E+00			

NOTES:

- Concentrations are in micrograms per cubic meter (ug/m3).

Shaded areas indicate concentrations that exceed the level of the Annual Guideline Concentration (AGC).

* The samples identified were chosen based on the highest total speciated target VOCs for the downwind samples per test effort.

** This downwind sample was analyzed for breakthrough (analyzing the front and back traps separately) by the laboratory. Therefore, some of the concentrations reported for these compounds were listed as "<" values in the 2000 quarterly reports.

*** An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

**** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

***** Proposed Value

Blank values:

Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.

Table 2.4 presents the 2000, 24-hour monitoring data for ambient air concentrations at the selected upwind sampler locations. Two (2) collocated samplers were positioned upwind of the OBSWDC during all four (4) quarters of testing. The quarterly upwind samples presented in Table 2.4 were chosen based on lowest total speciated target VOCs in order to provide 24-hour ambient air background concentrations for determining the most conservative landfill impact. The samples were collected using a 0.25 liter per minute nominal sampling rate. The individual quarterly 24-hour samples were averaged to provide an estimated annual average background ambient air quality concentration. Of the annual average background concentrations presented in Table 2.4, five (5) TCL constituents exceeded the level of the current NYSDEC AGCs. None of the TICs identified at both the downwind and upwind sites exceeded the level of their respective AGCs in the annual upwind and annual downwind averages.

As a means of providing an estimate of the potential impacts from the OBSWDC, the difference between the annual average upwind values and downwind values are calculated and compared to the level of the current NYSDEC AGCs. These values are provided in Table 2.5. To be conservative, the upwind annual average included quarterly upwind samples with comparatively the lowest concentrations of speciated target VOCs while the downwind annual average included quarterly samples with comparatively the highest concentrations of speciated target VOCs. As shown in Table 2.5, the results indicate that one (1) TCL constituent, carbon tetrachloride, potentially impacts the ambient air quality at concentrations that exceed the level of the current AGCs. All other TCL constituents identified in the annual averages have differential downwind impact values that are below their respective AGCs.

The short-term guideline values for the target compounds can be estimated from the 24-hour recorded values. The individual quarterly concentrations shown in Tables 2.3 and 2.4, if divided by 0.4 (the ratio of 24-hour to 1-hour concentrations), will yield estimated short term values. All resulting values fall within their respective SGC values. The remaining upwind and downwind ambient air quality sample data that were collected during the four test efforts during the 2000 monitoring program are presented in Appendix A. In all cases, no measured concentrations exceeded this respective short-term guideline value.

2.3 Analysis of the Ambient Air Quality Program Data Base Since 1990

The ambient air quality at and surrounding the Old Bethpage Landfill has been monitored by RTP

TABLE 2.4

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

SUMMARY OF 24-HOUR UPWIND AMBIENT AIR VOST SAMPLE RESULTS

2000 Annual Summary

Quarterly I.D.	1st	2nd	3rd	4th	ANNUAL AVERAGE	CURRENT	FORMER	CURRENT
Sample Identification*	U1	U2	U2	U1	UPWIND VALUE	AGC	AGC	SGC
Lower Quantitation Limit (ug/m^3)	0.0116	0.0149	0.0147	0.0147	0.0140	---	---	---
Target TIC Lower Quantitation Limit (ug/m^3)	0.0581	0.0746	0.0733	0.0735	0.0699	---	---	---
Practical Quantitation Limit (ug/m^3)	0.0186	0.0239	0.0235	0.0235	0.0224	---	---	---

Constituent/Units	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
Acetone***	5.81E-01	5.97E-01	1.06E+00	1.94E+00	1.04E+00	14,000	35,600	140,000
Benzaldehyde****								
Benzene	**8.37E-01**	**4.18E-01**	**1.20E+00**	**2.94E+00**	**1.35E+00**	0.12	100	32
Bromodichloromethane						0.02	0.03*****	
Bromoform***			2.93E-02	5.00E-02	3.05E-02	0.9	11.9*****	1,200
Bromomethane	2.56E-02			1.47E-02	1.75E-02	5.0		4,500
2-Butanone***	4.19E-01		7.92E-01	1.68E+00	7.28E-01	300	1,967	140,000
Carbon Disulfide	1.86E-02	1.16E-01	1.11E-01	4.12E-02	7.18E-02	10	100	710
Carbon Tetrachloride	**7.21E-01**	**7.16E-01**	**5.57E-01**	**7.94E-01**	**6.97E-01**	0.07	100	1,300
Chlorobenzene						20	1,170	11,000
Chloroethane	2.56E-02	4.78E-01	2.05E-02	5.00E-02	1.43E-01	13,000	52,000	63,000
Chloroethyl Vinyl Ether****								
Chloroform	**8.14E-02**	**8.06E-02**	**2.26E-01**	**2.94E-01**	**1.71E-01**	0.04	167	980
Chloromethane	1.30E-01	8.96E-02	1.52E-01	1.56E-01	1.32E-01	770	2,100	22,000
Dibromochloromethane						0.1	0.03*****	
1,2-Dichlorobenzene (o)						200	1,000	36,000
1,3-Dichlorobenzene (m)						200	714*****	36,000
1,4-Dichlorobenzene (p)	5.81E-02	8.66E-02	3.23E-01	5.00E-01	2.42E-01	700		14,000
1,1-Dichloroethane						500	9,524****	96,000
1,2-Dichloroethane	**6.74E-02**	**4.48E-02**	**5.28E-02**	**1.12E-01**	**6.92E-02**	0.039	0.2	950
1,1-Dichloroethene						0.02	67	2,000
cis-1,2-Dichloroethene						1,900	1,880****	190,000
trans-1,2-Dichloroethene						360	360*****	
1,2-Dichloropropane						0.15	833*****	83,000
1,3-Dichloropropene, cis & trans isomers						20.0		1,100
Ethylbenzene	2.33E-01	3.58E-01	5.87E-01	1.62E+00	6.99E-01	1,000	1,450****	100,000
2/4-Ethyltoluene (total)	**4.65E-01**	**1.31E+00**	**1.23E+00**	**2.94E+00**	**1.49E+00**	0.1	0.03*****	
Freon 13****						700	33,333***	560,000
2-Hexanone***						9.5		950
Methylene Chloride	4.65E-01	4.78E-01	5.57E-01	1.65E+00	7.87E-01	27	1,170	41,000
4-Methyl-2-Pentanone***			9.09E-02		3.92E-02	480	488*****	48,000
Styrene	1.86E-02	6.27E-02	4.99E-02	3.24E-01	1.14E-01	1,000	716	20,000
1,1,2,2-Tetrachloroethane						0.02	23.3	1,600
Tetrachloroethene	2.56E-01	3.28E-01	6.45E-01	**1.85E+00**	7.71E-01	1.2	1,120	40,000
Toluene	1.21E+00	2.90E+00	2.93E+00	4.71E+00	2.94E+00	400	7,500	45,000
1,1,1-Trichloroethane	3.02E-01	2.84E-01	2.52E-01	3.82E-01	3.05E-01	1,000	38,000	450,000
1,1,2-Trichloroethane						0.06	150	13,000
Trichloroethene	4.42E-02	**8.66E-01**	2.05E-01	4.12E-01	3.82E-01	0.45	900	33,000
Trichlorofluoromethane	1.28E+00	1.64E+00	1.41E+00	1.44E+00	1.44E+00	700		560,000
Vinyl Chloride						0.02	0.4	1,300
Xylenes (Total)	1.05E+00	4.78E-01	2.87E+00	6.18E+00	2.64E+00	300	1,450	100,000

TABLE 2.4
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

24-HOUR UPWIND AMBIENT AIR VOST SAMPLE RESULTS

SUMMARY OF ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Annual Summary

Quarterly I.D.	1st	2nd	3rd	4th	ANNUAL AVERAGE	CURRENT	FORMER	CURRENT
Sample Identification*	U1	U2	U2	U1	UPWIND VALUE	AGC	AGC	SGC
TIC Lower Quantitation Limit (LQL)	0.058	0.075	0.073	0.074	0.070	---	---	---
Constituent/Units	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
Butane	1.56E+00			2.71E+00	1.10E+00	45,000	45,000	450,000
2-Methoxy-2-Methyl-Propane	1.40E+00		1.91E+00	4.12E+00	1.87E+00	50	4.0	34,000
2-Methyl-Pentane	1.30E+00		1.41E+00	2.47E+00	1.31E+00	4,200	830	83,000
C3 Substituted Benzene (RT= 16.41)			1.23E+00		3.59E-01			
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.02E+00				3.11E-01	30,000	90,000	1,800,000
Dichlorodifluoromethane	1.53E+00	1.10E+00			6.97E-01	200		1,200,000
Octanal		3.28E+00			8.72E-01			
2-Ethyl-1-hexanol		2.75E+00			7.38E-01			
Nonanal		1.73E+00			4.84E-01			
Octane		1.46E+00			4.17E-01	830		
Hexane			9.09E-01		2.79E-01	240	420	42,000
Isobutane	1.21E+00				3.58E-01	28,000		
Undecane				2.09E+00	5.74E-01			
Hexachloroethane		1.73E+00			4.84E-01			
C7 Hydrocarbon RT-5.83-7.51				2.66E+00	7.17E-01			
C8 Hydrocarbon (RT = 5.86)			1.75E+00		4.89E-01			
C8 Hydrocarbon (RT= 7.55)			1.11E+00		3.29E-01			
C11 Hydrocarbon(RT= 13.12- 13.88)			1.32E+00		3.82E-01			
C12 Hydrocarbon			9.68E-01		2.94E-01			

NOTES:

- Concentrations are in micrograms per cubic meter (ug/m^3).
- Shaded areas indicate concentrations that exceed the level of the Annual Guideline Concentration (AGC).

* The samples identified were chosen based on the lowest total speciated target VOCs for the upwind samples per test effort

*** An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

**** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

***** Proposed Value

- Blank values:

Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.

TABLE 2.5

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

ESTIMATION OF POTENTIAL IMPACTS

Quarterly I.D. Sample Identification	ANNUAL AVERAGE DOWNWIND VALUE	ANNUAL AVERAGE UPWIND VALUE	DOWNWIND - UPWIND VALUE	CURRENT AGC
Lower Quantitation Limit (ug/m3)	0.0263	0.0140	---	---
Target TIC Lower Quantitation Limit (ug/m3)	0.1320	0.0699	---	---
Practical Quantitation Limit (ug/m3)	0.0421	0.0224	---	---
Constituent/Units	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
Acetone*	1.04E+00	1.04E+00		14,000
Benzaldehyde**				
Benzene	**1.47E+00**	**1.35E+00**	1.24E-01	0.12
Bromodichloromethane				0.02
Bromoform*	3.26E-02	3.05E-02	2.13E-03	0.9
Bromomethane	2.58E-02	1.75E-02	8.35E-03	5.0
2-Butanone*	6.78E-01	7.28E-01		300
Carbon Disulfide	3.63E-02	7.18E-02		10
Carbon Tetrachloride	**8.10E-01**	**6.97E-01**	**1.13E-01**	0.07
Chlorobenzene	2.32E-02		2.32E-02	20
Chloroethane	2.45E-02	1.43E-01		13,000
Chloroethyl Vinyl Ether**				
Chloroform	**1.52E-01**	**1.71E-01**		0.04
Chloromethane	1.29E-01	1.32E-01		770
Dibromochloromethane				0.1
1,2-Dichlorobenzene (o)				200
1,3-Dichlorobenzene (m)				200
1,4-Dichlorobenzene (p)	2.57E-01	2.42E-01	1.55E-02	700
1,1-Dichloroethane				500
1,2-Dichloroethane	**9.34E-02**	**6.92E-02**	2.42E-02	0.039
1,1-Dichloroethene				0.02
cis-1,2-Dichloroethene	3.27E-02		3.27E-02	1,900
trans-1,2-Dichloroethene				360
1,2-Dichloropropane				0.15
1,3-Dichloropropene, cis & trans isomers				20.0
Ethylbenzene	6.65E-01	6.99E-01		1,000
2/4-Ethyltoluene (total)	**1.11E+00**	**1.49E+00**		0.1
Freon 13**				700
2-Hexanone*				9.5
Methylene Chloride	9.95E-01	7.87E-01	2.08E-01	27
4-Methyl-2-Pentanone*	6.38E-02	3.92E-02	2.45E-02	480
Styrene	1.49E-01	1.14E-01	3.52E-02	1,000
1,1,2,2-Tetrachloroethane				0.02
Tetrachloroethene	9.09E-01	7.71E-01	1.38E-01	1.2
Toluene	3.56E+00	2.94E+00	6.28E-01	400
1,1,1-Trichloroethane	4.01E-01	3.05E-01	9.57E-02	1,000
1,1,2-Trichloroethane				0.06
Trichloroethene	2.54E-01	3.82E-01		0.45
Trichlorofluoromethane	4.44E+00	1.44E+00	3.00E+00	700
Vinyl Chloride				0.02
Xylenes (Total)	2.99E+00	2.64E+00	3.47E-01	300

NOTES:
- Concentrations are in micrograms per cubic meter (ug/m3).
- Shaded areas indicate concentrations that exceed the level of the Annual Guideline Concentration (AGC).
* An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.
** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.
- Blank values:
Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

Environmental Associates, Inc. for the Town since 1990. Over the course of the past ten years, several changes have been made to the program to improve the quality of the data. These changes occurred throughout the program, principally before 1997. A comparison between upwind and downwind sample ambient data collected during 1999 and in 2000 confirm that benzene, carbon tetrachloride, chloroform, 2/4-ethyltoluene (previously reported as ethyl-methyl benzene) and 1,2-dichloroethane concentrations consistently exceed the level of the NYSDEC ambient annual guideline values at both upwind and downwind locations. Several compounds observed in upwind and downwind samples during the first two years of monitoring appear at slightly higher concentration values when compared to 1999 and 2000 values. The decrease for some compounds may, in part, be attributed to landfill capping which was completed in January 1993. Furthermore, the 2000 study data show that upwind and downwind concentrations for most compounds, in general, are similar and thus, tending to discount the OBSWDC as a significant source of any detected compounds.

2.4 Analysis of 2000 Soil Gas VOC Concentration Data

The 2000 soil gas VOC samples provide data on the concentrations of TCL and TIC constituents in the soil gas in the vicinity of the landfill. Soil gas concentrations of the identified constituents observed during the 2000 year of testing have been presented in the quarterly reports and summary tables are reproduced in Appendix B of this report. Table 2.6 provides an annual summary of soil gas VOC concentrations. To be conservative, these samples were chosen based on the highest total speciated target VOCs for the soil gas samples per test effort for the shallow thirty inch wells only. As shown in Table 2.6, a total of three (3) compounds averaged higher than their respective AGC value in the ambient air. The number of soil gas wells containing target compound constituents that had exceeded the level of their respective AGCs were similar throughout the four 2000 quarterly tests. Since these are not ambient air values, they cannot be directly compared to NYSDEC ambient guidelines; although, the measured ten-minute concentrations for several compounds are in excess of the levels of annual ambient air guideline values specified. The NYSDEC has not developed VOC concentration guidelines for soils, and therefore, a direct comparison to applicable State regulations cannot be made. Nassau County does not have soil gas standards at this point.

The 2000 soil gas VOST sample results for cluster well M9, including wells M9(10'), M9(20'), M9(30')

TABLE 2.6

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

SUMMARY OF SOIL GAS VOC SAMPLE RESULTS
CALENDAR YEAR 2000

Quarterly I.D.	1st	2nd	3rd	4th	ANNUAL AVERAGE	CURRENT
Soil Gas Well Identification*	M13	M13	M13	M13	---	AGC
Lower Quantitation Limit (LQL)	0.961	0.476	0.496	0.505	0.647	---
Practical Quantitation Limit (PQL)	1.54	0.761	0.793	0.808	1.035	---
Targeted TIC LQL	4.80	2.38	2.48	2.53	3.236	---
Constituent/Units	($ug/std\text{-}m^3$)	($ug/std\text{-}m^3$)	($ug/std\text{-}m^3$)	($ug/std\text{-}m^3$)	($ug/std\text{-}m^3$)	(ug/m^3)
Acetone**	2.02E+00	1.62E+00	2.58E+00	2.02E+00	2.06E+00	14,000
Benzaldehyde***						
Benzene						0.12
Bromodichloromethane						0.02
Bromoform**						0.9
Bromomethane						5.0
2-Butanone**			3.57E+00		1.67E+00	300
Carbon Disulfide			7.93E-01		1.26E+00	10
Carbon Tetrachloride						0.07
Chlorobenzene						20
Chloroethane						13,000
Chloroethyl Vinyl Ether***						
Chloroform	**1.15E+00**	**4.00E+00**	**5.15E+00**	**2.63E+00**	**3.23E+00**	0.04
Chloromethane						770
Dibromochloromethane						0.1
1,2-Dichlorobenzene (o)						200
1,3-Dichlorobenzene (m)						200
1,4-Dichlorobenzene (p)						700
1,1-Dichloroethane		1.71E+00	4.26E+00	1.52E+00	2.11E+00	500
1,2-Dichloroethane						0.039
1,1-Dichloroethene						0.02
cis-1,2-Dichloroethene			5.95E-01		1.21E+00	1,900
trans-1,2-Dichloroethene			7.93E-01		1.26E+00	360
1,2-Dichloropropane						0.15
1,3-Dichloropropene, cis & trans isomers						20.0
Ethylbenzene						1,000
2/4-Ethyltoluene (total)						0.1
Freon 13***						700
2-Hexanone**						9.5
Methylene Chloride	6.72E+00	1.71E+00	1.88E+00	2.93E+00	3.31E+00	27
4-Methyl-2-Pentanone**						480
Styrene						1,000
1,1,2,2-Tetrachloroethane						0.02
Tetrachloroethene	**7.68E+00**	**4.28E+01**	**6.14E+01**	**3.64E+01**	**3.71E+01**	1.2
Toluene						400
1,1,1-Trichloroethane	2.02E+00	4.28E+00	1.09E+01	4.55E+00	5.44E+00	1,000
1,1,2-Trichloroethane						0.06
Trichloroethene		**1.71E+00**	**4.46E+00**	**2.12E+00**	**2.31E+00**	0.45
Trichlorofluoromethane	2.79E+00	4.57E+00	9.91E+00	3.23E+00	5.12E+00	700
Vinyl Chloride						0.02
Xylenes (Total)						300

TABLE 2.6
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
OLD BETHPAGE LANDFILL

SUMMARY OF SOIL GAS VOC SAMPLE RESULTS
CALENDAR YEAR 2000

Quarterly	1st	2nd	3rd	4th	ANNUAL AVERAGE	CURRENT
Soil Gas Well Identification*	M13	M13	M13	M13	---	AGC
Additional TIC LQL	4.80	2.38	2.48	2.53	3.04	---

Constituent/Units	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)	(ug/m^3)
Dichlorodifluoromethane			5.25E+00	2.93E+00	3.84E+00	200
C11 hydrocarbon (RT=13.12-13.88)			2.87E+00		3.15E+00	
Alpha-methlystyene			5.55E+00		3.81E+00	
Unknown (RT=11.81-13.88)			6.44E+00		4.04E+00	
Dichlorotetrafluoroethane			4.26E+00		3.49E+00	17,000

NOTES:

- Concentrations are in micrograms per cubic meter (ug/m3).
- Shaded areas indicate concentrations that exceed the level of the Annual Guideline Concentration (AGC).

* The samples identified were chosen based on the highest total speciated target VOCs for the soil gas samples per test effort.

** An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

*** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

- Blank values:

Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

and M9(40') show an increase in certain constituent concentrations as well depth increases for three of the four quarterly tests. This trend may be attributed to groundwater conditions at this location.

2.5 Analysis of the Soil Gas Program Data Base Since 1990

VOC concentrations in soil gas samples have been measured at the OBSWDC since 1990. Throughout the past ten years, modifications have been made to the soil gas program in order to provide quality data. However, since 1992, the soil gas wells that have been sampled and the target sample volume has remained the same. Therefore, these data are directly comparable. A comparison of soil gas VOC concentration data from 1992 through 2000 shows that the compounds benzene, carbon tetrachloride, chloroform, tetrachloroethene and trichloroethene consistently exceed the level of the NYSDEC ambient annual guideline values. In general, these soil gas VOC concentration exceedances increased in number from 1992 through 1997. Since 1997, the number of exceedances has remained similar for each test year. It is critical to note that the subsurface soil gas data were only ten minute samples which are not directly comparable to NYSDEC annual guideline concentration values. As stated before, Nassau County does not have soil gas standards at this point, and therefore, a direct comparison to applicable regulations cannot be made.

2.6 Analysis of 2000 Soil Gas Pressure Measurements

Soil gas pressure measurements were made during the 2000 testing program as prescribed in the Consent Order. The locations of the pressure wells are provided in the quarterly reports. PW1 and PW2 are on the Old Bethpage Solid Waste Disposal Complex property while PW3 is off-site at the Firemen's Training Center. PW1 is located outside the perimeter collection system while PW2 is located within the perimeter collection system.

The majority of soil gas pressure readings were zero or negative during 2000. The soil gas pressure readings, as provided in Appendix C, show that positive pressure readings were measured at PW1 (10' and 20' depths) for the second quarter only, and zero or negative readings were measured at PW2 and PW3 for all quarters. Positive or zero pressure readings are dependent on landfill influences, the perimeter collection system status, atmospheric pressure and perched water near the well location. A drop in the

ambient barometric pressure, in general, causes gases to be emitted from the soil, because of a positive pressure reading relative to the ambient pressure at a pressure well.

Ambient atmospheric pressure is measured at the landfill during each quarterly test effort to determine the atmospheric pressure drop over the 24-hour test period. Ambient pressure drops for each quarter were calculated by subtracting the lowest ambient pressure from the highest. Ambient pressure drops during the test efforts were reviewed and are similar for the year with the exception of the second quarter test where there was a significant drop in barometric pressure; approximately 0.18 inches of mercury, during the test. Insufficient negative pressure at the perimeter gas collection system can potentially lead to increased fugitive emissions from the landfill and potential subsurface migration at the OBSWDC.

3.0 SUMMARY AND CONCLUSIONS

In summary, the 2000 test program involved collecting data on ambient air and soil gas volatile organic compound samples and soil gas pressure readings. The program was completed according to the NYSDEC approved monitoring plan which is in conformance with the Order on Consent. The data indicates that several compounds, most notably benzene, carbon tetrachloride, chloroform, 1,2-dichloroethane and 2/4-ethyltoluene have ambient air concentrations in excess of the level of their respective NYSDEC annual guideline concentrations. These compounds were measured in excess of the level of the guideline values at locations both upwind and downwind of the OBSWDC.

The samples collected downwind of the OBSWDC generally show average VOC concentration levels that do not exceed NYSDEC guidelines when average conservative upwind VOC concentrations are subtracted. However, one target constituent, carbon tetrachloride, when adjusted for conservative background levels, exceeded the level of the guideline value downwind of the landfill.

Representative upwind and downwind values have been used in estimating air quality impacts associated with releases from the landfill. It should be noted, however, that quarterly monitoring occurred during generally steady or falling barometric pressure conditions which tend to maximize the observed impacts from any landfill source. The downwind sampling locations were also positioned on or near the foot of the landfill slope again maximizing the recorded impact. One would expect to observe a decrease in these levels as the distance downwind of the landfill and the other sources increases.

A data base is being developed for both an uncapped and a capped landfill. Since capping was completed, the data collected for a limited set of compounds continues to show an exceedance of the NYSDEC ambient guideline values both upwind and downwind of the OBSWDC. Additionally, the target compound list has been occasionally updated based on continuing reviews of tentatively identified compounds being detected by enhanced analytical procedures. These compounds can be significant as illustrated by 2/4-ethyltoluene which was not on the initial list of target compounds but was measured in excess of the current State annual guideline concentration both upwind and downwind of the OBSWDC. Furthermore, compounds have been recorded in the latter portion of the gas chromatographic analysis of the 24-hour ambient air samples for 2000. This has occurred over the past several years and may indicate semi-volatile compounds are present and unaccounted for both upwind and downwind of the landfill.

In conclusion, the ambient VOC concentrations measured during the 2000 study upwind and downwind of the facility for most compounds appear to be similar. Based on this data, the Old Bethpage Solid Waste Disposal Complex, and by inclusion the landfill, is not having a significant impact on air quality for measured VOC compounds. One compound, measured downwind of the landfill, after taking the most conservative upwind values into account, is above stated NYSDEC guidelines for annual averaging periods. No VOC compound concentrations measured downwind of the landfill exceeded NYSDEC short-term guidelines.

APPENDIX A

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
EVALUATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR AND SOILS AND SOIL GAS PRESSURE READINGS

2000 ANNUAL SUMMARY REPORT

2000 QUARTERLY AMBIENT AIR CONCENTRATION DATA

TABLE 4.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 First Quarter

	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION*	U1	U2	D1	D2	D3	FB1	TB1	AGC	SGC****
LOWER QUANTITATION LIMIT (LQL)	0.0116	0.0120	0.0163	0.0130	0.0243	5	---		
PRACTICAL QUANTITATION LIMIT (PQL)	0.0186	0.0192	0.0261	0.0207	0.0388	8	---		
TARGETED TIC LQL	0.0581	0.0601	0.0817	0.0648	0.121	25	---		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Acetone**	5.81E-01	6.49E-01	8.50E-01	5.70E-01	7.52E-01	18		14,000	56,000
Benzaldehyde***									
Benzene	[illegible]	[illegible]	[illegible]	[illegible]	< [illegible]			0.12	13
Bromodichloromethane								0.02	
Bromoform**				3.11E-02				0.9	480
Bromomethane	2.56E-02	2.88E-02	3.59E-02	2.59E-02	< 3.40E-02			5.0	1,800
2-Butanone**	4.19E-01	4.09E-01	4.58E-01	3.89E-01	< 5.05E-01			300	56,000
Carbon Disulfide	1.86E-02	2.16E-02	1.63E-02	1.81E-02				10	284
Carbon Tetrachloride	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			0.07	520
Chlorobenzene				1.55E-02				20	4,400
Chloroethane	2.56E-02	2.40E-02		2.07E-02	< 2.67E-02			13,000	25,200
Chloroethyl Vinyl Ether***									
Chloroform	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			0.04	392
Chloromethane	1.30E-01	1.56E-01	2.03E-01	1.63E-01	1.50E-01			770	8,800
Dibromochloromethane								0.1	
1,2-Dichlorobenzene (o)								200	14,400
1,3-Dichlorobenzene (m)								200	14,400
1,4-Dichlorobenzene (p)	5.81E-02	5.29E-02	5.88E-02	1.04E-01	< 6.80E-02			700	5,600
1,1-Dichloroethane								500	38,400
1,2-Dichloroethane	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			0.039	380
1,1-Dichloroethene								0.02	800
cis-1,2-Dichloroethene								1,900	76,000
trans-1,2-Dichloroethene								360	
1,2-Dichloropropane								0.15	33,200
1,3-Dichloropropene, cis & trans isomers								20	440
Ethylbenzene	2.33E-01	2.28E-01	2.25E-01	4.66E-01	< 3.76E-01			1,000	40,000
2/4-Ethyltoluene (total)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			0.1	
Freon 13***								700	224,000
2-Hexanone**								10	380
Methylene Chloride	4.65E-01	4.81E-01	4.90E-01	4.66E-01	5.02E-01	83		27	16,400
4-Methyl-2-Pentanone**				2.85E-02	< 2.48E-01			480	19,200
Styrene	1.86E-02	2.64E-02	2.29E-02	3.37E-02	< 3.16E-02			1,000	8,000
1,1,2,2-Tetrachloroethane								0.02	640
Tetrachloroethene	2.56E-01	2.64E-01	2.52E-01	5.44E-01	< 2.79E-01			1.2	16,000
Toluene	1.21E+00	1.18E+00	1.18E+00	2.28E+00	< 1.54E+00			400	18,000
1,1,1-Trichloroethane	3.02E-01	3.13E-01	3.04E-01	4.40E-01	3.03E-01			1,000	180,000
1,1,2-Trichloroethane								0.06	5,200
Trichloroethene	4.42E-02	4.33E-02	4.25E-02	6.48E-02	< 7.52E-02			0.45	13,200
Trichlorofluoromethane	1.28E+00	1.47E+00	1.54E+00	1.50E+00	1.37E+00			700	224,000
Vinyl Chloride								0.02	520
Xylenes (Total)	1.05E+00	1.01E+00	1.01E+00	1.94E+00	< 1.74E+00			300	40,000

TABLE 4.1
Continued

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 First Quarter

SAMPLE TYPE	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION (1)	U1	U2	D1	D2	D3	FB1	TB1	AGC	SGC****
ADDITIONAL TIC LQL	1.02	0.553	0.752	0.674	0.575	25	---		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Dichlorodifluoromethane	1.53E+00	1.06E+00	1.27E+00	1.06E+00	< 1.46E+00			200	480,000
Isobutane	1.21E+00	6.25E-01	7.52E-01	6.74E-01	< 1.26E+00			28,000	180,000
Butane	1.56E+00	8.65E-01	1.01E+00	9.07E-01	< 1.67E+00			45,000	180,000
2-Methylbutane			1.05E+00			31		8,300	33,200
2-Methylpentane	1.30E+00	6.97E-01	7.52E-01		8.91E-01			4,200	33,200
2-Methoxy-2-methylpropane	1.40E+00	8.41E-01	9.15E-01	8.29E-01	< 8.50E-01			50	13,600
C3 Substituted Benzene (RT= 13.47-13.48)		5.53E-01		6.99E-01	< 7.94E-01				
C12 Hydrocarbon (RT= 14.25)				8.55E-01					
Unknown (RT= 4.18)					< 1.01E+00				
Hexane					< 7.94E-01			240	16,800
C7 Hydrocarbon (RT= 5.73)					< 5.75E-01				
Unknown Hydrocarbon (RT= 14.25)					< 6.72E-01				
Unknown (RT=1.45)					< 8.25E-01				
1,1,2-Trichloro-1,2,2-trifluoroethane	1.02E+00					43		30,000	720,000
Pentane						73		830	33,200

NOTES:

- See Figure 2.1 for ambient air and soil gas sampling locations.
- An 8 (splitless) nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.
- Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.
- ****This 24-hour guideline concentration was calculated by multiplying the current SGC value (last revised October 16, 1995 and still current as of January 2000) by 0.4 (EPA averaging time adjustment factor).

U1/U2: Ambient upwind samplers collocated on the golf course west of Round Swamp Road.
D1/D2: Ambient downwind samplers collocated approximately 125 feet southwest of the southwestern corner of the RAP building.
D3: Ambient downwind sample collected on the second bridge off the landfill road on the eastern side of the landfill.
FB1: Ambient Field Blank.
TB1: Trip Blank - not analyzed.

- All values are reported in micrograms per standard cubic meter (ug/std-m^3) except for the field blank and trip blank mass loading results which are reported in nanograms (ng).
- Blank values:
  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).
  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised October 16, 1995 and still current as of January 2000) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the analytical results, Appendix C.
- (ug/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

TABLE 4.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 Second Quarter

	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION*	U1	U2	D1	D2*****	D3	FB2	TB1	AGC	SGC****
LOWER QUANTITATION LIMIT (LQL)	0.0152	0.0149	0.0187	0.0150	0.0331	5	5		
PRACTICAL QUANTITATION LIMIT (PQL)	0.0243	0.0239	0.0299	0.0240	0.0530	8	8		
TARGETED TIC LQL	0.0760	0.0746	0.0933	0.0749	0.166	25	25		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Acetone**	5.17E-01	5.97E-01	3.73E-01	4.79E-01	5.50E-01	10		14,000	56,000
Benzaldehyde***									
Benzene	4.26E-01	4.13E-01	3.58E-01	3.59E-01	< 5.13E-01			0.12	13
Bromodichloromethane								0.02	
Bromoform**				2.69E-02				0.9	480
Bromomethane								5.0	1,800
2-Butanone**	1.91E-01		1.53E-01	1.95E-01	< 1.95E-01			300	56,000
Carbon Disulfide		1.16E-01						10	284
Carbon Tetrachloride	7.29E-01	7.16E-01	7.84E-01	7.49E-01	7.22E-01			0.07	520
Chlorobenzene								20	4,400
Chloroethane	4.56E-01	4.78E-01		2.10E-02				13,000	25,200
Chloroethyl Vinyl Ether***									
Chloroform	8.21E-02	8.06E-02	7.84E-02	7.49E-02	8.28E-02			0.04	392
Chloromethane	1.12E-01	8.96E-02	1.23E-01	1.08E-01	< 1.09E-01			770	8,800
Dibromochloromethane								0.1	
1,2-Dichlorobenzene (o)								200	14,400
1,3-Dichlorobenzene (m)								200	14,400
1,4-Dichlorobenzene (p)	9.12E-02	8.66E-02	6.72E-02	5.99E-02	< 7.95E-02			700	5,600
1,1-Dichloroethane								500	38,400
1,2-Dichloroethane	4.56E-02	4.48E-02	4.48E-02	4.79E-02	< 6.29E-02			0.039	380.0
1,1-Dichloroethene								0.02	800
cis-1,2-Dichloroethene					< 4.64E-02			1,900	76,000
trans-1,2-Dichloroethene								360	
1,2-Dichloropropane								0.15	33,200
1,3-Dichloropropene, cis & trans isomers								20	440
Ethylbenzene	3.95E-01	3.58E-01	2.35E-01	2.13E-01	< 3.28E-01			1,000	40,000
2,4-Ethyltoluene (total)	1.55E+00	1.31E+00	5.22E-01	4.79E-01	< 7.12E-01			0.1	
Freon 13***								700	224,000
2-Hexanone**								10	380
Methylene Chloride	4.56E-01	4.78E-01	4.85E-01	3.59E-01	9.27E-01	30		27	16,400
4-Methyl-2-Pentanone**	1.06E-01		7.46E-02	8.38E-02	< 1.42E-01			480	19,200
Styrene	4.26E-02	6.27E-02	2.99E-02	2.40E-02	< 3.97E-02			1,000	8,000
1,1,2,2-Tetrachloroethane								0.02	640
Tetrachloroethene	2.86E-01	3.28E-01	3.40E-01	2.93E-01	< 4.14E-01			1.2	16,000
Toluene	3.65E+00	2.90E+00	1.53E+00	1.35E+00	< 1.94E+00			400	18,000
1,1,1-Trichloroethane	2.95E-01	2.84E-01	3.73E-01	3.59E-01	3.77E-01			1,000	180,000
1,1,2-Trichloroethane								0.06	5,200
Trichloroethene	8.31E-01	8.66E-01	2.61E-01	2.43E-01	< 2.52E-01			0.45	13,200
Trichlorofluoromethane	1.52E+00	1.64E+00	1.38E+00	1.41E+00	1.25E+00			700	224,000
Vinyl Chloride								0.02	520.0
Xylenes (Total)	2.04E+00	4.78E-01	1.16E+00	1.11E+00	< 1.54E+00			300	40,000

TABLE 4.1
Continued

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 Second Quarter

SAMPLE TYPE	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION (1)	U1	U2	D1	D2*****	D3	FB2	TB1	AGC	SGC****
ADDITIONAL TIC LQL	0.578	1.10	0.485	0.419	0.795	25	25		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Dichlorotetrafluoroethane								17,000	680,000
1,1-Dichloro-1-fluoroethane									
Hexane				4.19E-01	< 9.27E-01			240	16,800
Dichlorodifluoromethane	1.00E+00	1.10E+00	9.33E-01	1.14E+00				200	480,000
1,1,2-Trichloro-1,2,2-trifluoroethane					< 7.95E-01			30,000	720,000
Octanal		3.28E+00							
2-Ethyl-1-hexanol		2.75E+00							
Nonanal		1.73E+00							
2-Methylbutane					< 1.06E+00			8,300	33,200
2-Methylpentane	6.69E-01		5.22E-01	5.69E-01	< 8.28E-01			4,200	33,000
2-Methoxy-2-methylpropane	5.78E-01		7.46E-01	8.68E-01	1.06E+00			50	13,600
Octane		1.46E+00	5.97E-01	5.09E-01				830	33,200
C3 subst. Benzene (RT= 13.29-13.34)	1.16E+00		4.85E-01	5.39E-01	< 1.09E+00				
C12 hydrocarbon	9.12E-01		5.60E-01	5.09E-01					
Chlorodifluoromethane					< 4.04E+00			8,400	336,000
Isobutane					< 1.16E+00			28,000	180,000
C11 hydrocarbon	6.69E-01								
Hexachloroethane		1.73E+00						23	920
Unknown hydrocarbon (RT=13.45)					< 7.95E-01				
Unknown hydrocarbon (RT=14.11)					< 1.09E+00				
Unknown hydrocarbon (RT= 2.03)					< 6.46E-01				

NOTES:

* See Figure 2.1 for ambient air and soil gas sampling locations.

** An 8 (splitless) nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

*** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

**** This 24-hour guideline concentration was calculated by multiplying the current SGC value (last revised October 16, 1995 and still current as of January 2000) by 0.4 (EPA averaging time adjustment factor).

*****Condensate was collected from sample D2 (sample OBL00-2:D2.C). Only two compounds were detected in this sample: acetone (26 ng) and methylene chloride (38ng).

U1/U2: Ambient upwind samples collocated on the northeastern section of the landfill, approximately 50 feet west of Winding Road and northeast of the RAP building.

D1/D2: Ambient downwind samples collocated on the western side of the landfill, approximately 450 feet south of soil gas well M21.

D3: Ambient downwind sample collected on the southwestern side of the landfill, approximately 125 feet southeast of soil gas well M37.

FB2: Ambient Field Blank.

TB1: Trip Blank - not analyzed

All values are reported in micrograms per standard cubic meter (ug/std-m^3) except for the field blank and trip blank mass loading results which are reported in nanograms (ng).

- Blank values:
  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).
  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised October 16, 1995 and still current as of January 2000) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the analytical results, Appendix C.
- (ug/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

TABLE 4.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 Third Quarter

	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION*	U1	U2	D1	D2	D3	FB1	TB1	AGC	SGC****
LOWER QUANTITATION LIMIT (LQL)	0.0146	0.0147	0.0169	0.0136	0.0288	5	5		
PRACTICAL QUANTITATION LIMIT (PQL)	0.0233	0.0235	0.0271	0.0217	0.0461	8	8		
TARGETED TIC LQL	0.0729	0.0733	0.0847	0.0678	0.144	25	25		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Acetone**	1.52E+00	1.06E+00	1.15E+00	1.06E+00	1.04E+00	11		14,000	56,000
Benzaldehyde***									
Benzene	[redacted]							0.12	13
Bromodichloromethane								0.02	
Bromoform**	3.21E-02	2.93E-02						0.9	480
Bromomethane								5.0	1,800
2-Butanone**	9.62E-01	7.92E-01	7.80E-01	8.40E-01	9.16E-01			300	56,000
Carbon Disulfide	1.46E-01	1.11E-01	3.05E-02	5.42E-02				10	284
Carbon Tetrachloride	[redacted]							0.07	520
Chlorobenzene								20	4,400
Chloroethane		2.05E-02						13,000	25,200
Chloroethyl Vinyl Ether***									
Chloroform	[redacted]							0.04	392
Chloromethane	1.66E-01	1.52E-01	1.36E-01	1.17E-01	< 1.04E-01			770	8,800
Dibromochloromethane								0.1	
1,2-Dichlorobenzene (o)								200	14,400
1,3-Dichlorobenzene (m)								200	14,400
1,4-Dichlorobenzene (p)	2.92E-01	3.23E-01	4.75E-01	3.25E-01	< 4.47E-01			700	5,600
1,1-Dichloroethane								500	38,400
1,2-Dichloroethane	[redacted]							0.039	380.0
1,1-Dichloroethene								0.02	800
cis-1,2-Dichloroethene			3.05E-02	4.07E-02				1,900	76,000
trans-1,2-Dichloroethene								360	
1,2-Dichloropropane								0.15	33,200
1,3-Dichloropropene, cis & trans isomers								20	440
Ethylbenzene	5.25E-01	5.87E-01	8.14E-01	5.15E-01	< 6.20E-01			1,000	40,000
4-Ethyltoluene (total)	[redacted]							0.1	
Freon 13***								700	224,000
2-Hexanone**								10	380
Methylene Chloride	7.87E-01	5.57E-01	6.78E-01	6.23E-01	6.05E-01	18		27	16,400
4-Methyl-2-Pentanone**	9.62E-02	9.09E-02	1.15E-01	5.96E-02	< 1.33E-01			480	19,200
Styrene	3.79E-02	4.99E-02	7.46E-02	2.28E-01	< 6.92E-02			1,000	8,000
1,1,2,2-Tetrachloroethane								0.02	640
Tetrachloroethene	6.71E-01	6.45E-01	1.08E+00	8.67E-01	< 8.21E-01			1.2	16,000
Toluene	2.92E+00	2.93E+00	4.07E+00	2.98E+00	3.19E+00			400	18,000
1,1,1-Trichloroethane	2.86E-01	2.52E-01	3.73E-01	3.25E-01	4.76E-01			1,000	180,000
1,1,2-Trichloroethane								0.06	5,200
Trichloroethene	2.10E-01	2.05E-01	3.02E-01	2.41E-01	< 2.02E-01			0.45	13,200
Trichlorofluoromethane	1.31E+00	1.41E+00	1.86E+00	1.30E+01	1.24E+00			700	224,000
Vinyl Chloride								0.02	520.0
Xylenes (Total)	2.54E+00	2.87E+00	3.73E+00	2.03E+00	< 2.87E+00			300	40,000

TABLE 4.1
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 Third Quarter

SAMPLE TYPE	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION (1)	U1	U2	D1	D2	D3	FB1	TB1	AGC	SGC****
ADDITIONAL TIC LQL	0.073	0.073	0.085	0.068	0.144	25	25		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Hexane		9.09E-01						240	16,800
Dichlorodifluoromethane					< 1.86E+00			200	480,000
2-Methylbutane	1.55E+00		2.17E+00		< 2.23E+00			8,300	33,200
Pinene isomer					< 1.20E+00				
Undecane			2.47E+00	4.34E+00					
2- Methylpentane	1.63E+00	1.41E+00						4,200	33,000
2-Methoxy-2-methylpropane	2.01E+00	1.91E+00	2.17E+00		2.33E+00			50	13,600
C3 subst. Benzene (RT= 13.29-13.34)	1.08E+00	1.23E+00	1.83E+00		< 1.25E+00				
C12 hydrocarbon		9.68E-01	2.81E+00						
Isobutane					< 1.11E+00			28,000	180,000
C11 hydrocarbon (RT=13.12-13.88)		1.32E+00	2.17E+00	4.34E+00	< 1.69E+00				
Unknown hydrocarbon (RT=14.08)					< 1.83E+00				
C10 hydrocarbon (rt=11.79)				4.61E+00					
C10 hydrocarbon (rt=12.12)				6.78E+00					
C10 hydrocarbon (rt=12.50)				4.61E+00					
Unknown hydrocarbon (RT=12.74)				5.42E+00					
Decane					< 1.31E+00			0.1	----
Butane					< 1.02E+00			45,000	180,000
Pentadiene isomer					< 5.62E-01				
C8 hydrocarbon (RT=5.86)	1.75E+00								
C8 hydrocarbon (RT=7.55)	1.11E+00								

NOTES:

- See Figure 2.1 for ambient air and soil gas sampling locations.
- ** An 8 (splitless) nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.
- *** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.
- ****This 24-hour guideline concentration was calculated by multiplying the current SGC value (last revised October 16, 1995 and still current as of January 2000) by 0.4 (EPA averaging time adjustment factor).

U1/U2: Ambient upwind samplers collocated on the 15th hole of the Bethpage black golf course, 125 feet west of Round Swamp Road.
D1/D2: Ambient downwind samplers collocated on the third foot bridge on the eastern side of the landfill, approximately 75 feet west of Winding Road
D3: Ambient downwind sampler collected on the northern side of the landfill, approximately 60 feet southwest of the RAP building.
TB1: Trip Blank (was not analyzed due to uncontaminated field blank samples)

- All values are reported in micrograms per standard cubic meter (ug/std-m^3) except for the field blank and trip blank mass loading results which are reported in nanograms (ng).
- Blank values:

Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.

- Values in shaded areas are at or exceed the level of the current (last revised October 16, 1995 and still current as of January 2000) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the analytical results, Appendix C.
- (ug/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

TABLE 4.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 Fourth Quarter

	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION*	U1	U2	D1	D2	D3	FB1	TB1	AGC	SGC****
LOWER QUANTITATION LIMIT (LQL)	0.0147	0.0204	0.0307	0.0290	0.0342	5	5		
PRACTICAL QUANTITATION LIMIT (PQL)	0.0235	0.0327	0.0245	0.0232	0.0548	8	8		
TARGETED TIC LQL	0.0735	0.1020	0.1534	0.1449	0.171	25	25		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Acetone**	1.94E+00	2.78E+00	1.99E+00	1.51E+00	2.47E+00	14		14,000	56,000
Benzaldehyde***									
Benzene	2.94E+00	2.90E+00	2.83E+00	2.90E+00	< 5.50E+00			0.12	13
Bromodichloromethane								0.02	
Bromoform**	5.00E-02	5.31E-02			< 5.48E-02			0.9	480
Bromomethane	1.47E-02							5.0	1,800
2-Butanone**	1.68E+00	2.08E+00	1.29E+00	1.28E+00	< 1.26E+00			300	56,000
Carbon Disulfide	4.12E-02	4.08E-02	3.99E-02					10	284
Carbon Tetrachloride	7.94E-01	8.10E-01	8.59E-01	8.12E-01	8.08E-01			0.07	520
Chlorobenzene								20	4,400
Chloroethane	5.00E-02	4.49E-02			< 5.14E-02			13,000	25,200
Chloroethyl Vinyl Ether***									
Chloroform	2.04E-01	2.05E-01	2.45E-01	2.14E-01	2.16E-01			0.04	392
Chloromethane	1.56E-01	1.96E-01	1.29E-01	7.25E-02	1.95E-01			770	8,800
Dibromochloromethane								0.1	
1,2-Dichlorobenzene (o)								200	14,400
1,3-Dichlorobenzene (m)								200	14,400
1,4-Dichlorobenzene (p)	5.00E-01	5.31E-01	5.21E-01	5.22E-01	< 3.29E-01			700	5,600
1,1-Dichloroethane								500	38,400
1,2-Dichloroethane	1.12E-01	1.14E-01	1.01E-01	1.04E-01	< 1.95E-01			0.039	380.0
1,1-Dichloroethene								0.02	800
cis-1,2-Dichloroethene					< 4.79E-02			1,900	76,000
trans-1,2-Dichloroethene								360	
1,2-Dichloropropane								0.15	33,200
1,3-Dichloropropene, cis & trans isomers								20	440
Ethylbenzene	1.62E+00	1.67E+00	1.35E+00	1.25E+00	< 1.08E+00			1,000	40,000
2,4-Ethyltoluene (total)	2.94E+00	3.06E+00	2.91E+00	1.58E+00	< 2.35E+00			0.1	
Freon 13***								700	224,000
2-Hexanone**								10	380
Methylene Chloride	1.65E+00	1.67E+00	1.96E+00	1.62E+00	1.54E+00	39		27	16,400
4-Methyl-2-Pentanone**								480	19,200
Styrene	3.24E-01	3.22E-01	2.94E-01	2.87E-01	< 5.99E-01			1,000	8,000
1,1,2,2-Tetrachloroethane								0.02	640
Tetrachloroethene	1.85E+00	1.92E+00	1.81E+00	1.64E+00	< 1.35E+00			1.2	16,000
Toluene	4.71E+00	5.71E+00	7.06E+00	6.96E+00	< 4.13E+00			400	18,000
1,1,1-Trichloroethane	3.82E-01	4.04E-01	4.60E-01	4.35E-01	4.01E-01			1,000	180,000
1,1,2-Trichloroethane								0.06	5,200
Trichloroethene	4.12E-01	3.96E-01	4.60E-01	4.35E-01	< 3.60E-01			0.45	13,200
Trichlorofluoromethane	1.44E+00	1.67E+00	1.99E+00	1.80E+00	1.88E+00			700	224,000
Vinyl Chloride								0.02	520.0
Xylenes (Total)	6.18E+00	6.53E+00	6.44E+00	6.09E+00	< 4.47E+00			300	40,000

TABLE 4.1
Continued

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

AMBIENT AIR VOST SAMPLE RESULTS

2000 Fourth Quarter

SAMPLE TYPE	24-HR AMBIENT AIR SAMPLE					BLANK		CURRENT	24-HOUR
SAMPLE IDENTIFICATION (1)	U1	U2	D1	D2	D3	FB1	TB1	AGC	SGC****
ADDITIONAL TIC LQL	0.074	0.102	0.153	0.145	0.171	25	25		
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ng)	(ng)	(ug/m3)	(ug/m3)
Butane	2.71E+00	2.41E+00	2.33E+00	2.29E+00	< 4.20E+00			45,000	450,000
2-Methyl-pentane	2.47E+00	2.86E+00	2.76E+00	2.58E+00	3.12E+00			4,200	
2-Methoxy-2-Methyl-propane	4.12E+00								
C7 Hydrocarbon RT-5.83-7.51	2.66E+00	3.12E+00		2.32E+00					
Undecane	2.09E+00			2.38E+00	< 1.97E+00				
MTBE		4.90E+00			< 2.86E+00				
C3 subst. Benzene		**2.29E+00**	2.02E+00		**< 2.69E+00**			0.12	32
2-Methyl-butane			3.07E+00	2.75E+00					
2-Methoxy-2-Methyl-(MTBE)-propane			3.07E+00	3.19E+00	< 2.11E+00				
C8 Hydrocarbon RT-7.51			2.09E+00						
Hexane					< 1.87E+00			240	42,000
Nonane					< 2.14E+00			25,000	250,000
Decane					**< 2.41E+00**			0.1	
Unknown RT-1.38-13.47					< 4.98E+00				
Isobutane					< 3.51E+00			28,000	450,000

NOTES:

* See Figure 2.1 for ambient air and soil gas sampling locations.

** An 8 (splitless) nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

*** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

****This 24-hour guideline concentration was calculated by multiplying the current SGC value (last revised October 16, 1995 and still current as of January 2000) by 0.4 (EPA averaging time adjustment factor).

U1/U2: Ambient upwind samplers collocated on the access road, north of soil gas well M31

D1/D2: Ambient downwind samplers collocated approximately 250 feet north of the soil gas well F1.

D3: Ambient downwind sampler collected on the eastern side of the landfill, on the first footbridge, approximately 75 feet west of Winding Road

FB2: Ambient Field Blank.

TB1: Trip Blank

- All values are reported in micrograms per standard cubic meter (ug/std-m^3) except for the field blank and trip blank mass loading results which are reported in nanograms (ng).
- Blank values:
  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).
  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised October 16, 1995 and still currenr as of January 2000) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the analytical results, Appendix C.
- (ug/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

APPENDIX B

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
EVALUATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR AND SOILS AND SOIL GAS PRESSURE READINGS

2000 ANNUAL SUMMARY REPORT

2000 QUARTERLY SOIL GAS CONCENTRATION DATA

TABLE 4.2

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 First Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
LOWER QUANTITATION LIMIT (LQL)	MD	0.460	0.469	0.476	0.936	0.469	0.457	0.476	0.469	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	MD	0.737	0.750	0.761	1.50	0.750	0.731	0.762	0.750	---	---
TARGETED TIC LQL	MD	2.30	2.34	2.38	4.68	2.35	2.29	2.38	2.35	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
Acetone*	MD	1.38E+00	1.41E+00	2.09E+00	< 3.18E+00	1.41E+00	1.55E+00	1.62E+00	2.35E+00	14,000	140,000
Benzaldehyde**	MD										
Benzene	MD									0.12	32
Bromodichloromethane	MD									0.02	---
Bromoform*	MD									0.9	1,200
Bromomethane	MD									5	4,500
2-Butanone*	MD									300	140,000
Carbon Disulfide	MD									10	710
Carbon Tetrachloride	MD	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]		0.07	1,300
Chlorobenzene	MD									20	11,000
Chloroethane	MD									13,000	63,000
Chloroethyl Vinyl Ether**	MD										
Chloroform	MD			[illegible]	[illegible]					0.04	980
Chloromethane	MD									770	22,000
Dibromochloromethane	MD									0.1	---
1,2-Dichlorobenzene (o)	MD									200	36,000
1,3-Dichlorobenzene (m)	MD									200	36,000
1,4-Dichlorobenzene (p)	MD									700	14,000
1,1-Dichloroethane	MD									500	96,000
1,2-Dichloroethane	MD									0.039	950
1,1-Dichloroethene	MD									0.02	2,000
cis-1,2-Dichloroethene	MD									1,900	190,000
trans-1,2-Dichloroethene	MD									360	---
1,2-Dichloropropane	MD									0.15	83,000
1,3-Dichloropropene, cis & trans isomers	MD									20	1,100
Ethylbenzene	MD									1,000	100,000
2/4-Ethyltoluene (total)	MD									0.1	
Freon 13**	MD									700	560,000
2-Hexanone*	MD									9.5	950
Methylene Chloride	MD	1.38E+00	1.31E+00	1.33E+00	4.68E+00	1.13E+00	3.11E+00	4.19E+00	3.66E+00	27	41,000
4-Methyl-2-Pentanone*	MD									480	48,000
Styrene	MD									1,000	20,000
1,1,2,2-Tetrachloroethane	MD									0.02	1,600
Tetrachloroethene	MD	1.01E+00	4.69E-01			[illegible]	[illegible]	[illegible]	[illegible]	1.2	40,000
Toluene	MD									400	45,000
1,1,1-Trichloroethane	MD					7.50E-01	1.46E+00	2.00E+00	4.41E+00	1,000	450,000
1,1,2-Trichloroethane	MD									0.06	13,000
Trichloroethene	MD	[illegible]								0.45	33,000
Trichlorofluoromethane	MD	1.66E+00	1.78E+00	1.81E+00	< 1.97E+00	4.32E+00	5.67E+00	7.33E+00	1.41E+01	700	560,000
Vinyl Chloride	MD									0.02	1,300
Xylenes (Total)	MD									300	100,000

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 First Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
ADDITIONAL TIC LQL	MD	2.30	2.34	2.38	4.68	2.35	2.29	2.38	2.35	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
Dichlorodifluoromethane	MD	1.93E+00	2.06E+00	2.28E+00		1.22E+01	3.20E+01	4.86E+01	1.22E+02	200	1,200,000
Isobutane	MD										
Butane	MD										
2-Methylbutane	MD								2.25E+00	8,300	83,000
1,1,2-Trichloro-1,2,2-trifluoroethane	MD					8.54E+00	2.10E+01	2.76E+01		30,000	1,800,000
Pinene Isomer	MD										
Terpene	MD										
Limonene Isomer	MD										
Unknown (RT=3.34)	MD										

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 First Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.961	0.484	0.498	0.485	0.487	0.477	0.475	0.484	0.485	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	1.54	0.774	0.797	0.776	0.779	0.763	0.760	0.774	0.776	---	---
TARGETED TIC LQL	4.80	2.42	2.49	2.42	2.43	2.38	2.38	2.42	2.42	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
Acetone*	2.02E+00	1.55E+00	2.79E+00	1.94E+00	1.85E+00	1.24E+00	1.43E+00	1.64E+00	1.26E+00	14,000	140,000
Benzaldehyde**											
Benzene		6.94E-01								0.12	32
Bromodichloromethane										0.02	---
Bromoform*										0.9	1,200
Bromomethane										5	4,500
2-Butanone*				1.36E+00			2.66E+00			300	140,000
Carbon Disulfide										10	710
Carbon Tetrachloride		5.81E-01	6.97E-01	6.79E-01	5.84E-01	5.72E-01	5.70E-01	7.74E-01		0.07	1,300
Chlorobenzene										20	11,000
Chloroethane										13,000	63,000
Chloroethyl Vinyl Ether**											
Chloroform	< 1.15E+00	5.81E-01		6.79E-01		5.72E-01				0.04	980
Chloromethane		4.84E-01								770	22,000
Dibromochloromethane										0.1	---
1,2-Dichlorobenzene (o)										200	36,000
1,3-Dichlorobenzene (m)										200	36,000
1,4-Dichlorobenzene (p)										700	14,000
1,1-Dichloroethane										500	96,000
1,2-Dichloroethane										0.039	950
1,1-Dichloroethene										0.02	2,000
cis-1,2-Dichloroethene										1,900	190,000
trans-1,2-Dichloroethene										360	---
1,2-Dichloropropane										0.15	83,000
1,3-Dichloropropene, cis & trans isomers										20	1,100
Ethylbenzene										1,000	100,000
2/4-Ethyltoluene (total)										0.1	
Freon 13**										700	560,000
2-Hexanone*										9.5	950
Methylene Chloride	6.72E+00	2.13E+00	4.08E+00	3.01E+00	3.51E+00	2.48E+00	3.14E+00	5.22E+00	4.75E+00	27	41,000
4-Methyl-2-Pentanone*										480	48,000
Styrene										1,000	20,000
1,1,2,2-Tetrachloroethane										0.02	1,600
Tetrachloroethene	< 7.60E+00	7.74E-01	1.59E+00	6.79E-01				5.80E-01	1.16E+01	1.2	40,000
Toluene		1.06E+00		5.82E-01			6.65E-01	1.26E+00		400	45,000
1,1,1-Trichloroethane	< 2.02E+00		5.98E-01	5.82E-01				2.32E+00		1,000	450,000
1,1,2-Trichloroethane										0.06	13,000
Trichloroethene				4.85E-01						0.45	33,000
Trichlorofluoromethane	< 2.79E+00	2.32E+00	2.29E+00	2.13E+00	2.04E+00	1.72E+00	2.47E+00	2.90E+00	2.04E+00	700	560,000
Vinyl Chloride										0.02	1,300
Xylenes (Total)		8.71E-01								300	100,000

TABLE 4.2
(Concluded)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 First Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
ADDITIONAL TIC LQL	4.80	2.42	2.49	2.42	2.43	2.38	2.38	2.42	2.42	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
Dichlorodifluoromethane		2.32E+00	2.79E+00	2.13E+00	2.24E+00		1.90E+00	8.22E+00		200	1,200,000
Isobutane								8.03E+00		28,000	450,000
Butane								5.80E+00		45,000	450,000
2-Methylbutane								3.48E+00	3.69E+00	8,300	83,000
1,1,2-Trichloro-1,2,2-trifluoroethane									5.24E+00	30,000	1,800,000
Pinene Isomer				9.70E+00							
Terpene				6.40E+00							
Limonene Isomer				8.24E+00						210	---
Unknown (RT=3.34)					2.24E+00						

NOTES:

* An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

- All values are reported in micrograms per standard cubic meter (ug/std-m3).
- Blank values:

  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised October 16, 1995 and still current as of January 2000) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- MD: Missing Data due to breakage during analysis at laboratory.
- Freon 13 is listed as Chlorotrifluoromethane in the Analytical Results, Appendix C.
- (ug/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

TABLE 4.2

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 Second Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.455	0.453	0.448	0.460	0.481	0.457	0.454	0.907	0.458	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	0.729	0.725	0.717	0.737	0.770	0.731	0.727	1.452	0.733	---	---
TARGETED TIC LQL	2.28	2.26	2.24	2.30	2.41	2.29	2.27	4.54	2.29	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
Acetone*	1.00E+00	9.96E-01	8.06E-01	1.10E+00	8.66E-01	1.19E+00	8.17E-01	< 2.00E+00	1.01E+00	14,000	140,000
Benzaldehyde**											
Benzene										0.12	32
Bromodichloromethane										0.02	---
Bromoform*										0.9	1,200
Bromomethane										5	4500
2-Butanone*										300	140,000
Carbon Disulfide										10	710
Carbon Tetrachloride		6.34E-01				5.48E-01	7.27E-01	< 1.09E+00	7.33E-01	0.07	1,300
Chlorobenzene										20	11,000
Chloroethane										13,000	63,000
Chloroethyl Vinyl Ether**											
Chloroform	2.09E+00	8.15E-01	8.06E-01	2.95E+00	6.74E-01					0.04	980
Chloromethane						3.20E+00				770	22,000
Dibromochloromethane										0.1	---
1,2-Dichlorobenzene (o)										200	36,000
1,3-Dichlorobenzene (m)										200	36,000
1,4-Dichlorobenzene (p)										700	14,000
1,1-Dichloroethane										500	96,000
1,2-Dichloroethane										0.039	950
1,1-Dichloroethene										0.02	2,000
cis-1,2-Dichloroethene										1,900	190,000
trans-1,2-Dichloroethene										360	---
1,2-Dichloropropane										0.15	83,000
1,3-Dichloropropene, cis & trans isomers										20	1,100
Ethylbenzene										1,000	100,000
2/4-Ethyltoluene (total)										0.1	
Freon 13**										700	560,000
2-Hexanone*										9.5	950
Methylene Chloride	2.09E+00	2.54E+00	1.61E+00	2.12E+00	2.50E+00	1.92E+00	1.45E+00	8.71E+00	2.29E+00	27	41,000
4-Methyl-2-Pentanone*										480	48,000
Styrene										1,000	20,000
1,1,2,2-Tetrachloroethane										0.02	1,600
Tetrachloroethene	1.18E+01	9.96E-01	1.43E+00	3.41E+00	9.62E-01	1.28E+01	2.00E+01	< 1.68E+01	4.40E+01	1.2	40,000
Toluene										400	45,000
1,1,1-Trichloroethane						5.48E-01	9.08E-01	< 1.18E+00	1.47E+00	1,000	450,000
1,1,2-Trichloroethane										0.06	13,000
Trichloroethene	4.55E-01									0.45	33,000
Trichlorofluoromethane	3.37E+00	1.54E+00	1.61E+00	1.93E+00	1.64E+00	3.29E+00	3.36E+00	< 2.45E+00	3.85E+00	700	560,000
Vinyl Chloride										0.02	1,300
Xylenes (Total)										300	100,000

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Second Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
ADDITIONAL TIC LQL	2.28	2.26	2.24	2.30	2.41	2.29	2.27	4.54	2.29	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
Dichlorotetrafluoroethane	2.64E+00						2.82E+01	< 1.77E+01	5.50E+01	17,000	1,700,000
1,1-Dichloro-1-fluoroethane	9.11E+00	1.99E+00				4.11E+00					
Hexane		2.54E+00	3.14E+00							240	42,000
Dichlorodifluoromethane			2.24E+00	2.58E+00		9.87E+00	1.45E+01	< 1.50E+01	2.75E+01	200	1,200,000
1,1,2-Trichloro-1,2,2-trifluoroethane					1.92E+00	4.75E+00	6.99E+00	< 4.26E+00	1.10E+01	30,000	1,800,000
Octanal								< 5.26E+00			
2-Ethyl-1-hexanol								< 1.41E+01			

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 Second Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.476	0.953	0.483	0.475	0.475	0.473	0.475	0.473	0.475	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	0.761	1.525	0.772	0.760	0.760	0.757	0.760	0.756	0.760	---	---
TARGETED TIC LQL	2.38	4.77	2.41	2.38	2.38	2.37	2.37	2.36	2.37	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
Acetone*	1.62E+00	< 1.81E+00	2.90E+00	1.05E+00	1.52E+00	1.23E+00	9.50E-01	1.04E+00	1.23E+00	14,000	140,000
Benzaldehyde**											
Benzene					[redacted]					0.12	32
Bromodichloromethane										0.02	---
Bromoform*										0.9	1,200
Bromomethane										5	4,500
2-Butanone*										300	140,000
Carbon Disulfide										10	710
Carbon Tetrachloride			[redacted]	[redacted]	[redacted]	[redacted]		[redacted]		0.07	1,300
Chlorobenzene										20	11,000
Chloroethane										13,000	63,000
Chloroethyl Vinyl Ether**											
Chloroform	[redacted]	[redacted]	[redacted]	[redacted]		[redacted]	[redacted]		[redacted]	0.04	980
Chloromethane										770	22,000
Dibromochloromethane										0.1	---
1,2-Dichlorobenzene (o)										200	36,000
1,3-Dichlorobenzene (m)										200	36,000
1,4-Dichlorobenzene (p)										700	14,000
1,1-Dichloroethane	1.71E+00									500	96,000
1,2-Dichloroethane		[redacted]								0.039	950
1,1-Dichloroethene										0.02	2,000
cis-1,2-Dichloroethene										1,900	190,000
trans-1,2-Dichloroethene										360	---
1,2-Dichloropropane										0.15	83,000
1,3-Dichloropropene, cis & trans isomers										20	1,100
Ethylbenzene										1,000	100,000
2/4-Ethyltoluene (total)										0.1	
Freon 13**										700	560,000
2-Hexanone*										9.5	950
Methylene Chloride	1.71E+00	7.34E+00	1.06E+00	2.09E+00	2.19E+00	3.03E+00	3.42E+00	3.40E+00	2.94E+00	27	41,000
4-Methyl-2-Pentanone*										480	48,000
Styrene										1,000	20,000
1,1,2,2-Tetrachloroethane										0.02	1,600
Tetrachloroethene	[redacted]	< 5.34E+00	[redacted]	6.65E-01		7.57E-01	1.14E+00	4.73E-01	[redacted]	1.2	40,000
Toluene					1.24E+00		1.33E+00			400	45,000
1,1,1-Trichloroethane	4.28E+00	< 1.14E+00	1.93E+00						5.70E-01	1,000	450,000
1,1,2-Trichloroethane										0.06	13,000
Trichloroethene	[redacted]						[redacted]			0.45	33,000
Trichlorofluoromethane	4.57E+00	< 2.96E+00	1.64E+00	1.62E+00	2.38E+00	1.61E+00	3.42E+00	1.23E+00	6.55E+00	700	560,000
Vinyl Chloride										0.02	1,300
Xylenes (Total)										300	100,000

TABLE 4.2
(Concluded)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Second Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
ADDITIONAL TIC LQL	2.38	4.77	2.41	2.38	2.38	2.37	2.37	2.36	2.37	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
1,1-Dichloro-1-fluoroethane					2.09E+00				1.04E+01		
Dichlorodifluoromethane		< 4.39E+00								200	1,200,000
1,1,2-Trichloro-1,2,2-trifluoroethane						2.08E+00					
					1.90E+00						
							3.04E+00				
							3.51E+00				
								3.50E+00			
									3.42E+00		

NOTES:

* An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

- All values are reported in micrograms per standard cubic meter (ug/std-m3).
- Blank values:

  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised October 16, 1995 and still current as of January 2000) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the Analytical Results, Appendix C.
- (ug/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

TABLE 4.2

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 Third Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.498	0.494	0.477	0.504	0.490	0.497	0.496	0.986	0.491	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	0.796	0.791	0.763	0.806	0.784	0.795	0.793	1.578	0.79	---	---
TARGETED TIC LQL	2.49	2.47	2.39	2.52	2.45	2.49	2.48	4.93	2.46	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
Acetone*	1.89E+00	1.88E+00	2.58E+00	3.02E+00	2.06E+00	1.89E+00	2.18E+00	3.06E+00	2.75E+00	14,000	140,000
Benzaldehyde**											
Benzene										0.12	32
Bromodichloromethane										0.02	---
Bromoform*										0.9	1,200
Bromomethane										5	4500
2-Butanone*	1.29E+00	4.84E+01	1.72E+01	6.55E+00						300	140,000
Carbon Disulfide		8.89E-01								10	710
Carbon Tetrachloride		5.93E-01								0.07	1,300
Chlorobenzene										20	11,000
Chloroethane										13,000	63,000
Chloroethyl Vinyl Ether**											
Chloroform	2.99E+00	1.50E+00	9.54E-01	2.02E+01	9.79E-01	6.96E-01				0.04	980
Chloromethane										770	22,000
Dibromochloromethane										0.1	---
1,2-Dichlorobenzene (o)										200	36,000
1,3-Dichlorobenzene (m)										200	36,000
1,4-Dichlorobenzene (p)										700	14,000
1,1-Dichloroethane									7.86E-01	500	96,000
1,2-Dichloroethane										0.039	950
1,1-Dichloroethene										0.02	2,000
cis-1,2-Dichloroethene										1,900	190,000
trans-1,2-Dichloroethene										360	---
1,2-Dichloropropane										0.15	83,000
1,3-Dichloropropene, cis & trans isomers										20	1,100
Ethylbenzene										1,000	100,000
2/4-Ethyltoluene (total)										0.1	
Freon 13**										700	560,000
2-Hexanone*										9.5	950
Methylene Chloride	2.89E+00	2.77E+00	2.48E+00	2.52E+00	2.35E+00	2.39E+00	2.87E+00	3.35E+00	2.26E+00	27	41,000
4-Methyl-2-Pentanone*										480	48,000
Styrene										1,000	20,000
1,1,2,2-Tetrachloroethane										0.02	1,600
Tetrachloroethene	1.49E+01	1.85E+00	1.43E+01	7.16E+00	6.56E+00	2.58E+01	4.86E+01	8.14E+01	1.18E+02	1.2	40,000
Toluene	8.96E-01	5.93E-01								400	45,000
1,1,1-Trichloroethane						1.09E+00	1.98E+00	3.35E+00	5.01E+00	1,000	450,000
1,1,2-Trichloroethane										0.06	13,000
Trichloroethene	5.97E-01									0.45	33,000
Trichlorofluoromethane	3.58E+00	1.48E+00	1.43E+00	2.02E+00	1.76E+00	6.06E+00	5.65E+00	6.21E+00	9.23E+00	700	560,000
Vinyl Chloride										0.02	1,300
Xylenes (Total)										300	100,000

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Third Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
ADDITIONAL TIC LQL	2.49	2.47	2.39	2.52	2.45	2.49	2.48	4.93	2.46	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
Dichlorotetrafluoroethane						7.85E+01	1.29E+02	1.35E+02	2.16E+02	17,000	1,700,000
1,1-Dichloro-1-fluoroethane	1.09E+01					2.78E+00					
Dichlorodifluoromethane	4.18E+00			3.13E+00	2.55E+00	3.28E+01	4.96E+01	7.02E+01	9.23E+01	200	1,200,000
1,1,2-Trichloro-1,2,2-trifluoroethane							2.18E+01	2.81E+01		30,000	1,800,000
2-Methoxy-2-methylpropane		2.96E+00									
C11 hydrocarbon (RT=13.12-13.88)	2.50E+01	2.37E+00	2.58E+00	2.82E+00		8.85E+00	2.97E+00				
Hexachloroethane			7.06E+00		3.23E+00						
Alpha-methlystyrene		4.8E+00		4.6E+00						580	58,000
Dimethyl ether								1.7E+01		29,000	290,000

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 Third Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.496	0.528	0.534	0.535	1.045	0.518	0.519	0.517	0.523	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	0.793	0.845	0.854	0.857	1.672	0.83	0.830	0.827	0.837	---	---
TARGETED TIC LQL	2.48	2.64	2.67	2.68	5.22	2.59	2.59	2.59	2.62	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
Acetone*	2.58E+00	2.85E+00	2.24E+00	1.71E+00	2.82E+00	1.97E+00	1.56E+00	3.41E+00	2.20E+00	14,000	140,000
Benzaldehyde**											
Benzene		[redacted]					[redacted]	[redacted]		0.12	32
Bromodichloromethane										0.02	---
Bromoform*										0.9	1,200
Bromomethane										5	4,500
2-Butanone*	3.57E+00			4.50E+00	8.78E+00					300	140,000
Carbon Disulfide	7.93E-01	6.34E-01		6.42E-01	1.15E+00	6.22E-01		6.20E-01		10	710
Carbon Tetrachloride				[redacted]			[redacted]	[redacted]		0.07	1,300
Chlorobenzene										20	11,000
Chloroethane										13,000	63,000
Chloroethyl Vinyl Ether**											
Chloroform	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	0.04	980
Chloromethane								2.28E+00		770	22,000
Dibromochloromethane										0.1	---
1,2-Dichlorobenzene (o)										200	36,000
1,3-Dichlorobenzene (m)										200	36,000
1,4-Dichlorobenzene (p)										700	14,000
1,1-Dichloroethane	4.26E+00									500	96,000
1,2-Dichloroethane		[redacted]								0.039	950
1,1-Dichloroethene										0.02	2,000
cis-1,2-Dichloroethene	5.95E-01									1,900	190,000
trans-1,2-Dichloroethene	7.93E-01									360	---
1,2-Dichloropropane										0.15	83,000
1,3-Dichloropropene, cis & trans isomers										20	1,100
Ethylbenzene										1,000	100,000
2/4-Ethyltoluene (total)										0.1	
Freon 13**										700	560,000
2-Hexanone*										9.5	950
Methylene Chloride	1.88E+00	2.32E+00	1.92E+00	2.89E+00	3.66E+00	1.66E+00	1.66E+00	2.07E+00	1.15E+00	27	41,000
4-Methyl-2-Pentanone*										480	48,000
Styrene										1,000	20,000
1,1,2,2-Tetrachloroethane										0.02	1,600
Tetrachloroethene	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	1.2	40,000
Toluene		1.06E+00	6.40E-01	1.18E+00	1.15E+00	7.25E-01	1.24E+00	1.55E+00		400	45,000
1,1,1-Trichloroethane	1.09E+01	9.50E-01	1.92E+00	3.10E+00					1.36E+00	1,000	450,000
1,1,2-Trichloroethane										0.06	13,000
Trichloroethene	[redacted]								[redacted]	0.45	33,000
Trichlorofluoromethane	9.91E+00	2.32E+00	1.81E+00	1.82E+00	1.78E+00	1.55E+00	2.07E+00	2.07E+00	2.62E+00	700	560,000
Vinyl Chloride										0.02	1,300
Xylenes (Total)										300	100,000

TABLE 4.2
(Concluded)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Third Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
ADDITIONAL TIC LQL	2.48	2.64	2.67	2.68	5.22	2.59	2.59	2.59	2.62	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
Dichlorotetrafluoroethane	4.26E+00									17,000	1,700,000
1,1-Dichloro-1-fluoroethane					4.70E+00			1.65E+01			
Dichlorodifluoromethane	5.25E+00		2.77E+00								
1,1,2-Trichloro-1,2,2-trifluoroethane								1.34E+01		30,000	1,800,000
Limonene								1.24E+01		210	----
Nonanal			5.44E+00	6.00E+00	5.22E+00		3.42E+00				
Undecane								6.7E+00	3.5E+01		
C11 hydrocarbon (RT=13.12-13.88)	2.9E+00	4.3E+00	3.7E+00	3.8E+01			5.2E+00	9.4E+00	3.3E+00		
Decane									**2.8E+00**	0.1	----
Alpha-methlystyrene	5.6E+00	3.1E+00						1.4E+01		29,000	290,000
Unknown (RT=11.81-13.88)	6.4E+00	2.7E+00		5.1E+00							
Unknown (RT=3.33)							4.8E+00				

TABLE 4.2

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 Fourth Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.521	0.534	0.513	0.515	0.513	0.521	0.516	1.052	0.521	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	0.833	0.855	0.821	0.825	0.821	0.834	0.826	1.682	0.83	---	---
TARGETED TIC LQL	2.60	2.67	2.57	2.58	2.57	2.61	2.58	5.26	2.61	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
Acetone*	2.71E+00	2.46E+00	2.46E+00	2.58E+00	2.36E+00	2.40E+00	9.18E+00	1.14E+01	1.36E+01	14,000	140,000
Benzaldehyde**											
Benzene					4.93E+00					0.12	32
Bromodichloromethane										0.02	---
Bromoform*										0.9	1,200
Bromomethane										5	4500
2-Butanone*	1.56E+00			1.24E+00				2.00E+00		300	140,000
Carbon Disulfide							6.19E-01		1.25E+00	10	710
Carbon Tetrachloride		6.41E-01								0.07	1,300
Chlorobenzene										20	11,000
Chloroethane										13,000	63,000
Chloroethyl Vinyl Ether**											
Chloroform	1.90E+00	5.34E-01		4.85E+00	6.16E-01	1.04E+00	2.27E+00	1.79E+00	8.34E-01	0.04	980
Chloromethane										770	22,000
Dibromochloromethane										0.1	---
1,2-Dichlorobenzene (o)										200	36,000
1,3-Dichlorobenzene (m)										200	36,000
1,4-Dichlorobenzene (p)										700	14,000
1,1-Dichloroethane									7.30E-01	500	96,000
1,2-Dichloroethane										0.039	950
1,1-Dichloroethene										0.02	2,000
cis-1,2-Dichloroethene										1,900	190,000
trans-1,2-Dichloroethene										360	---
1,2-Dichloropropane										0.15	83,000
1,3-Dichloropropene, cis & trans isomers										20	1,100
Ethylbenzene										1,000	100,000
2/4-Ethyltoluene (total)										0.1	
Freon 13**										700	560,000
2-Hexanone*										9.5	950
Methylene Chloride	4.27E+00	4.38E+00	3.49E+00	2.37E+00	3.39E+00	1.98E+00	2.06E+00	6.62E+01	3.75E+00	27	41,000
4-Methyl-2-Pentanone*										480	48,000
Styrene								2.10E+00		1,000	20,000
1,1,2,2-Tetrachloroethane										0.02	1,600
Tetrachloroethene	1.13E+01	9.62E-01	8.21E-01	2.89E+00	7.19E-01	5.01E+01	1.01E+02	1.06E+02	1.67E+02	1.2	40,000
Toluene	8.33E-01	5.34E-01					6.19E-01	1.26E+00	7.30E-01	400	45,000
1,1,1-Trichloroethane		7.48E-01				1.77E+00	4.54E+00	8.62E+00	1.25E+01	1,000	450,000
1,1,2-Trichloroethane										0.06	13,000
Trichloroethene		1.07E+00							7.30E-01	0.45	33,000
Trichlorofluoromethane	3.23E+00	1.60E+00	1.85E+00	1.86E+00	1.75E+00	8.76E+00	1.24E+01	1.74E+01	2.40E+01	700	560,000
Vinyl Chloride										0.02	1,300
Xylenes (Total)										300	100,000

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Fourth Quarter

SOIL GAS WELL ID	F1	M2	M4	M5	M6	M9(10)	M9(20)	M9(30)	M9(40)	Current	Current
ADDITIONAL TIC LQL	2.60	2.67	2.57	2.58	2.57	2.61	2.58	5.26	2.61	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m3)	(ug/m3)
2-Methyl-butane								1.63E+01			
Unknown RT-1.38-13.47				4.43E+00					3.86E+00		
Dichlorodifluoromethane	4.79E+00	3.21E+00				3.96E+01	8.88E+01	1.71E+02	1.98E+02	200	1,200,000
1-chloro,1-fluoroethene	5.42E+00										
1,1-dichloro,1-fluoroethane	2.60E+01					1.25E+01		9.46E+00			
Pinene isomer RT-11.98			1.39E+01								
Limonene isomer			4.72E+00								
1,4 cyclohexadiene, 1-methyl-4-			3.59E+00								
carene isomer			1.44E+01								
Dichlorotetrafluoroethane				3.09E+00		9.80E+01	2.06E+02	3.45E+02	4.28E+02	17,000	1,700,000
Ethane, 1,1,2-trichloro-1,2,2-triflu						1.77E+01			9.49E+01		
Napthalene, 2-methyl-							4.02E+00				
chlorodifluoromethane & Dichlorodifluoromethane								5.15E+00			

TABLE 4.2
(Continued)

TOWN OF OYSTER BAY

OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

2000 Fourth Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
LOWER QUANTITATION LIMIT (LQL)	0.505	0.496	0.503	0.497	0.491	0.493	0.495	1.003	0.486	AGC	SGC
PRACTICAL QUANTITATION LIMIT (PQL)	0.808	0.794	0.804	0.795	0.786	0.79	0.792	1.605	0.778	---	---
TARGETED TIC LQL	2.53	2.48	2.51	2.49	2.46	2.47	2.48	5.02	2.43	---	---
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
Acetone*	2.02E+00	1.88E+00	2.91E+00	2.68E+00	1.77E+00	2.56E+00	3.86E+00	3.61E+00	4.57E+00	14,000	140,000
Benzaldehyde**											
Benzene		**5.95E-01**					**9.90E-01**	**1.00E+00**		0.12	32
Bromodichloromethane										0.02	---
Bromoform*										0.9	1,200
Bromomethane										5	4,500
2-Butanone*										300	140,000
Carbon Disulfide										10	710
Carbon Tetrachloride				**5.96E-01**	**5.89E-01**			**1.10E+00**		0.07	1,300
Chlorobenzene										20	11,000
Chloroethane										13,000	63,000
Chloroethyl Vinyl Ether**											
Chloroform	**2.63E+00**	**6.85E+00**	**1.91E+00**		**4.91E-01**	**9.86E-01**		**1.20E+00**	**9.73E-01**	0.04	980
Chloromethane							9.90E-01			770	22,000
Dibromochloromethane										0.1	---
1,2-Dichlorobenzene (o)										200	36,000
1,3-Dichlorobenzene (m)										200	36,000
1,4-Dichlorobenzene (p)										700	14,000
1,1-Dichloroethane	1.52E+00									500	96,000
1,2-Dichloroethane		**1.98E+00**								0.039	950
1,1-Dichloroethene										0.02	2,000
cis-1,2-Dichloroethene										1,900	190,000
trans-1,2-Dichloroethene										360	---
1,2-Dichloropropane										0.15	83,000
1,3-Dichloropropene, cis & trans isomers										20	1,100
Ethylbenzene										1,000	100,000
2/4-Ethyltoluene (total)										0.1	
Freon 13**										700	560,000
2-Hexanone*										9.5	950
Methylene Chloride	2.93E+00	3.87E+00	3.32E+00	4.37E+00	2.46E+00	2.56E+00	9.90E+00	9.73E+00	9.14E+00	27	41,000
4-Methyl-2-Pentanone*										480	48,000
Styrene										1,000	20,000
1,1,2,2-Tetrachloroethane										0.02	1,600
Tetrachloroethene	**3.64E+01**	**4.17E+00**	**3.72E+00**	1.19E+00	7.86E-01	7.89E-01	5.94E-01	**1.40E+00**	**3.50E+01**	1.2	40,000
Toluene		7.94E-01	8.04E-01	5.96E-01	7.86E-01	5.92E-01	4.26E+00	1.60E+00	1.85E+00	400	45,000
1,1,1-Trichloroethane	4.55E+00	6.94E-01	1.01E+00						6.81E-01	1,000	450,000
1,1,2-Trichloroethane										0.06	13,000
Trichloroethene	**2.12E+00**									0.45	33,000
Trichlorofluoromethane	3.23E+00	3.08E+00	1.81E+00	1.69E+00	1.67E+00	1.58E+00	1.68E+00	2.11E+00	2.14E+00	700	560,000
Vinyl Chloride										0.02	1,300
Xylenes (Total)										300	100,000

TABLE 4.2
(Concluded)

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SOIL GAS VOST SAMPLE RESULTS

ADDITIONAL TENTATIVELY IDENTIFIED COMPOUNDS

2000 Fourth Quarter

SOIL GAS WELL ID	M13	M16	M21	M22	M28	M31	M34	M37	M39	Current	Current
ADDITIONAL TIC LQL	2.53	2.48	2.51	2.49	2.46	2.47	2.48	5.02	2.43	AGC	SGC
VOC COMPOUND NAME	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/std-m^3)	(ug/m^3)	(ug/m^3)
2-Methyl-butane				2.58E+00							
Unknown RT-1.38-13.47								7.22E+00			
Dichlorodifluoromethane	2.93E+00										
1,1-dichloro,1-fluoroethane			7.44E+00					1.68E+01			
chlorodifluoromethane & Dichlorodifluoromethane				2.88E+00							
Unknown Hydrocarbon (diene) RT-3.26							5.15E+00				
dichlorodifluoromethane & unknown RT-1.44									2.63E+00		

NOTES:

* An 8 nanogram practical quantitation limit has been assigned to these compounds due to their poor responses during laboratory analysis.

** Targeted Tentatively Identified Compound (TIC). As reported by the laboratory, Targeted TICs have a Lower Quantitation Limit that is five (5) times the targeted compound Lower Quantitation Limit.

- All values are reported in micrograms per standard cubic meter (ug/std-m3).
- Blank values:

  Targeted Compounds and Targeted TICs- All blank values are below the Lower Quantitation Limit, Practical Quantitation Limit (applies to Acetone, Bromoform, 2-Butanone, 4-Methyl-2-Pentanone and 2-Hexanone), or the Targeted TIC Lower Quantitation Limit (applies to Benzaldehyde, Chloroethyl Vinyl Ether and Freon 13).

  Additional Tentatively Identified Compounds- All blank values are either below the Targeted TIC Lower Quantitation Limit where less than six (6) additional TICs are reported for a particular sample or below the lowest reported additional TIC value, where six (6) or more additional TICs are reported for a particular sample.
- Values in shaded areas are at or exceed the level of the current (last revised October 16, 1995 and still current as of January 2000) and/or previous ambient air Annual Guideline Concentration (AGC) values.
- Less than values (<) are used where the Lower Quantitation Limit, the Target TIC Lower Quantitation Limit, or the Practical Quantitation Limit is averaged with the reported values.
- Freon 13 is listed as Chlorotrifluoromethane in the Analytical Results, Appendix C.
- (ug/std-m^3): micrograms per standard cubic meter
- (ng): nanograms

APPENDIX C

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX
EVALUATION OF VOLATILE ORGANIC COMPOUNDS IN AMBIENT AIR AND SOILS AND SOIL GAS PRESSURE READINGS

2000 ANNUAL SUMMARY REPORT

2000 QUARTERLY SOIL GAS PRESSURE DATA

TABLE 5.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF SOIL GAS PRESSURE TESTS

2000 First Quarter

SAMPLE ID	DATE (m/d/yr)	TIME (EST)	WELL ID	WELL LOCATION	WELL DEPTH (feet)	READINGS (INCHES H2O)
P1	3/15/00	1008	PW1	NW corner of the landfill on Haul Road	10	-0.03
P2	3/15/00	1008	PW1	NW corner of the landfill on Haul Road	20	-0.04
P3	3/15/00	1009	PW1	NW corner of the landfill on Haul Road	10	-0.03
P4	3/15/00	1009	PW1	NW corner of the landfill on Haul Road	20	-0.04
P5	3/15/00	1000	PW2	SE corner of the landfill NW of Well M2	10	0.00
P6	3/15/00	1001	PW2	SE corner of the landfill NW of Well M2	20	-0.13
P7	3/15/00	1002	PW2	SE corner of the landfill NW of Well M2	10	0.00
P8	3/15/00	1002	PW2	SE corner of the landfill NW of Well M2	20	-0.14
P9	3/15/00	1020	PW3	Fireman's Training Center	10	0.00
P10	3/15/00	1020	PW3	Fireman's Training Center	20	-0.43
P11	3/15/00	1021	PW3	Fireman's Training Center	10	0.00
P12	3/15/00	1021	PW3	Fireman's Training Center	20	-0.44

NOTES:

- Measurements taken using a Dwyer ten inch inclined manometer.
- Leak checks were performed on manometer before testing each well.
- Data measurements were taken on March 15, 2000 between 1000 am - 1021 am.

TABLE 5.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF SOIL GAS PRESSURE TESTS

2000 Second Quarter

SAMPLE ID	DATE (m/d/yr)	TIME (EDT)	WELL ID	WELL LOCATION	WELL DEPTH (feet)	READINGS (INCHES H2O)
P1	6/15/00	0930	PW1	NW corner of the landfill on Haul Road	10	0.05
P2	6/15/00	0930	PW1	NW corner of the landfill on Haul Road	20	0.11
P3	6/15/00	0932	PW1	NW corner of the landfill on Haul Road	10	0.05
P4	6/15/00	0932	PW1	NW corner of the landfill on Haul Road	20	0.10
P5	6/15/00	0922	PW2	SE corner of the landfill NW of Well M2	10	0.00
P6	6/15/00	0922	PW2	SE corner of the landfill NW of Well M2	20	-0.12
P7	6/15/00	0924	PW2	SE corner of the landfill NW of Well M2	10	0.00
P8	6/15/00	0924	PW2	SE corner of the landfill NW of Well M2	20	-0.13
P9	6/15/00	0910	PW3	Fireman's Training Center	10	0.00
P10	6/15/00	0910	PW3	Fireman's Training Center	20	-0.47
P11	6/15/00	0911	PW3	Fireman's Training Center	10	0.00
P12	6/15/00	0911	PW3	Fireman's Training Center	20	-0.48

NOTES:

- Measurements taken using a ten inch Dwyer inclined manometer.
- Leak checks were performed on manometer before testing each well.
- Data measurements were taken on June 15, 2000 between 0910 am - 0932 am.

TABLE 5.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF SOIL GAS PRESSURE TESTS

2000 Third Quarter

SAMPLE ID	DATE (m/d/yr)	TIME (EDT)	WELL ID	WELL LOCATION	WELL DEPTH (feet)	READINGS (INCHES H2O)
P1	8/9/00	0718	PW1	NW corner of the landfill on Haul Road	10	-0.04
P2	8/9/00	0718	PW1	NW corner of the landfill on Haul Road	20	-0.08
P3	8/9/00	0719	PW1	NW corner of the landfill on Haul Road	10	-0.04
P4	8/9/00	0719	PW1	NW corner of the landfill on Haul Road	20	-0.08
P5	8/9/00	0709	PW2	SE corner of the landfill NW of Well M2	10	0.00
P6	8/9/00	0709	PW2	SE corner of the landfill NW of Well M2	20	-0.16
P7	8/9/00	0710	PW2	SE corner of the landfill NW of Well M2	10	0.00
P8	8/9/00	0710	PW2	SE corner of the landfill NW of Well M2	20	-0.17
P9	8/9/00	0732	PW3	Fireman's Training Center	10	0.00
P10	8/9/00	0732	PW3	Fireman's Training Center	20	-0.45
P11	8/9/00	0735	PW3	Fireman's Training Center	10	-0.01
P12	8/9/00	0735	PW3	Fireman's Training Center	20	-0.5

NOTES:

- Measurements taken using a ten inch Dwyer inclined manometer.
- Leak checks were performed on manometer before testing each well.
- Data measurements were taken on August 9, 2000 between 0718 am - 0735 am.

TABLE 5.1

TOWN OF OYSTER BAY
OLD BETHPAGE SOLID WASTE DISPOSAL COMPLEX

SUMMARY OF SOIL GAS PRESSURE TESTS

2000 Fourth Quarter

SAMPLE ID	DATE (m/d/yr)	TIME (EDT)	WELL ID	WELL LOCATION	WELL DEPTH (feet)	READINGS (INCHES H2O)
P1	10/13/00	0730	PW1	NW corner of the landfill on Haul Road	10	-0.03
P2	10/13/00	0730	PW1	NW corner of the landfill on Haul Road	20	-0.05
P3	10/13/00	0730	PW1	NW corner of the landfill on Haul Road	10	-0.03
P4	10/13/00	0730	PW1	NW corner of the landfill on Haul Road	20	-0.05
P5	10/13/00	0717	PW2	SE corner of the landfill NW of Well M2	10	+/- 0
P6	10/13/00	0717	PW2	SE corner of the landfill NW of Well M2	20	-0.05
P7	10/13/00	0717	PW2	SE corner of the landfill NW of Well M2	10	+/- 0
P8	10/13/00	0717	PW2	SE corner of the landfill NW of Well M2	20	-0.05
P9	10/13/00	0736	PW3	Fireman's Training Center	10	-0.02
P10	10/13/00	0736	PW3	Fireman's Training Center	20	-0.25
P11	10/13/00	0736	PW3	Fireman's Training Center	10	-0.02
P12	10/13/00	0736	PW3	Fireman's Training Center	20	-0.25

NOTES:

- Measurements taken using a ten inch Dwyer inclined manometer.
- Leak checks were performed on manometer before testing each well.
- Data measurements were taken on October 13, 2000 between 0717 am - 0736 am.

APPENDIX C

ANNUAL SUMMARY
OLD BETHPAGE LANDFILL
QUARTERLY GROUNDWATER MONITORING PROGRAM
JANUARY THROUGH DECEMBER 2000

Gannett Fleming Engineers and Architects, P.C.
January 2001

OLD BETHPAGE LANDFILL
BETHPAGE, NEW YORK

ANNUAL SUMMARY
OLD BETHPAGE LANDFILL QUARTERLY
GROUNDWATER MONITORING PROGRAM
JANUARY THROUGH DECEMBER 2000

PROJECT #37458

JANUARY 2001

Office Location:
GANNETT FLEMING ENGINEERS AND ARCHITECTS, P.C.
480 Forest Avenue
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Locations Nationwide

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- Continued -

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D	Groundwater Flow Map - Water Table -October 4, 2000
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B	Groundwater Flow Map - Shallow Potentiometric -April 25, 2000
C	Groundwater Flow Map - Shallow Potentiometric -July 11, 2000
D	Groundwater Flow Map - Shallow Potentiometric -October 4, 2000
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A	Approximate Extent and Distribution of Total Volatile Halogenated Organics - February 2000
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C	Approximate Extent and Distribution of Total Volatile Halogenated Organics - July 2000
D	Approximate Extent and Distribution of Total Volatile Halogenated Organics - October 2000

FIGURES
- Continued -

1.0 INTRODUCTION

This annual report summarizes the quarterly groundwater monitoring database established during the period January 2000 through December 2000 at the Old Bethpage Solid Waste Disposal Complex (OBSWDC). This monitoring period represents the thirty-second through thirty-fifth operational quarters of the ninth operational year of the Old Bethpage Landfill Groundwater Treatment Facility (GTF). Quarterly groundwater monitoring was performed in accordance with the requirements of the Remedial Action Plan (RAP) in Appendix I of the 1988 Record of Decision issued by the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA).

The OBSWDC groundwater remediation system began operating on April 1, 1992. Geraghty & Miller initiated monthly hydraulic monitoring approximately 30 days after system start-up, with the frequency reduced to quarterly beginning with the October 1993 round. The 2000 sampling program consisted of four synoptic rounds of water level measurements to assess the effectiveness of the hydraulic control created by the recovery well network, and four rounds of groundwater sampling at 16 monitoring wells (M-29A-R, MW-5B, MW-6A, MW-6B, MW-6C, MW-6E, MW-6F, MW-7B, MW-8A, MW-8B, MW-9B, MW-9C, MW-11A, MW-11B, OBS-1 and LF-1) to track changes in groundwater quality over time. At the request of Lockwood, Kessler and Bartlett (LKB), monitoring wells MW-9D and OBS-2 were also sampled during the third quarter sampling round. These wells were previously sampled during the third quarter of 1999 and 1998, respectively.

2.0 WATER LEVEL MEASUREMENTS AND MAPPING

A synoptic round of water level measurements were taken at monitoring and recovery wells by Gannett Fleming at the start of each monitoring round. The depth to water and water level elevation data are summarized in Table 1 in Tabs A through D. These data were used to create the water table, shallow potentiometric, and deep potentiometric zone groundwater flow maps shown on Figures 1, 2 and 3 in Tabs A through D. Each map shows the water level elevation contours, limiting flow lines, and the approximate areal extent of the volatile organic compound (VOC) plume.

Excluding wells MW-7A and MW-9A, which were dry at the time the water level measurements were taken, water level elevations at the monitoring wells increased an average of 2.05 feet during the monitoring period. Recovery wells RW-1 and RW-4 were the only recovery wells consistently in operation when water level were measured during the first and fourth quarter monitoring rounds. Based on the RW-1 and RW-4 data, water level elevations at the recovery wells increased an average of 1.3 feet. There was limited recovery well downtime in 2000 due to repairs and power outages. The total system pumpage was sufficient, however, to effectively maintain hydraulic control of the VOC plume. The annual pumpage data are summarized in Table 2 in Tabs A through D.

Groundwater flow at the water table and in the shallow and deep potentiometric zones is southeasterly, except in the capture zone area where the shallow and deep potentiometric groundwater flows toward the recovery wells. The GTF effluent is discharged to Recharge Basin #1, which causes localized water table mounding beneath the basin. The mounding has not affected the overall hydraulic gradient or flow direction over the study area.

3.0 GROUNDWATER SAMPLING AND CONTAMINANT DISTRIBUTION

Groundwater samples were collected in January, May, August and October 2000 by Gannett Fleming in accordance with the methods described in Geraghty & Miller's "Protocols for Sampling Groundwater Under the Old Bethpage Solid Waste Disposal Complex Remedial Action Plan." Field blanks, field duplicates, and trip blanks prepared by the laboratory were also analyzed for quality assurance/quality control purposes. All samples were analyzed by H_2M Laboratories. The quarterly analytical results are summarized in Tables 3, 4, 5 and 6 in Tabs A through D. Raw laboratory data and well sampling logs are included in the following quarterly reports prepared by Gannett Fleming: First Quarter 2000 Results - January through March 2000, Second Quarter 2000 Results - April through June 2000, Third Quarter 2000 Results - July through October 2000, and Fourth Quarter 2000 Results -October through December 2000.

Dedicated submersible pumps, a two-inch Grundfos pump or a dedicated bailer were used to purge and sample the monitoring wells. All non-dedicated down well equipment was cleaned each day before use and after sampling each well by washing with laboratory grade detergent and rinsing with potable water to minimize the possibility of cross contamination.

Recovery well analytical data provided by the Town of Oyster Bay Department of Public Works are summarized in Table 7 in Tabs A, B and D and Table 9 in Tab C. The combined monitoring well and recovery well database was used to create the plume maps shown on Figures 3 through 6 in Tabs A through D.

3.1 Volatile Organic Compound Plume

The VOC group is divided into three components: volatile halogenated hydrocarbons (VHOs) excluding tetrachloroethene, volatile aromatic hydrocarbons, and tetrachloroethene. Changes in

chemical constituent concentrations between the first and fourth quarter sampling rounds are discussed below.

3.1.1 Volatile Halogenated Compounds

Twelve VHO compounds were detected during the 2000 monitoring period. The location and monitoring round during which the highest concentration of each compound was found is listed below.

Compound	Concentration (ppb)	Date	Location
Cis-1,2-dichloroethene	18	first quarter	OBS-1
Trichloroethene	12	first quarter	MW-8A
	12	third quarter	MW-7B
1,1,1-trichloroethane	5	first quarter	MW-8A
Dichlorodifluoromethane	17	third quarter	MW-9D
Chloroethane	12	third quarter	MW-9D
1,1-dichloroethane	11	third quarter	MW-9D
Vinyl chloride	4	third quarter	MW-9D
1,2-Dichloroethane	1	third quarter	MW-9D
1,1-dichloroethene	1	third quarter	MW-9D
	1	first quarter	MW-8A
	1	second quarter	MW-8A
Methylene chloride*	1	third quarter	MW-9D
Trans-1,2-Dichloroethene	1	third quarter	MW-9D
Trichlorofluoromethane	1	third quarter	MW-9D

* Probable laboratory artifact

Total VHO concentrations decreased at monitoring wells MW-11A (2.0 ppb to non-detect), MW-8A (19 to 1 ppb) and OBS-1 (20 to 15 ppb), and increased at MW-7B (1 to 10 ppb) and MW-9D (71 to

64 ppb [compared to third quarter of 1999]). VHO concentrations remained at less than the laboratory reporting limit at wells MW-6A, -6B, -6C, -6E, -6F, -8B, -9B,-9C, -11B, and M-29A-R during the first and fourth quarter sampling rounds.

The fourth quarter monitoring round database indicates that monitoring well OBS-1 had the highest concentration of VHOs followed in decreasing order by MW-7B and MW-8A. Figure 4 in Tabs A through D shows the distribution of VHOs during the 2000 monitoring period.

3.1.2 Aromatic Hydrocarbons

Twelve aromatic hydrocarbons were detected during the 2000 monitoring period. The location and monitoring round during which the highest concentration of each compound was found is listed below.

Compound	Concentration (ppb)	Date	Location
Benzene	58	first quarter	OBS-1
Chlorobenzene	14	third quarter	MW-6B
p-dichlorobenzene	6	third quarter	MW-6C
o-dichlorobenzene	2	second quarter	MW-6B
	2	third quarter	MW-6B
	2	third quarter	MW-6C
	2	fourth quarter	MW-6C
m-xylene	0.5	second quarter	MW-6B
o-xylene	11	third quarter	MW-9D
p-xylene	0.5	second quarter	MW-6B

Aromatic hydrocarbon concentrations decreased at wells OBS-1 (59 to 30 ppb) and MW-9D (30 to 28 ppb [compared to third quarter 1999]) and increased at wells MW-6B (12 to 17 ppb) and MW-6C (10 to 15 ppb). Aromatic hydrocarbons concentrations remained at less than the laboratory reporting limit at wells M-29A-R, MW-11A, MW-11B, MW-6A, MW-6E, MW-6F, MW-7B, MW-8A, MW-

8B, MW-9B, MW-9C during the first and fourth quarter sampling rounds. The highest aromatic hydrocarbon concentrations during the fourth quarter were found at well OBS-1, followed in decreasing order by wells MW-6E and MW-6C. Figure 5 in Tabs A through D shows the distribution of aromatic hydrocarbons during the 2000 monitoring period.

3.1.3 Tetrachloroethene

The location and monitoring round during which the highest concentration of tetrachloroethene (PCE) was found is listed below.

Compound	Concentration (ppb)	Date	Location
PCE	210	second quarter	MW-8A

PCE concentrations decreased at monitoring wells MW-8A (200 to 26 ppb) and OBS-1 (10 to 6 ppb), and increased at monitoring well MW-7B (44 to 66 ppb). The highest PCE concentration during the fourth quarter was found at well MW-7B, followed in decreasing order by wells MW-8A, MW-9D and OBS-1. PCE was not found at a concentration exceeding the laboratory reporting limit in the samples from M-29A-R, MW-11A, MW-11B, MW-6A, MW-6B, MW-6C, MW-6E, MW-6F, MW-8B, MW-9B and MW-9C during the first and fourth quarter sampling rounds. Figure 6 in Tabs A through D shows the distribution of tetrachloroethene during the 2000 monitoring period.

3.2 Inorganic Compound Plume

The 2000 inorganic compound data do not indicate any significant change in the extent and concentration of leachate parameters. The highest concentrations of leachate parameters were found at wells MW-6B, MW-6C, and LF-1.

4.0 FINDINGS AND CONCLUSIONS

1. The average system pumpage in 2000 was sufficient to effectively maintain hydraulic control of the VOC plume.

2. Localized water table mounding beneath Recharge Basin #1 was caused by the discharge of the GTF effluent to the basin.

3. Total VHO concentrations decreased at monitoring wells MW-11A, MW-8A and OBS-1, and increased at MW-7B and MW-9D (compared to third quarter of 1999). VHO concentrations remained at less than the laboratory reporting limit at wells MW-6A, -6B, -6C, -6E, -6F, -8B, -9B,-9C, -11B, and M-29A-R during the first and fourth quarter sampling rounds.

4. Aromatic hydrocarbon concentrations decreased at wells OBS-1 and MW-9D (compared to third quarter 1999) and increased at wells MW-6B and MW-6C. Aromatic hydrocarbons concentrations remained at less than the laboratory reporting limit at wells M-29A-R, MW-11A, MW-11B, MW-6A, MW-6E, MW-6F, MW-7B, MW-8A, MW-8B, MW-9B, MW-9C during the first and fourth quarter sampling rounds.

5. Tetrachloroethene concentrations decreased at monitoring wells MW-8A and OBS-1, and increased at monitoring well MW-7B. Tetrachloroethlylene was not found at a concentration exceeding the laboratory reporting limit in the samples from M-29A-R, MW-11A, MW-11B, MW-6A, MW-6B, MW-6C, MW-6E, MW-6F, MW-8B, MW-9B and MW-9C during the first and fourth quarter sampling rounds.

6. The distribution and concentration of inorganic compounds were consistent between the first and fourth quarter 2000 sampling rounds.

7. VHOs at low concentrations were sporadically detected at wells MW-6C and MW-11A during the monitoring period. The highest total VHO concentrations did not exceed 5 ppb in either well.

5.0 RECOMMENDATIONS

1. Continue the quarterly groundwater monitoring program to track changes in water quality conditions over time and to assess the groundwater remediation system effectiveness.

2. Continue to evaluate trends in water levels and assess the need to: 1) replace monitoring wells which may become dry because the water table declined below the well screens; and 2) reinstall pumps at greater depths because the water table declined below the pump intake.

3. Continue to evaluate VHO concentration trends at wells MW-6C and MW-11A during subsequent monitoring events.

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 1

WATER LEVEL MEASUREMENTS - FEBRUARY 22, 2000

WELL NUMBER	M.P. ELEVATION (feet above mean sea level)	DEPTH TO WATER FROM M.P. (feet):	G.W. ELEVATION (feet above mean sea level)
5A	137.13	77.71	59.42
5B	138.43	79.11	59.32
6A	160.24	101.00	59.24
6B	160.39	101.10	59.29
6C	159.99	100.61	59.38
6D	160.39	100.86	59.53
6E	160.88	101.40	59.48
6F	159.88	100.80	59.08
7A	148.44	Dry	Not Available
7B	147.94	93.31	54.63
8A	134.94	75.03	59.91
8B	134.24	74.16	60.08
8C	135.72	75.11	60.61
9A	153.35	Dry	Not Available
9B	153.28	97.08	56.20
9C	153.53	97.56	55.97
9D	152.95	96.72	56.23
10A	161.28	100.71	60.57
10B	161.12	100.87	60.25
10C	160.27	99.93	60.34
10D	161.17	100.65	60.52
11A	80.19	28.37	51.82
11B	79.91	28.21	51.70
M-29A-R	157.50	89.56	67.94
M-29B	157.41	86.07	71.34
M-30A	151.20	91.25	59.95
M-30B-R	154.51	93.25	61.26
N-9980 (N-9936)	80.46	34.45	46.01
N-9880	Not Available	Not Available	
TW-3-R	133.93	72.92	61.01
EW-1A	130.09	69.20	60.89
EW-1B	130.65	69.55	61.10
EW-1C	130.60	69.60	61.00
EW-2A	157.14	96.16	60.98
EW-2B	157.61	96.51	61.10
EW-2C	157.54	96.54	61.00
EW-3A	159.24	99.85	59.39
EW-3B	159.36	99.99	59.37
EW-3C	159.25	99.85	59.40
LF-1	111.40	50.10	61.30
LF-2	118.70	56.36	62.34
LF-3	126.50	61.25	65.25
LF-4	149.93	83.78	66.15
OBS-1	110.61	54.41	56.20
OBS-2	105.26	50.55	54.71
RW-1(1)	110.94	60.90	50.04
RW-2	145.31	88.14	57.17
RW-3 (1)	120.92	76.59	44.33
RW-4 (1)	144.82	98.10	46.72
RW-5 (1)	149.74	100.31	49.43
TW-1	121.12	55.85	65.27
TW-2	117.52	55.81	61.71
Farmingdale 1-3 (1)	77.3	68.00	9.30
Farmingdale 2-2 (1)	104.2	91.00	13.20
Farmingdale 2-3 (1)	113.2	68.00	45.20

Note:
(1) - Pumping level

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 2

GROUNDWATER REMEDIATION SYSTEM PUMPAGE RECORDS

JANUARY THROUGH MARCH 2000

DATE	ESTIMATED AVERAGE SYSTEM FLOW (GPM)	COMMENTS
Jan 1 - Jan 3	1028	GTF on-line.
Jan 4	974	GTF offline for 1 hour. RW-1 and RW-3 off-line for 2 hours.
Jan 5 - Feb 18	1026	GTF on-line.
Feb 19	916	RW-2 off-line for 21 hours for repair.
Feb 20 - Feb 24	890	RW-2 off-line for repairs.
Feb 25	710	RW-2 off-line for 19 hours for repairs. GTF off-line for 5 hours for acid rinse.
Feb 26 - Mar 31	900	RW-2 off-line for repairs.

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
FIRST QUARTERLY SAMPLING ROUND - JANUARY 2000

SAMPLE ID: / PARAMETERS (Units- ppb)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E
AROMATIC HYDROCARBONS						
1,2-DICHLOROBENZENE	< 1	< 1	< 1	1	1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	3	3	< 1
BENZENE	< 1	< 1	< 1	2	2	< 1
CHLOROBENZENE	< 1	< 1	< 1	6	4	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS						
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE						
TETRACHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
FIRST QUARTERLY SAMPLING ROUND - JANUARY 2000

SAMPLE ID: / PARAMETERS (Units- ppb)	MW-6F	MW-7B	MW-8A	MW-8B	MW-9B	MW-9C	MW-11A
AROMATIC HYDROCARBONS							
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS							
1,1,1-TRICHLOROETHANE	< 1	< 1	5	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	1	12	< 1	< 1	< 1	1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE							
TETRACHLOROETHENE	< 1	44	200	< 1	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
FIRST QUARTERLY SAMPLING ROUND - JANUARY 2000

SAMPLE ID: PARAMETERS (Units- ppb)	MW-11A DUPLICATE	MW-11B	OBS-1	FIELD BLANK	TRIP BLANK #1	TRIP BLANK #2
AROMATIC HYDROCARBONS						
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
BENZENE	< 1	< 1	58	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	1	< 1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS						
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	1	< 1	18	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	1	< 1	2	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE						
TETRACHLOROETHENE	< 1	< 1	10	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
FIRST QUARTERLY SAMPLING ROUND - JANUARY 2000

SAMPLE ID: PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E	MW-6F	MW-7B	MW-8A
ALUMINUM	3.73	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
AMMONIA (AS N)	< 0.02	2.8	0.26	70.4	69.6	4.3	0.07	< 0.02	0.58
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.26	< 0.2	< 0.2	< 0.2
BICARBONATE (AS CACO3)	29.4	38.6	6.1	529	680	16.3	< 1	3.2	7.6
CALCIUM	20.1	16.5	1.46	14.6	44.2	25.2	25.9	5.51	24.7
CARBONATE (AS CACO3)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORIDE	99	156	10.5	269	335	135	154	35.1	63.4
CHROMIUM	0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	0.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HARDNESS	92	101	9	100	156	104	107	26	99
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	2.91	0.08	0.03	13.5	15.9	1.16	0.21	0.23	0.02
KJELDAHL NITROGEN	0.13	2.9	0.96	78.7	75.7	5.6	0.55	0.1	1.3
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	10	14.5	1.32	15.4	11.2	10	10.3	3	9.2
MANGANESE	0.04	1.95	0.07	0.15	0.25	0.51	0.05	0.05	0.86
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.4	< 0.2	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
NITRATE (AS N)	5.6	4.4	2.2	< 0.1	< 0.1	< 0.1	0.41	3.2	3.4
POTASSIUM	6.81	15.6	5.83	77.6	77.1	17.3	2.03	0.98	8.69
SODIUM	44.4	65.5	6.54	196	274	27.1	42	14	32.1
SULFATE	< 5	15.7	< 5	< 5	< 5	22.9	< 5	< 5	68
TOTAL ALKALINITY	29.4	38.6	6.1	529	680	16.3	< 1	3.2	7.6
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TOTAL DISSOLVED SOLIDS	270	357	87	725	1200	376	365	85	262
TOTAL PHENOLS	< 1	< 1	< 1	6.2	< 1	< 1	< 1	< 1	< 1
ZINC	0.04	< 0.02	< 0.02	< 0.02	< 0.02	0.04	0.02	0.03	0.03

NOTES:

ppm - parts per million

ppb - parts per billion

NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
FIRST QUARTERLY SAMPLING ROUND - JANUARY 2000

SAMPLE ID: PARAMETERS (Units- ppm)	MW-8B	MW-9B	MW-9C	MW-11A	MW-11A DUPLICATE	MW-11B	OBS-1	LF-1	FIELD BLANK
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	0.21	< 0.2	< 0.2	NA	< 0.2
AMMONIA (AS N)	1.9	1.5	18.6	< 0.02	< 0.02	0.05	0.72	NA	< 0.02
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
BICARBONATE (AS CACO3)	11.3	10	56.5	1.6	1.7	1.2	37	137	< 1
CALCIUM	33.3	8.34	1.31	3.18	3.49	1.25	13.2	NA	0.27
CARBONATE (AS CACO3)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORIDE	131	59.8	90.6	6.5	7	4.4	76.9	129	< 2
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	NA	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
HARDNESS	126	43	9	15	17	5	91	NA	1
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
IRON	0.47	0.02	0.06	0.02	0.15	0.03	0.08	NA	0.05
KJELDAHL NITROGEN	2.3	1.3	24.9	0.11	< 0.2	0.23	1.2	48.2	< 0.2
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA	< 5
MAGNESIUM	10.4	5.4	1.5	1.7	2	0.57	14.2	NA	< 0.2
MANGANESE	0.93	0.13	0.04	< 0.01	0.02	< 0.01	0.76	NA	< 0.01
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	NA	< 0.04
NITRATE (AS N)	< 0.1	4.6	< 0.1	4.7	4.8	0.97	1.7	< 0.1	< 0.1
POTASSIUM	14.8	6.95	22.7	0.8	1.01	0.53	3.98	NA	< 0.2
SODIUM	60.7	25.9	45.4	5.26	5.78	3.41	39.7	NA	< 0.2
SULFATE	67	20.1	15.7	< 5	< 5	< 5	274	29.3	< 5
TOTAL ALKALINITY	11.3	10	56.5	1.6	1.7	1.2	37	137	< 1
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TOTAL DISSOLVED SOLIDS	364	369	163	36	69	113	229	371	34
TOTAL PHENOLS	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
ZINC	0.08	0.02	0.02	< 0.02	0.03	< 0.02	0.02	NA	0.02

NOTES:

ppm - parts per million
ppb - parts per billion
NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
FIRST QUARTERLY SAMPLING ROUND - JANUARY 2000

SAMPLE ID: PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E	MW-6F	MW-7B	MW-8A
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.27	< 0.2	< 0.2	< 0.2
CALCIUM	19.8	16.2	4.6	14.5	49.4	28.6	28.2	4.7	23.5
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	< 0.02	< 0.02	1.24	0.06	0.08	0.2	0.02	0.03	0.04
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	9.8	14.1	2.2	15.5	12.7	11.2	11.2	2.7	9
MANGANESE	< 0.01	1.9	0.09	0.12	0.25	0.57	0.06	0.04	0.83
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	6.4	14.6	10.4	78.8	90.8	18.5	2.26	0.89	8.9
SODIUM	43.4	62.8	17.6	200	317	31.3	45.1	13.2	32.3
ZINC	0.03	< 0.02	0.02	0.02	< 0.02	0.04	0.05	0.03	0.03

NOTES:

ppm - parts per million

ppb - part per billion

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
FIRST QUARTERLY SAMPLING ROUND - JANUARY 2000

SAMPLE ID: PARAMETERS (Units- ppm)	MW-8B	MW-9B	MW-9C	MW-11A	MW-11A DUPLICATE	MW-11B	OBS-1	FIELD BLANK
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
CALCIUM	31.9	8.2	1.2	3.1	2.8	1.1	12.7	< 0.2
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04	< 0.02
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	10	5.3	1.4	1.7	1.6	0.54	13.6	< 0.2
MANGANESE	0.89	0.13	0.04	< 0.01	< 0.01	< 0.01	0.73	< 0.01
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	14	6.8	22.6	0.8	0.78	0.5	3.52	< 0.2
SODIUM	58.2	25.6	45.4	5.4	5.5	3.2	36.7	< 0.2
ZINC	0.11	0.03	< 0.02	0.03	0.03	< 0.02	0.02	< 0.02

NOTES:

ppm - parts per million

ppb - part per billion

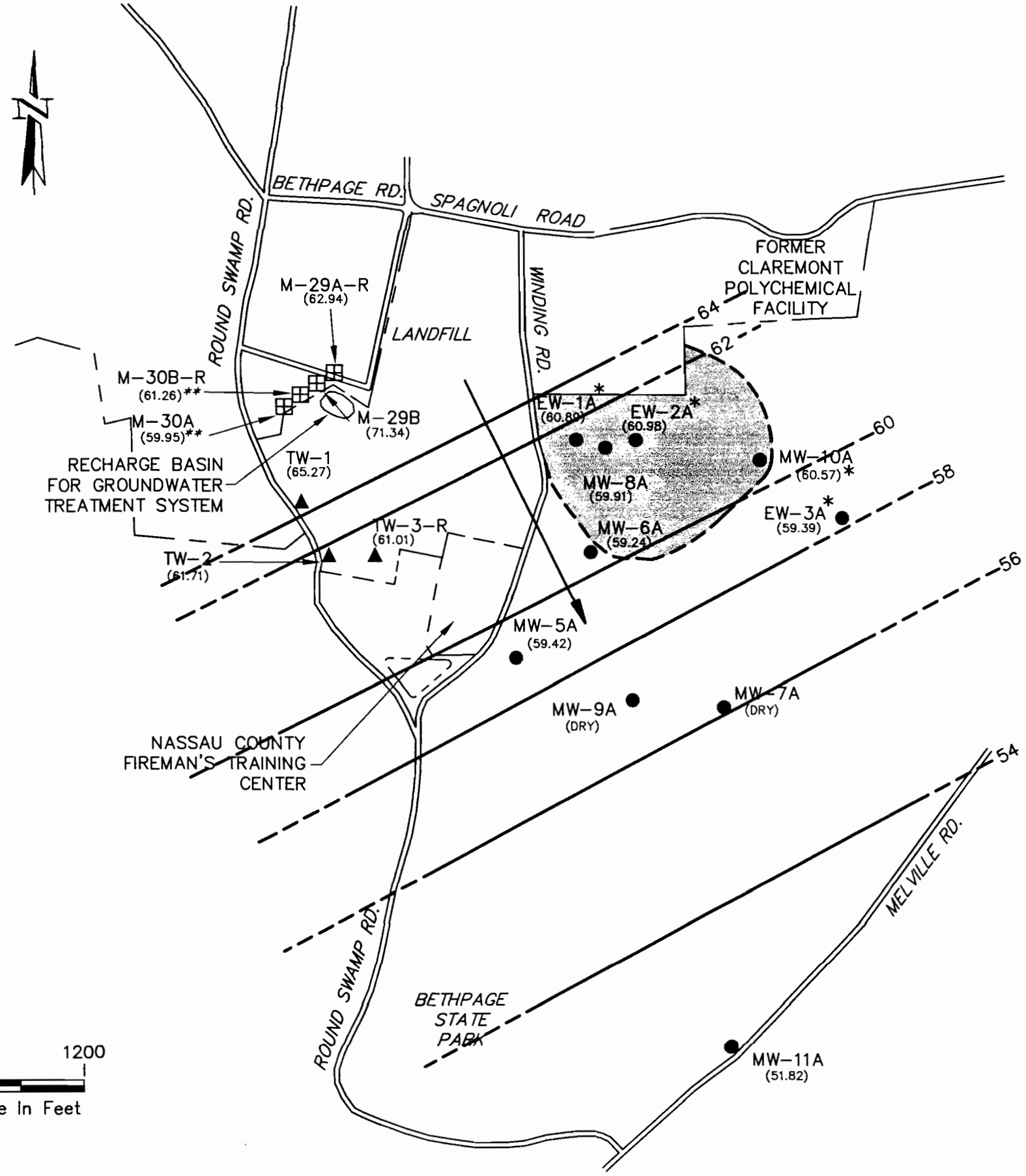
TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 6

RECOVERY WELL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
FIRST QUARTERLY SAMPLING ROUND - FEBRUARY 2000

SAMPLE DESIGNATION: / SAMPLE COLLECTION DATE:	RW-1 02/22/2000	RW-2 02/15/2000	RW-3 02/22/2000	RW-4 02/22/2000	RW-5 02/22/2000
Benzene	0.57	0.82	1.44	0.19	0.65
Bromodichloromethane	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	ND	ND	ND	ND
Chlorobenzene	0.85	0.85	1.21	0.41	0.05
Chlorodibromomethane	ND	ND	ND	ND	ND
Chloroethane	0.27	0.53	0.90	ND	ND
Chloroform	ND	0.21	ND	0.48	ND
o,p-Dichlorobenzene	3.61	0.87	2.65	ND	ND
m,o,p-Dichlorobenzene	3.61	0.87	2.65	ND	ND
1,1-Dichloroethane	0.89	0.80	3.10	0.59	0.20
1,2-Dichloroethane	ND	0.02	0.10	0.05	1.87
1,1-Dichloroethene	ND	0.03	0.06	0.27	1.23
cis-1,2-Dichloroethene	2.75	2.80	18.45	3.88	53.86
trans-1,2-Dichloroethene	0.06	0.04	0.08	0.02	ND
1,2-Dichloropropane	0.04	0.03	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
Methylene chloride	ND	0.02	0.31	ND	ND
Tetrachloroethene	0.63	0.38	18.09	47.55	329.26
Toluene	0.02	0.01	0.01	0.14	0.10
1,1,1-Trichloroethane	ND	0.14	0.48	1.09	5.87
Trichloroethylene	0.44	0.47	1.92	25.88	76.52
Vinyl chloride	1.66	0.32	1.67	0.14	ND
o-Xylene	ND	0.85	2.31	2.95	6.70
m+p-Xylene	0.04	0.04	0.04	0.22	0.21
Xylenes (total)	0.04	0.89	2.35	3.17	6.91
Dichlorodifluoromethane	0.57	0.72	1.27	ND	ND
Isopropylbenzene	0.15	0.21	0.42	0.29	0.34
n-Butylbenzene	0.18	0.29	0.23	0.62	0.32
tert-Butylbenzene	0.21	0.14	0.06	0.37	0.20
Total VOCs	12.94	10.59	54.80	85.14	477.38

Notes:
All concentrations in ppb.
ND - Not detected



LEGEND

MW-5A (62.71) ●	*Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
TW-2 ▲	*Phase II Extension Well*
M-29A ⊞	*Upgradient Well*
— — —	*Property Boundary*
——→	*Groundwater Flow Direction*
60 ——	*Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
⬭	*Approximate Areal Extent Of The VOC Plume In Water Table Wells – February 2000*
**	*Anomalous Water Level Elevation*
*	*Plume Extent Based On Third Quarter 1998 Data.*

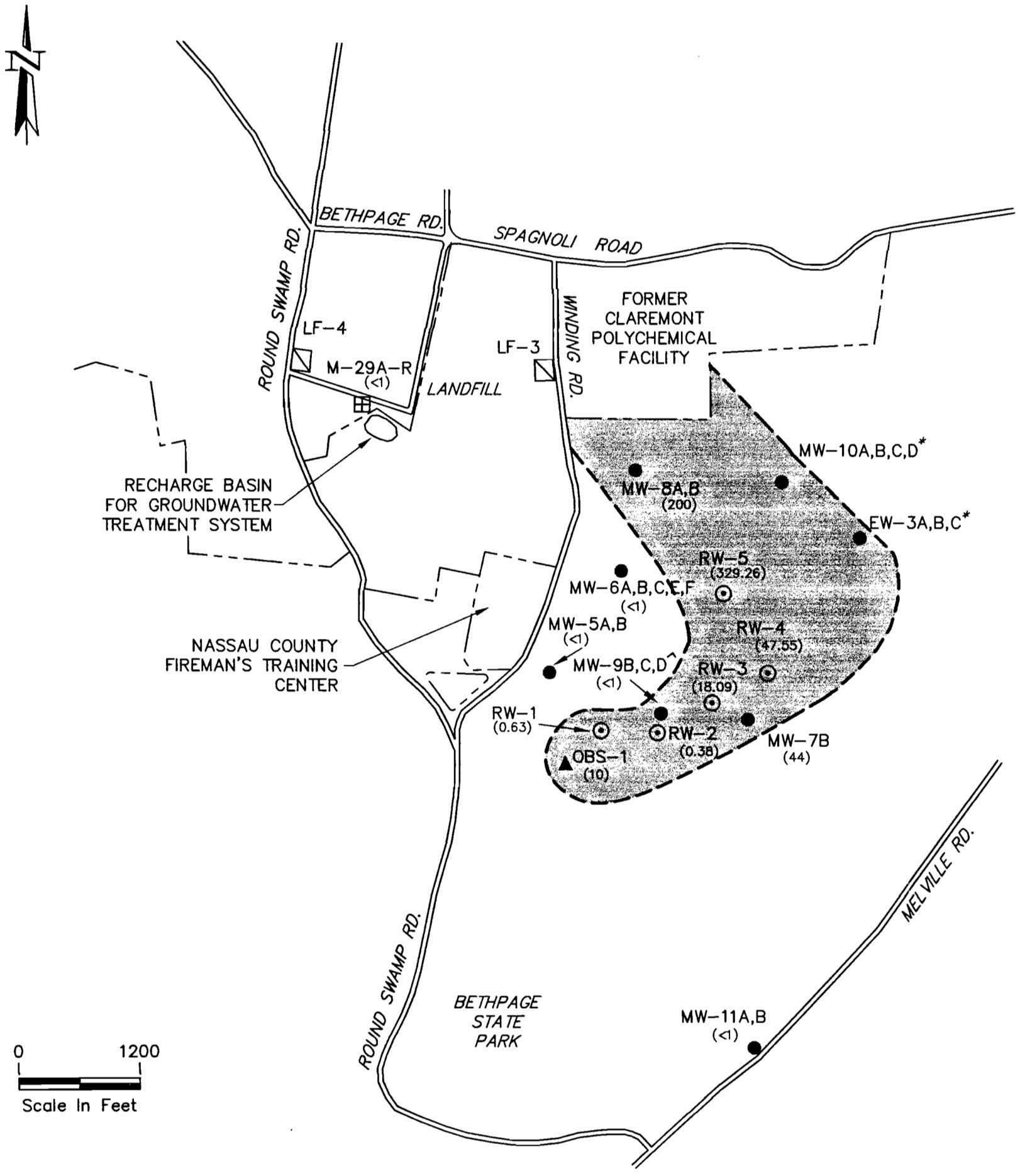
GROUNDWATER FLOW MAP
WATER TABLE
FEBRUARY 22, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

SN37458D
030800

Gannett Fleming

FIGURE 6



SN337458G
050200

LEGEND

MW-5B (<1) ●	*Monitoring Well Location And Tetrachloroethene Concentration, ppb*
RW-4 ⊙	*Recovery Well*
OBS-1 ▲	*Phase II Extension Well*
LF-3 ⧄	*Phase III Well*
M-29A-R ⊞	*Upgradient Well*
———	*Property Boundary*
	Approximate Areal Extent Of The Tetrachloroethene Plume

NOTE

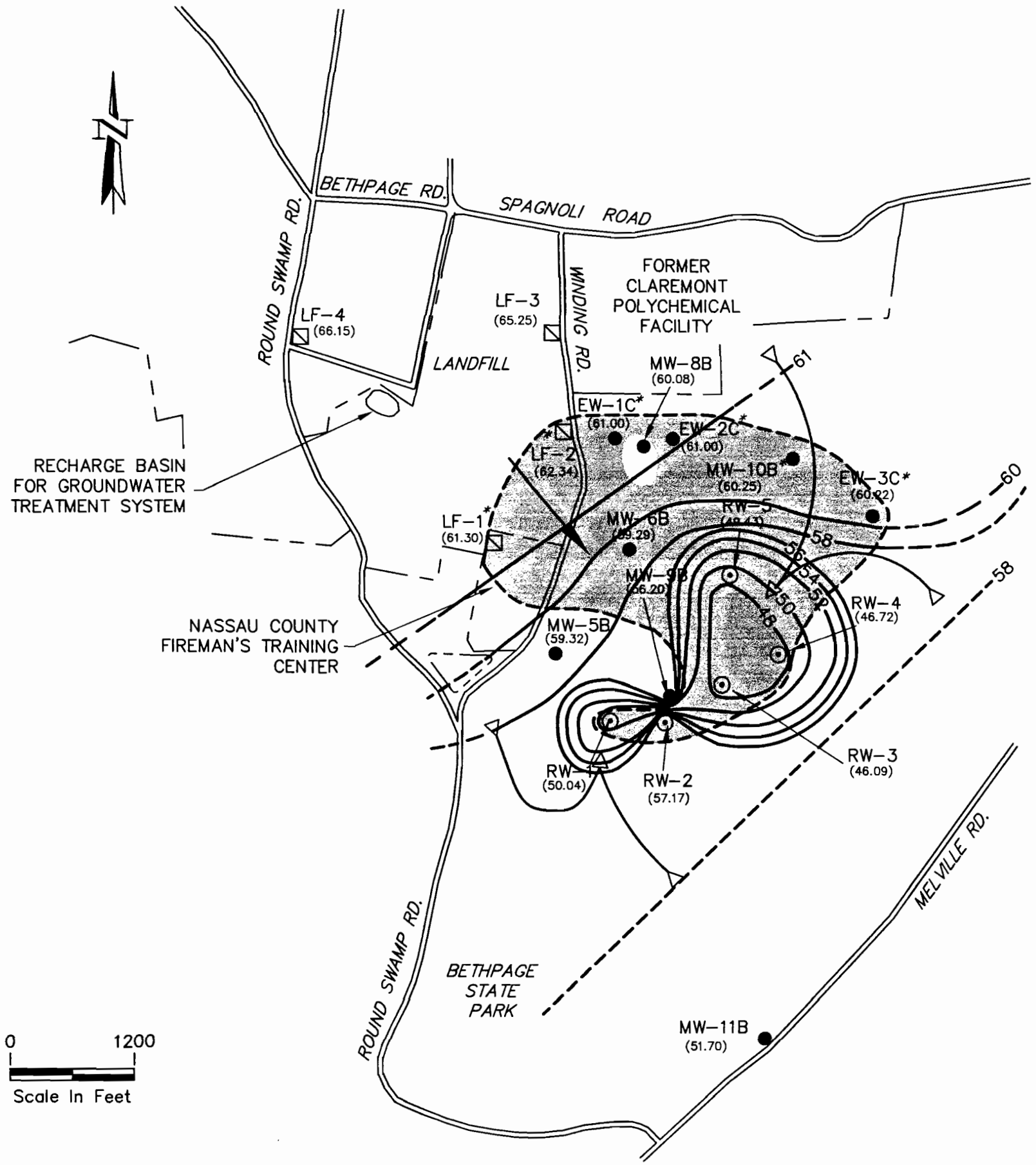
Plume Contour Is Based On Tetrachloroethene Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

^ *Plume Extent Based On Third Quarter 1999 Data.*

APPROXIMATE EXTENT AND DISTRIBUTION OF TETRACHLOROETHENE FEBRUARY 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY



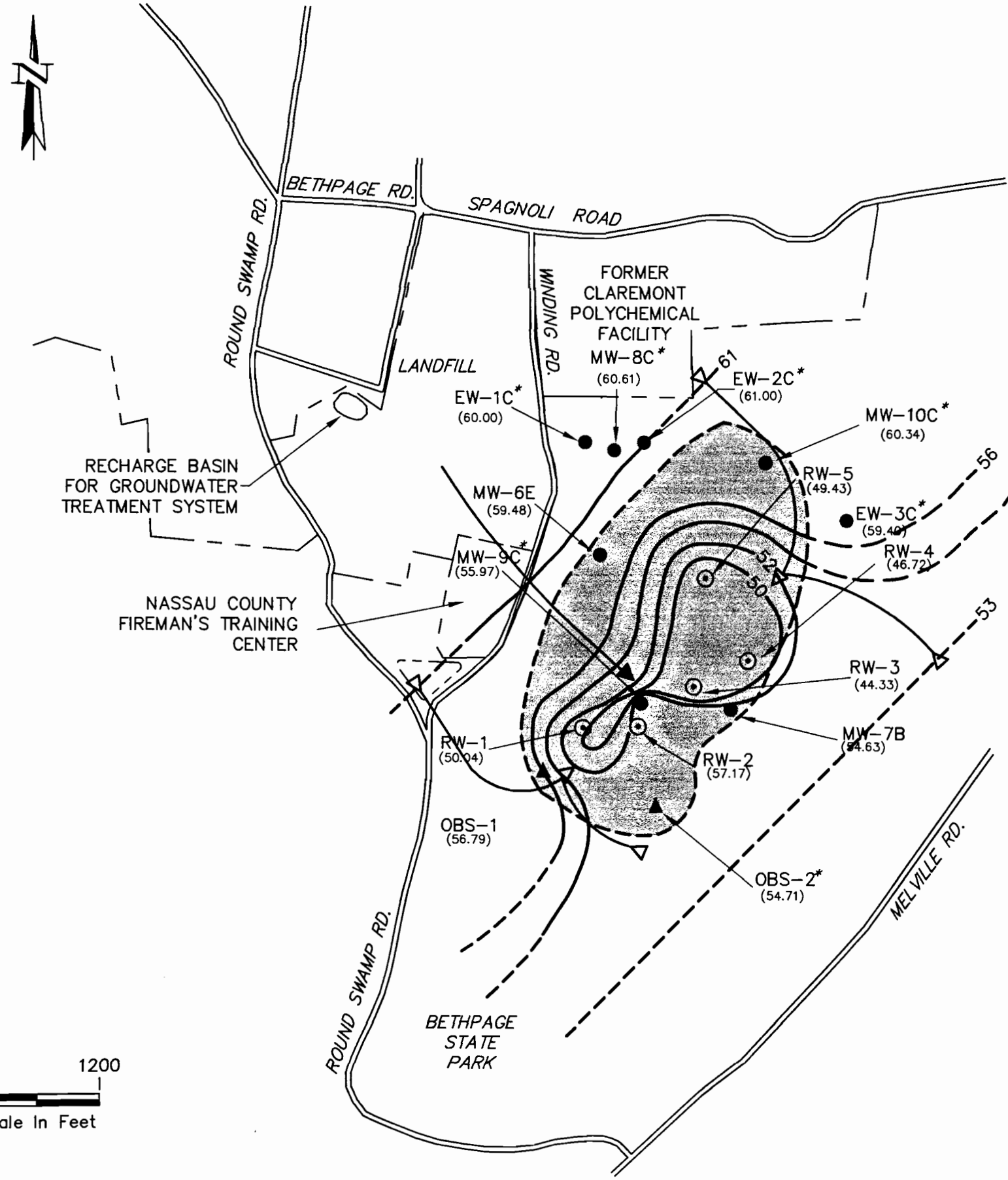
SN37458C
050200

LEGEND

- MW-5B (62.70) ● — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- RW-5 ⊙ — *Recovery Well*
- LF-2 ⊠ — *Phase III Well*
- ——▷ — *Limiting Flow Lines Depicting Effective Capture Zones*
- ——→ — *Groundwater Flow Direction*
- 60 —— — *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- — — — — *Property Boundary*
- ⬭ — *Approximate Areal Extent Of The VOC Plume In Shallow Potentiometric Zone February 2000.*
- * — *Plume Extent Based On Third Quarter 1998 Data.*

GROUNDWATER FLOW MAP
SHALLOW POTENTIOMETRIC
FEBRUARY 22, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY



LEGEND

- MW-8C (64.00) ● — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- RW-4 ⊙ — *Recovery Well*
- OBS-2 ▲ — *Phase II Extension Well*
- — — — — *Property Boundary*
- ——→ *Limiting Flow Lines Depicting Effective Capture Zone*
- ——→ *Groundwater Flow Direction*
- 60 —— *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- *Approximate Areal Extent Of The VOC Plume In The Deep Potentiometric Zone – February 2000*
- * *Plume Extent Based On Third Quarter 1998 Data*

GROUNDWATER FLOW MAP
DEEP POTENTIOMETRIC
FEBRUARY 22, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

SN37458B
030800

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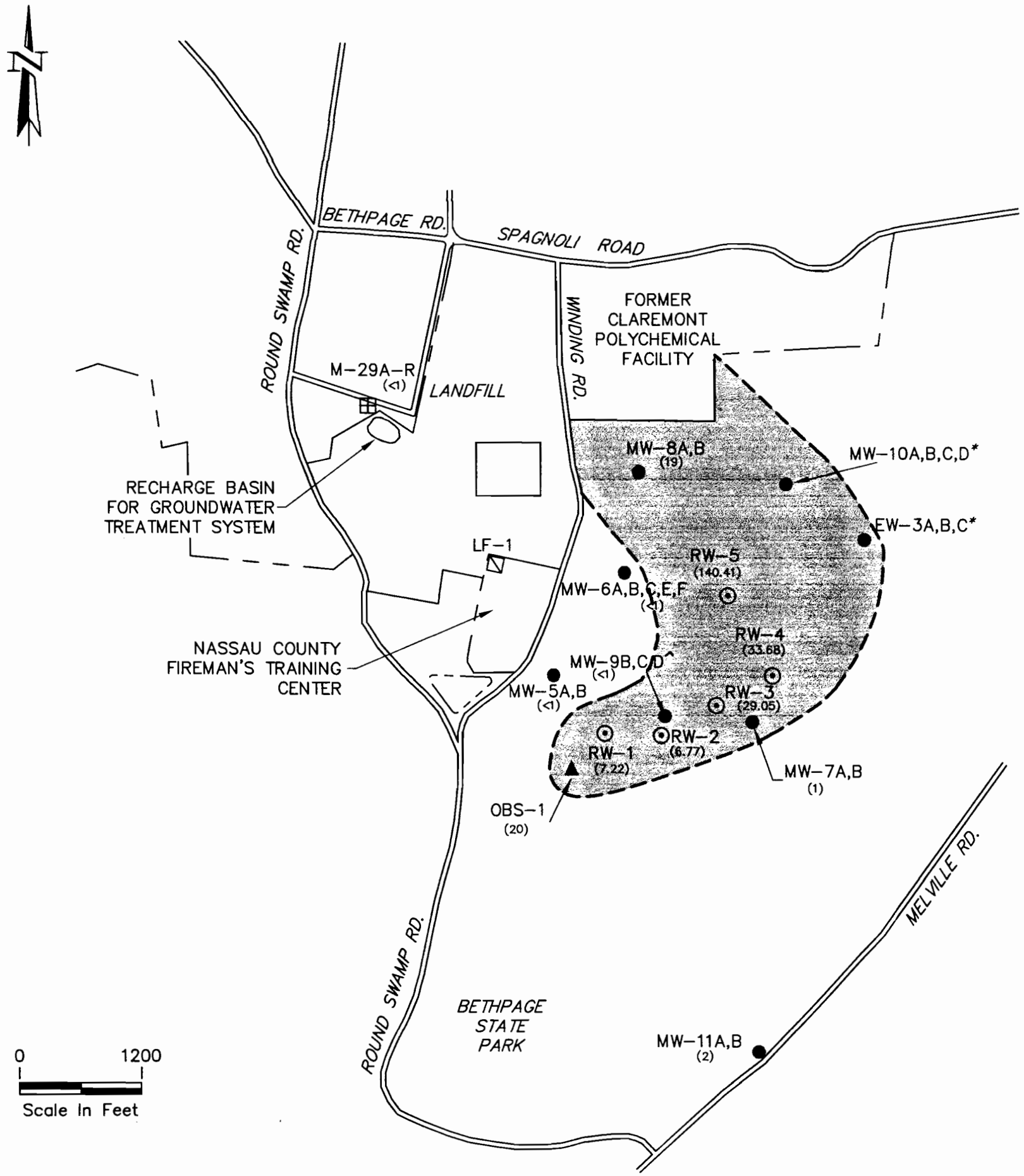
FIGURE 4



SN37458E
050200

LEGEND

MW-5B (<1) ●	*Monitoring Well Location And Total Volatile Halogenated Organics Concentration, ppb*
RW-5 ⊙	*Recovery Well*
OBS-2 ▲	*Phase II Extension Well*
LF-1 ⧄	*Phase III Well*
M-29A-R ⊞	*Upgradient Well*
— — — —	*Property Boundary*
⬭	*Approximate Areal Extent Of The Volatile Halogenated Organic Plume*

NOTE

Plume Contour Is Based On Total Volatile Halogenated Organics Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

^ *Plume Extent Based On Third Quarter 1999 Data.*

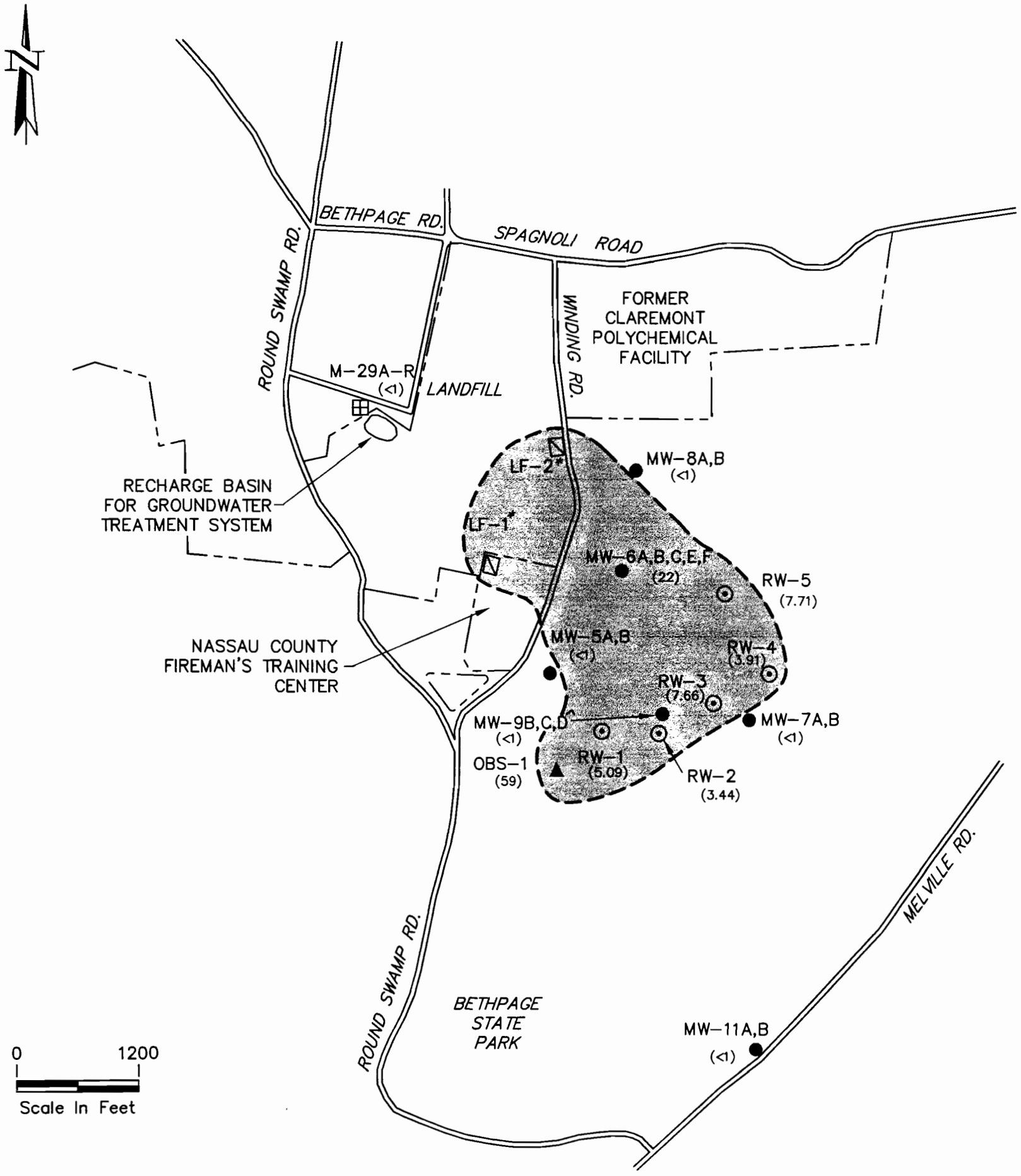
APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL VOLATILE HALOGENATED ORGANICS FEBRUARY 2000

OLD BETHPAGE LANDFILL

TOWN OF OYSTER BAY

Gannett Fleming

FIGURE 5



SN37458F
050200

LEGEND

MW-5B (<1) ●	*Monitoring Well Location And Total Aromatic Hydrocarbon Concentration, ppb*
RW-4 ⊙	*Recovery Well*
OBS-1 ▲	*Phase II Extension Well*
LF-1 ⧄	*Phase III Well*
M-29A-R ⊞	*Upgradient Well*
———	*Property Boundary*
⬭	*Approximate Areal Extent Of The Aromatic Hydrocarbon Plume*

NOTE

Plume Contour Is Based On Total Aromatic Hydrocarbon Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quater 1998 Data*

^ *Plume Extent Based On Third Quarter 1999 Data.*

APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL AROMATIC HYDROCARBONS FEBRUARY 2000

OLD BETHPAGE LANDFILL

TOWN OF OYSTER BAY

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 1

WATER LEVEL MEASUREMENTS - APRIL 25, 2000

WELL NUMBER	M.P. ELEVATION (feet above mean sea level)	DEPTH TO WATER FROM M.P. (feet):	G.W. ELEVATION (feet above mean sea level)
5A	137.13	74.60	62.53
5B	138.43	76.03	62.40
6A	160.24	98.26	61.98
6B	160.39	98.58	61.81
6C	159.99	97.98	62.01
6D	160.39	98.38	62.01
6E	160.88	99.01	61.87
6F	159.88	98.45	61.43
7A	148.44	90.55	57.89
7B	147.94	90.93	57.01
8A	134.94	73.63	61.31
8B	134.24	72.51	61.73
8C	135.72	73.18	62.54
9A	153.35	Dry	Not Available
9B	153.28	94.64	58.64
9C	153.53	95.29	58.24
9D	152.95	94.53	58.42
10A	161.28	100.15	61.13
10B	161.12	100.24	60.88
10C	160.27	99.19	61.08
10D	161.17	99.87	61.30
11A	80.19	25.19	55.00
11B	79.91	25.04	54.87
M-29A-R	157.50	89.55	67.95
M-29B	157.41	85.70	71.71
M-30A	151.20	92.15	59.05
M-30B-R	154.51	94.01	60.50
N-9980 (N-9936)	80.46	32.55	47.91
N-9880	Not Available	Not Available	
TW-3-R	133.93	70.98	62.95
EW-1A	130.09	67.62	62.47
EW-1B	130.65	68.16	62.49
EW-1C	130.60	67.77	62.83
EW-2A	157.14	95.61	61.53
EW-2B	157.61	95.91	61.70
EW-2C	157.54	95.85	61.69
EW-3A	159.24	99.28	59.96
EW-3B	159.36	99.24	60.12
EW-3C	159.25	99.08	60.17
LF-1	111.40	47.45	63.95
LF-2	118.70	55.49	63.21
LF-3	126.50	61.15	65.35
LF-4	149.93	84.40	65.53
OBS-1	110.61	52.13	58.48
OBS-2	105.26	48.13	57.13
RW-1(1)	110.94	59.61	51.33
RW-2	145.31	86.65	58.66
RW-3 (1)	120.92	75.30	45.62
RW-4 (1)	144.82	96.02	48.80
RW-5 (1)	149.74	99.60	50.14
TW-1	121.12	54.62	66.50
TW-2	117.52	54.41	63.11
Farmingdale 1-3 (1)	77.3	66.00	11.30
Farmingdale 2-2 (1)	104.2	88.50	15.70
Farmingdale 2-3 (1)	113.2	67.50	45.70

Note:
(1) - Pumping level

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 2

GROUNDWATER REMEDIATION SYSTEM PUMPAGE RECORDS

APRIL THROUGH JUNE 2000

DATE	ESTIMATED AVERAGE SYSTEM FLOW (GPM)	COMMENTS
Apr 1 - Apr 20	884	RW-2 off-line for repairs.
Apr 21	746	RW-2 off-line for repairs. GTF off-line for 3 hours due to lightning.
Apr 22	315	GTF off-line for 14.5 hours due to lightning. RW-2 off-line for 9.5 hours for repairs.
Apr 23 - May 2	909	RW-2 off-line for repairs.
May 3	442	RW-2 off-line for 12 hours for repairs. GTF off-line for 12 hours for repairs.
May 4	335	GTF off-line for 15 hours for repairs.
May 5	959	RW-5 off-line for 14 hours.
May 6 - May 20	899	RW-5 off-line for repairs.
May 21	749	RW-5 off-line for repairs. RW-1 off-line for 18 hours.
May 22	817	RW-1 off-line for 10 hours. RW-5 off-line for repairs.
May 23 - May 24	901	RW-5 off-line for repairs. GTF off-line for 1 hour due to lightning. RW-1 off-line for 2 hours.
May 25 - Jun 30	906	RW-5 off-line for repairs.

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
SECOND QUARTERLY SAMPLING ROUND - APRIL 2000

SAMPLE ID: PARAMETERS (Units- ppb)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E	MW-6F
AROMATIC HYDROCARBONS							
1,2-DICHLOROBENZENE	< 1	< 1	< 1	2	1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	4	4	< 1	< 1
BENZENE	< 1	< 1	< 1	9	3	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	12	5	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	1	< 1
M-XYLENE	< 1	< 1	< 1	0.5	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	2	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	0.5	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS							
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE							
TETRACHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
SECOND QUARTERLY SAMPLING ROUND - APRIL 2000

SAMPLE ID: PARAMETERS (Units- ppb)	MW-7B	MW-8A	MW-8B	MW-9B	MW-9B DUPLICATE	MW-9C	MW-11A
AROMATIC HYDROCARBONS							
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS							
1,1,1-TRICHLOROETHANE	< 1	2	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	4	7	< 1	< 1	< 1	< 1	1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE							
TETRACHLOROETHENE	62	210	< 1	< 1	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
SECOND QUARTERLY SAMPLING ROUND - APRIL 2000

SAMPLE ID: PARAMETERS (Units- ppb)	MW-11B	OBS-1	FIELD BLANK	TRIP BLANK #1	TRIP BLANK #2	TRIP BLANK #3
AROMATIC HYDROCARBONS						
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
BENZENE	< 1	43	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	1	< 1	< 1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS						
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	13	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE						
TETRACHLOROETHENE	< 1	8	< 1	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
SECOND QUARTERLY SAMPLING ROUND - APRIL 2000

SAMPLE ID: PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E	MW-6F	MW-7B	MW-8A
ALUMINUM	0.69	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
AMMONIA (AS N)	0.15	2.4	0.23	129	49.1	0.18	0.2	< 0.02	0.33
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2
BICARBONATE (AS CACO3)	23.7	63.8	14.9	1090	696	56	< 1	3.2	7
CALCIUM	21	13.7	1.17	25.3	45.2	24.1	29.3	5.78	25.6
CARBONATE (AS CACO3)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORIDE	114	147	42.5	402	258	143	170	30.8	97
CHROMIUM	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HARDNESS	99	93	9	174	164	104	126	29	95
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	0.71	0.04	0.03	23.3	14.2	0.69	0.06	0.07	< 0.02
KJELDAHL NITROGEN	< 0.2	1.8	< 0.2	134	55.9	12.9	0.61	< 0.2	0.44
LEAD (Units - ppb)	6.04	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	11.3	14.4	1.36	27	12.5	10.7	12.9	3.47	7.44
MANGANESE	0.08	1.78	0.05	0.27	0.24	0.46	0.06	0.05	0.71
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.32	< 0.2	< 0.2
NICKEL	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
NITRATE (AS N)	5.8	2	6.1	< 0.1	< 0.1	< 0.1	0.57	3.4	7.4
POTASSIUM	7.86	13.9	33	164	89.2	23.6	2.73	0.99	11.9
SODIUM	52	79.9	14	355	305	35.5	46.7	13.9	53.8
SULFATE	26.3	29.4	< 5	< 5	13.9	16.4	< 5	< 5	55.4
TOTAL ALKALINITY	23.7	63.9	14.9	1090	696	56	< 1	3.2	7
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TOTAL DISSOLVED SOLIDS	250	311	269	1250	1220	312	538	91	284
TOTAL PHENOLS	< 1	< 1	< 1	5.8	< 1	< 1	< 1	< 1	< 1
ZINC	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.02	< 0.02	0.02

NOTES:

ppm - parts per million

ppb - parts per billion

NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
SECOND QUARTERLY SAMPLING ROUND - APRIL 2000

SAMPLE ID: PARAMETERS (Units- ppm)	MW-8B	MW-9B	MW-9B DUPLICATE	MW-9C	MW-11A	MW-11B	OBS-1	LF-1	FIELD BLANK
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
AMMONIA (AS N)	2.2	0.21	8.9	0.13	0.21	< 0.02	0.89	NA	< 0.02
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
BICARBONATE (AS CACO3)	11.3	39.8	40.2	60.4	1.6	1.4	39.6	152	1
CALCIUM	35.5	10.2	10.3	1.25	3.6	1.28	15.8	NA	< 0.2
CARBONATE (AS CACO3)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORIDE	154	97.9	94.5	122	7.2	5.2	89.3	192	< 2
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
HARDNESS	141	56	56	1	18	6	117	395	<1
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
IRON	0.46	0.02	0.02	0.08	0.02	0.03	0.08	NA	< 0.02
KJELDAHL NITROGEN	2	8.8	8.7	22.8	< 0.2	< 0.2	0.61	12.2	0.1
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA	< 5
MAGNESIUM	12.7	7.45	7.45	1.7	2.25	0.66	18.8	NA	< 0.2
MANGANESE	1.14	0.11	0.11	0.04	< 0.01	< 0.01	0.88	NA	< 0.01
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	NA	< 0.04
NITRATE (AS N)	< 0.1	2.4	2.7	< 0.1	4.8	1.1	1.7	< 0.1	< 0.1
POTASSIUM	19	15.4	15	28.2	0.95	0.55	5.09	NA	< 0.2
SODIUM	56.7	49.6	49	47.6	6.07	3.73	46	NA	< 0.2
SULFATE	43.8	< 5	36.8	15.7	< 5	< 5	41.6	< 5	21.2
TOTAL ALKALINITY	11.3	39.8	40.2	60.4	1.6	1.4	39.6	152	1
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TOTAL DISSOLVED SOLIDS	368	202	211	204	21	31	345	416	10
TOTAL PHENOLS	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
ZINC	0.06	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02

NOTES:

ppm - parts per million

ppb - parts per billion

NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
SECOND QUARTERLY SAMPLING ROUND - APRIL 2000

SAMPLE ID: PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E	MW-6F	MW-7B	MW-8A
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2
CALCIUM	20.5	13.8	1.42	25.4	41.4	25.3	28.7	5.93	27.8
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	< 0.02	< 0.02	< 0.02	0.08	0.09	< 0.02	0.02	< 0.02	< 0.02
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	11.1	14.5	1.58	26.7	11.7	11.3	12.5	3.59	8.11
MANGANESE	< 0.01	1.78	0.06	0.23	0.21	0.49	0.06	0.05	0.77
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.28	< 0.2	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	7.49	13.9	36.5	159	84.1	25.5	2.66	1.04	12.8
SODIUM	51.6	80.1	15.8	346	287	39	45.4	14.5	56.9
ZINC	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.03	0.02	0.02	0.03

NOTES:

ppm - parts per million

ppb - part per billion

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
SECOND QUARTERLY SAMPLING ROUND - APRIL 2000

SAMPLE ID: PARAMETERS (Units- ppm)	MW-8B	MW-9B	MW-9B DUPLICATE	MW-9C	MW-11A	MW-11B	OBS-1	FIELD BLANK
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
CALCIUM	34.7	11.1	9.92	1.28	3.19	1.24	15.4	< 0.2
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	< 0.02	< 0.02	< 0.02	0.02	0.11	< 0.02	< 0.02	< 0.02
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	12.4	7.95	7.18	1.86	2.02	0.66	18.4	< 0.2
MANGANESE	1.1	0.11	0.11	0.04	0.02	< 0.01	0.87	< 0.01
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	19.3	15.6	14.6	31.2	0.85	0.54	5.18	< 0.2
SODIUM	56.6	51.6	47.4	52.4	5.52	3.71	44.9	< 0.2
ZINC	0.07	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

NOTES:
ppm - parts per million
ppb - part per billion

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 6

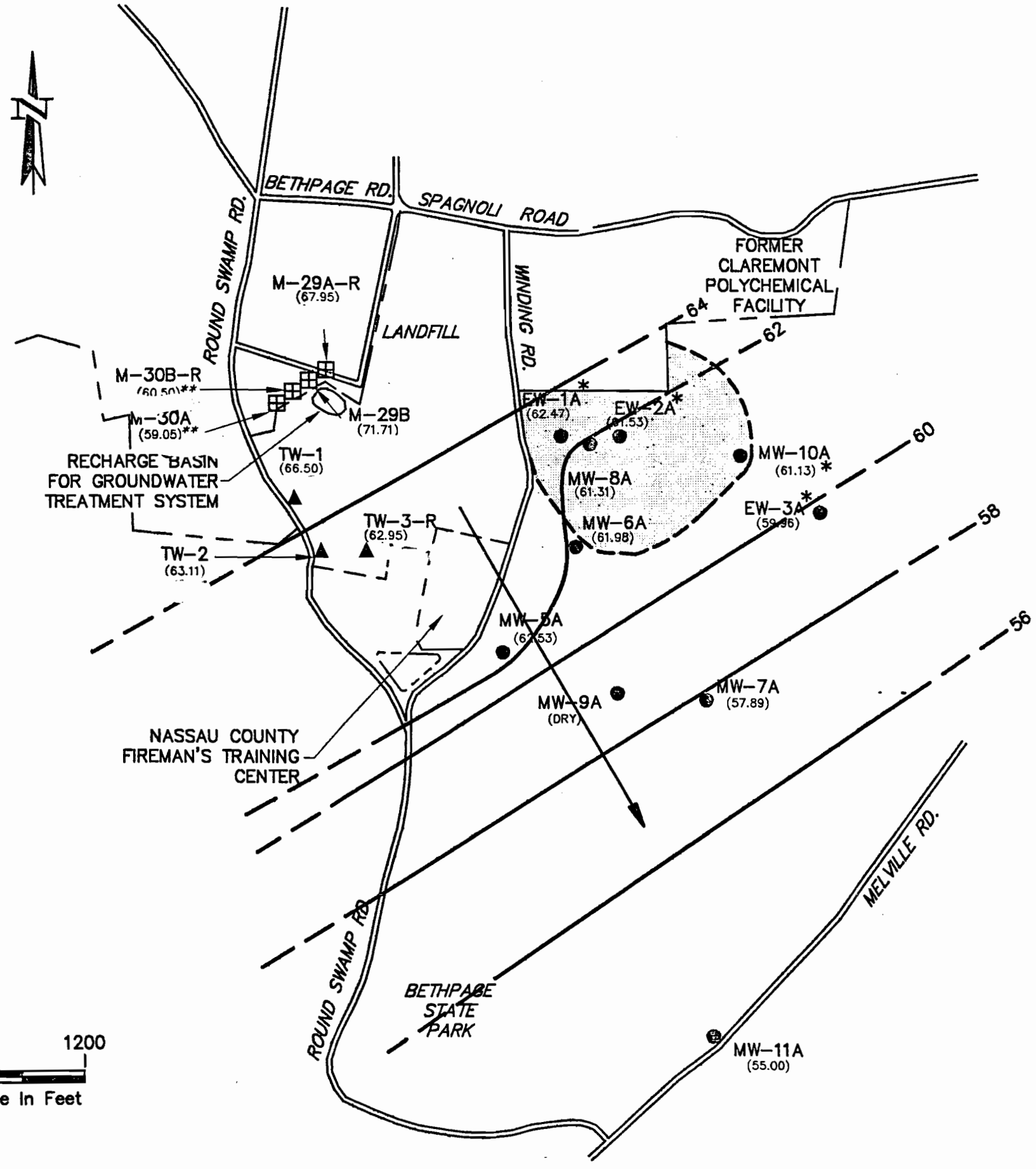
RECOVERY WELL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
SECOND QUARTERLY SAMPLING ROUND

SAMPLE DESIGNATION: / SAMPLE COLLECTION DATE:	RW-1 04/25/2000	RW-2 05/15/2000	RW-3 04/25/2000	RW-4 04/25/2000	RW-5 04/25/2000
Benzene	0.53	0.78	1.44	0.18	0.65
Bromodichloromethane	ND	ND	0.07	ND	ND
Bromoform	ND	0.11	0.22	1.54	5.56
Carbon tetrachloride	ND	ND	ND	ND	ND
Chlorobenzene	0.81	0.88	0.83	0.23	0.06
Chlorodibromomethane	ND	ND	ND	ND	ND
Chloroethane	0.23	0.44	0.80	ND	0.08
Chloroform	ND	ND	ND	0.25	ND
o,p-Dichlorobenzene	0.86	2.78	2.45	0.71	1.30
m,o,p-Dichlorobenzene	2.18	6.13	2.45	0.84	1.38
1,1-Dichloroethane	0.68	0.56	2.54	0.30	ND
1,2-Dichloroethane	0.02	0.03	0.10	0.20	6.32
1,1-Dichloroethene	ND	0.03	0.07	0.30	1.36
cis-1,2-Dichloroethene	2.57	2.06	17.49	4.10	43.31
trans-1,2-Dichloroethene	0.05	0.04	0.09	0.03	0.05
1,2-Dichloropropane	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
Methylene chloride	0.01	0.02	0.25	ND	ND
Tetrachloroethene	0.57	0.31	18.17	47.50	320.93
Toluene	0.02	0.01	0.01	ND	ND
1,1,1-Trichloroethane	ND	0.07	0.43	0.94	7.61
Trichloroethylene	0.40	0.36	2.00	25.65	66.38
Vinyl chloride	0.82	0.28	1.34	0.02	0.48
o-Xylene	0.06	1.32	1.04	1.44	1.89
m+p-Xylene	0.04	0.04	0.03	0.07	0.22
Xylenes (total)	0.10	1.36	1.07	1.51	2.11
Dichlorodifluoromethane	0.08	0.07	0.15	ND	ND
Isopropylbenzene	0.15	0.22	0.41	0.15	0.42
n-Butylbenzene	0.16	0.22	0.21	0.10	0.50
tert-Butylbenzene	0.12	0.09	0.05	0.08	0.17
Total VOCs	9.50	14.07	50.19	83.92	457.37

Notes:
All concentrations in ppb.
ND - Not detected

Gannett Fleming

FIGURE 1



LEGEND

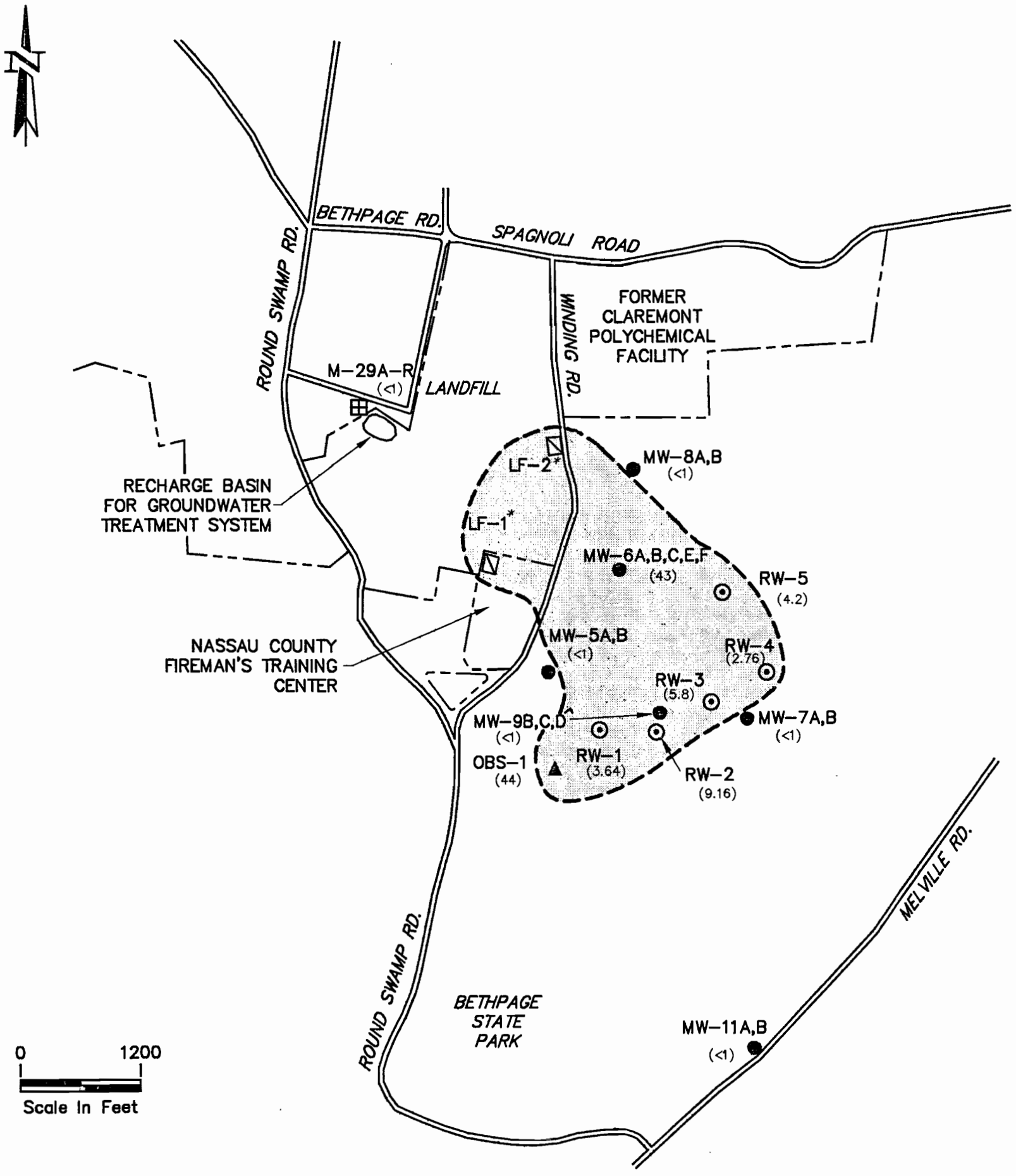
MW-5A (62.71) ●	*Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
TW-2 ▲	*Phase II Extension Well*
M-29A ⊞	*Upgradient Well*
— — —	*Property Boundary*
→	*Groundwater Flow Direction*
60	*Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
⬭	*Approximate Areal Extent Of The VOC Plume In Water Table Wells – April 2000*
**	*Anomalous Water Level Elevation*
*	*Plume Extent Based On Third Quarter 1998 Data.*

GROUNDWATER FLOW MAP
WATER TABLE
APRIL 25, 2000
OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

SN37458H
072100

Gannett Fleming

FIGURE 5



SN37458L
072100

LEGEND

MW-5B (<1) ●	*Monitoring Well Location And Total Aromatic Hydrocarbon Concentration, ppb*
RW-4 ⊙	*Recovery Well*
OBS-1 ▲	*Phase II Extension Well*
LF-1 ⧄	*Phase III Well*
M-29A-R ⊞	*Upgradient Well*
———	*Property Boundary*
⬭	*Approximate Areal Extent Of The Aromatic Hydrocarbon Plume*

NOTE

Plume Contour Is Based On Total Aromatic Hydrocarbon Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quater 1998 Data*

^ *Plume Extent Based On Third Quarter 1999 Data.*

APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL AROMATIC HYDROCARBONS APRIL 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

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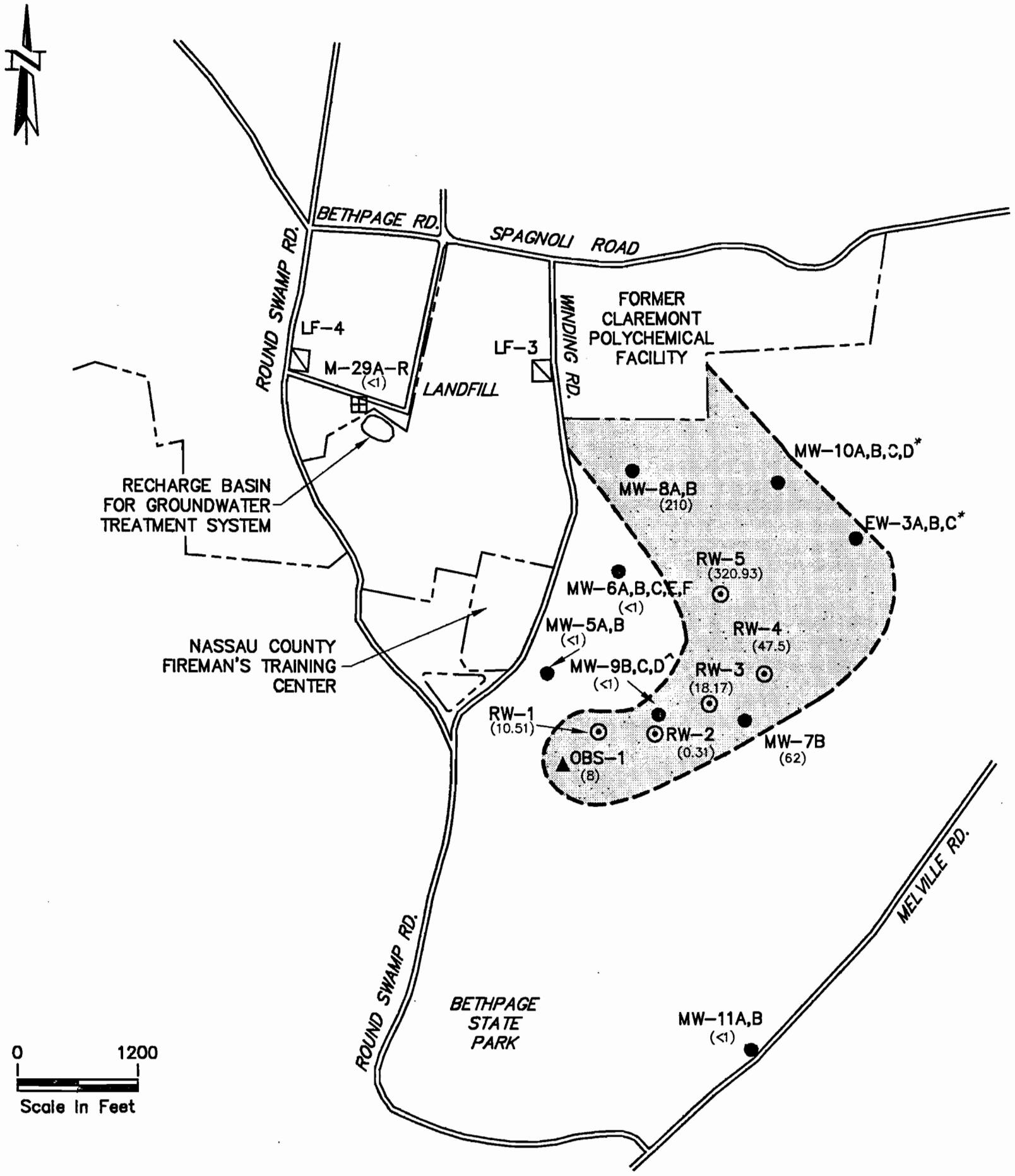


SN337458M
072100

LEGEND

MW-5B (<1) ●	*Monitoring Well Location And Tetrachloroethene Concentration, ppb*
RW-4 ⊙	*Recovery Well*
OBS-1 ▲	*Phase II Extension Well*
LF-3 ⧄	*Phase III Well*
M-29A-R ⊞	*Upgradient Well*
———	*Property Boundary*
⬭	*Approximate Areal Extent Of The Tetrachloroethene Plume*

NOTE

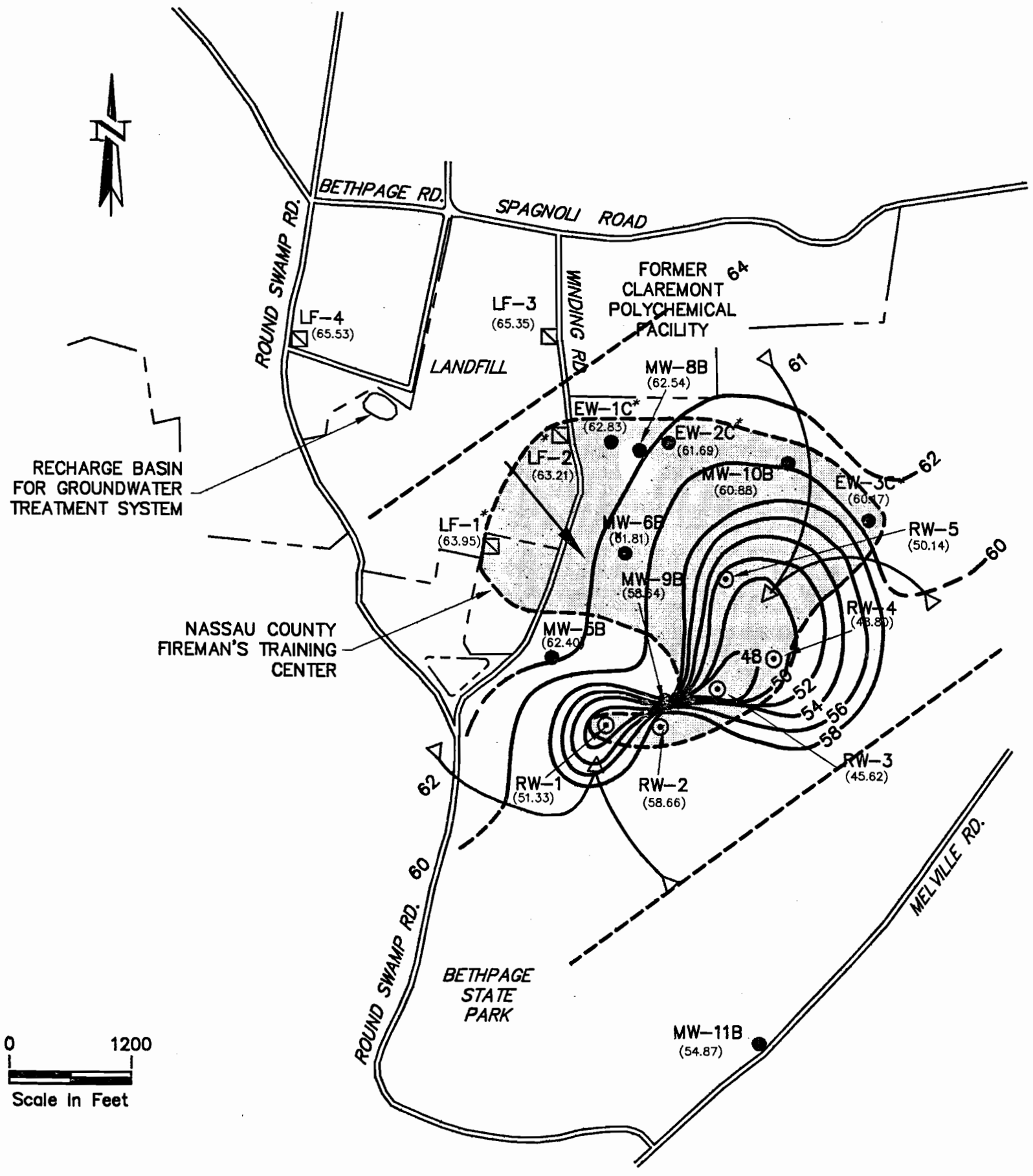
Plume Contour Is Based On Tetrachloroethene Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

^ *Plume Extent Based On Third Quarter 1999 Data.*

APPROXIMATE EXTENT AND DISTRIBUTION OF TETRACHLOROETHENE APRIL 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY



LEGEND

- MW-5B (62.70) ● — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- RW-5 ⊙ — *Recovery Well*
- LF-2 ⊠ — *Phase III Well*
- ——▷ — *Limiting Flow Lines Depicting Effective Capture Zones*
- ——→ — *Groundwater Flow Direction*
- 60 —— — *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- — — — — *Property Boundary*
- ⬭ — *Approximate Areal Extent Of The VOC Plume In Shallow Potentiometric Zone April 2000.*
- * — *Plume Extent Based On Third Quarter 1998 Data.*

GROUNDWATER FLOW MAP SHALLOW POTENTIOMETRIC APRIL 25, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

SN37458I
072100

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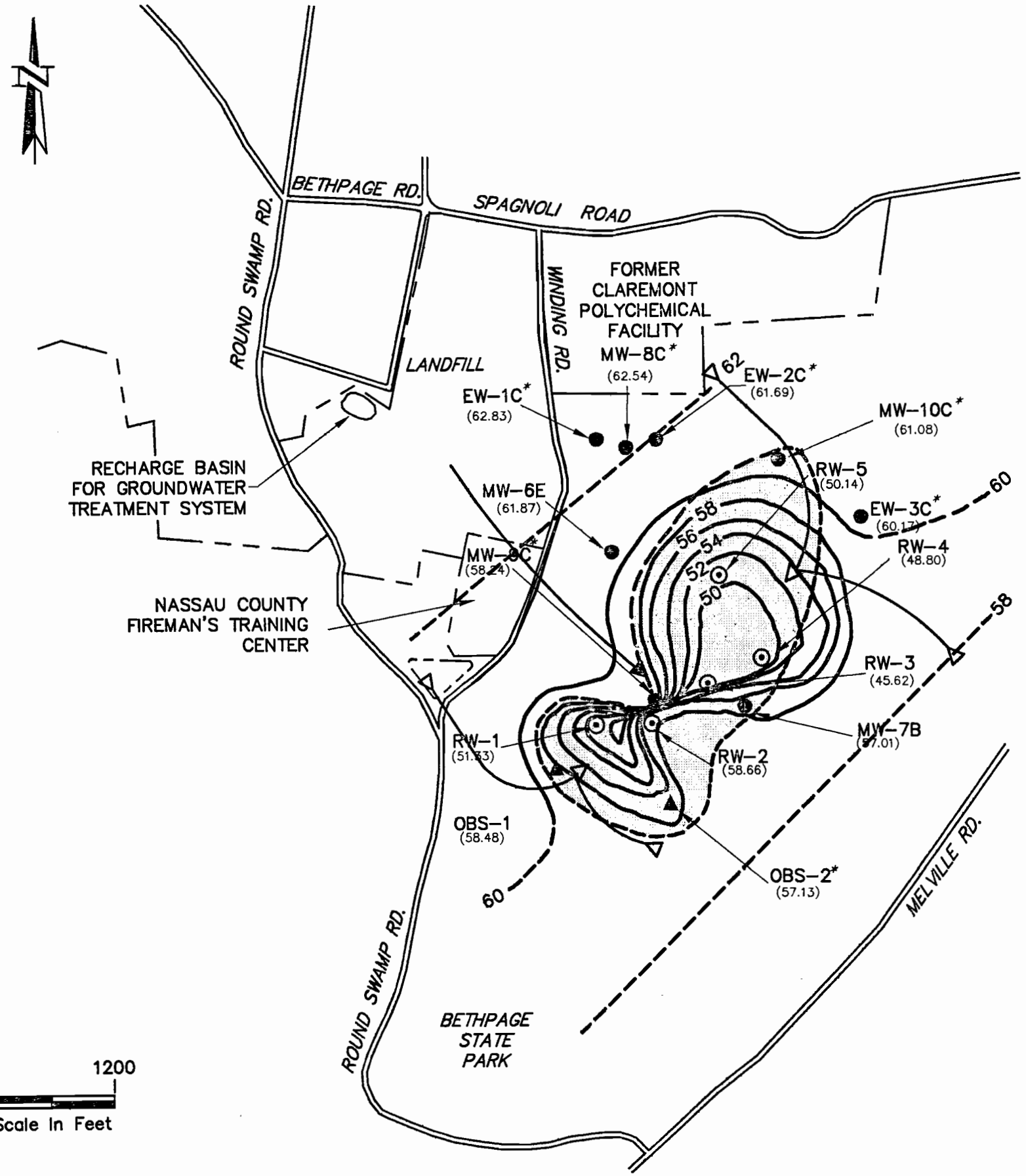
FIGURE 3



LEGEND

- MW-8C (64.00) ● — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- RW-4 ⊙ — *Recovery Well*
- OBS-2 ▲ — *Phase II Extension Well*
- ——— — — ——— — *Property Boundary*
- ——→ — *Limiting Flow Lines Depicting Effective Capture Zone*
- ——→ — *Groundwater Flow Direction*
- 60 ——— — *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- ⬭ — *Approximate Areal Extent Of The VOC Plume In The Deep Potentiometric Zone – April 2000*
- * — *Plume Extent Based On Third Quarter 1998 Data*

GROUNDWATER FLOW MAP
DEEP POTENTIOMETRIC
APRIL 25, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

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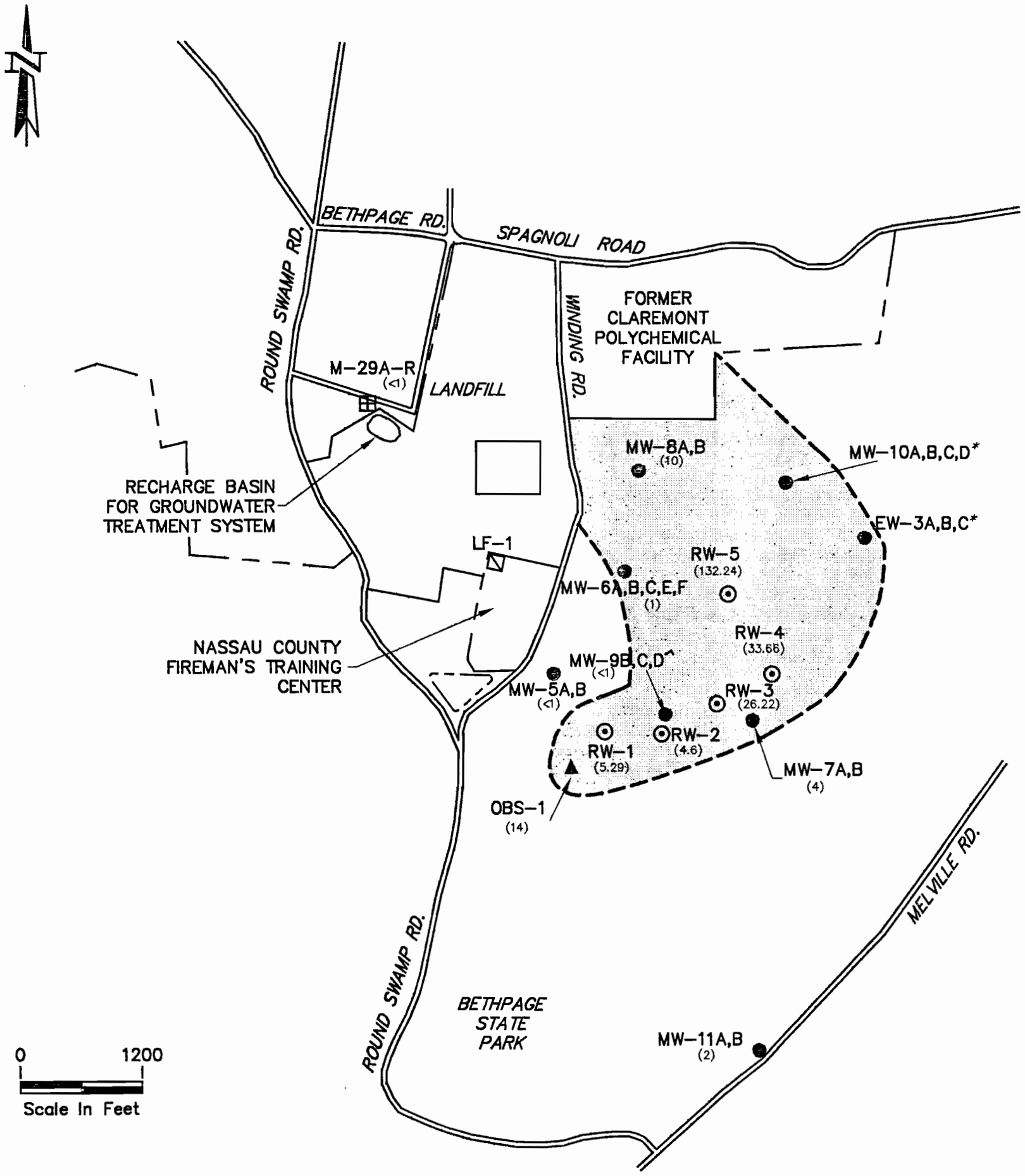
FIGURE 4



LEGEND

MW-5B (<1)	*Monitoring Well Location And Total Volatile Halogenated Organics Concentration, ppb*
RW-5	*Recovery Well*
OBS-2	*Phase II Extension Well*
LF-1	*Phase III Well*
M-29A-R	*Upgradient Well*
	Property Boundary
	Approximate Areal Extent Of The Volatile Halogenated Organic Plume

NOTE

Plume Contour Is Based On Total Volatile Halogenated Organics Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

^ *Plume Extent Based On Third Quarter 1999 Data.*

APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL VOLATILE HALOGENATED ORGANICS APRIL 2000

OLD BETHPAGE LANDFILL

TOWN OF OYSTER BAY

37458K
2000

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 1

WATER LEVEL MEASUREMENTS - JULY 11, 2000

WELL NUMBER	M.P. ELEVATION (feet above mean sea level)	DEPTH TO WATER FROM M.P. (feet):	G.W. ELEVATION (feet above mean sea level)
5A	137.13	74.85	62.28
5B	138.43	76.14	62.29
6A	160.24	98.22	62.02
6B	160.39	98.57	61.82
6C	159.99	98.11	61.88
6D	160.39	98.44	61.95
6E	160.88	99.03	61.85
6F	159.88	98.55	61.33
7A	148.44	89.35	59.09
7B	147.94	90.78	57.16
8A	134.94	72.91	62.03
8B	134.24	71.98	62.26
8C	135.72	72.93	62.79
9A	153.35	Dry	Not Available
9B	153.28	94.66	58.62
9C	153.53	95.99	57.54
9D	152.95	94.85	58.10
10A	161.28	98.85	62.43
10B	161.12	99.23	61.89
10C	160.27	98.46	61.81
10D	161.17	99.83	61.34
11A	80.19	25.35	54.84
11B	79.91	25.21	54.70
M-29A-R	157.50	88.43	69.07
M-29B	157.41	84.55	72.86
M-30A	151.20	90.61	60.59
M-30B-R	154.51	92.52	61.99
N-9980 (N-9936)	80.46	32.38	48.08
N-9880	Not Available	Not Available	
TW-3-R	133.93	70.91	63.02
EW-1A	130.09	66.96	63.13
EW-1B	130.65	67.52	63.13
EW-1C	130.60	67.38	63.22
EW-2A	157.14	94.70	62.44
EW-2B	157.61	95.03	62.58
EW-2C	157.54	95.00	62.54
EW-3A	159.24	97.56	61.68
EW-3B	159.36	98.06	61.30
EW-3C	159.25	97.93	61.32
LF-1	111.40	48.01	63.39
LF-2	118.70	55.36	63.34
LF-3	126.50	60.66	65.84
LF-4	149.93	83.59	66.34
OBS-1	110.61	52.35	58.26
OBS-2	105.26	48.46	56.80
RW-1 (1)	110.94	60.08	50.86
RW-2 (1)	145.31	97.23	48.08
RW-3 (1)	120.92	76.03	44.89
RW-4 (1)	144.82	94.93	49.89
RW-5	149.74	88.83	60.91
TW-1	121.12	53.27	67.85
TW-2	117.52	54.17	63.35
Farmingdale 1-3 (1)	77.3	67.00	10.30
Farmingdale 2-2 (1)	104.2	90.00	14.20
Farmingdale 2-3 (1)	113.2	67.00	46.20

Note:
(1) - Pumping level

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 2

GROUNDWATER REMEDIATION SYSTEM PUMPAGE RECORDS

JULY THROUGH SEPTEMBER 2000

DATE	ESTIMATED AVERAGE SYSTEM FLOW (GPM)	COMMENTS
July 1 - July 14	897	RW-5 off line for repairs
July 15	814	RW-5 off line for repairs; RW-1 off line 15 hrs.
July 16	664	RW-1 and RW-5 off line for repairs
July 17	882	RW-5 off line for repairs; RW-1 off line 10 hrs.
July 18 - August 19	918	RW-5 off line for repairs
August 20	812	RW-5 off line for repairs; RW-1 off line 15 hrs.
August 21	923	RW-5 off line for repairs; RW-1 off line 10 hrs.
August 22 - September 14	912	RW-5 off-line for repairs.
September 15	885	RW-5 off-line for repairs; RW-3 off-line 2 hours.
September 16 - September 30	690	RW-5 and RW-3 off-line for repairs.

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: PARAMETERS (Units- ppb)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6B DUPLICATE	MW-6C
TOTAL VOCs	0	0	0	20	26	17
AROMATIC HYDROCARBONS						
1,2-DICHLOROBENZENE	< 1	< 1	< 1	<1	<1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	4	4	6
1,4-DICHLOROBENZENE	< 1	< 1	< 1	2	2	2
BENZENE	< 1	< 1	< 1	9	6	3
CHLOROBENZENE	< 1	< 1	< 1	14	14	5
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	<1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	<1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	<1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS						
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE						
TETRACHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: PARAMETERS (Units- ppb)	MW-6E	MW-6F	MW-7B	MW-8A	MW-8B	MW-9B
TOTAL VOCs	3	0	109	47	0	0
AROMATIC HYDROCARBONS						
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	1	< 1	< 1	< 1	< 1	< 1
BENZENE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	1	< 1	< 1	1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS						
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	12	4	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE						
TETRACHLOROETHENE	< 1	< 1	97	40	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: PARAMETERS (Units- ppb)	MW-9C	MW-9D	MW-11A	MW-11B	OBS-1	OBS-2
TOTAL VOCs	0	95	2	0	50	0
AROMATIC HYDROCARBONS						
1,2-DICHLOROBENZENE	< 1	<1	< 1	< 1	< 1	<1
1,3-DICHLOROBENZENE	< 1	<1	< 1	< 1	1	<1
1,4-DICHLOROBENZENE	< 1	<1	< 1	< 1	1	<1
BENZENE	< 1	13	< 1	< 1	27	<1
CHLOROBENZENE	< 1	4	< 1	< 1	1	<1
ETHYLBENZENE	< 1	<1	< 1	< 1	< 1	<1
M-XYLENE	< 1	<1	< 1	< 1	< 1	<1
O-XYLENE	< 1	<1	< 1	< 1	< 1	<1
P-XYLENE	< 1	11	< 1	< 1	< 1	<1
TOLUENE	< 1	<1	< 1	< 1	< 1	<1
VOLATILE HALOGENATED HYDROCARBONS						
1,1,1-TRICHLOROETHANE	< 1	1	< 1	< 1	< 1	<1
1,1,2,2-TETRACHLOROETHANE	< 1	<1	< 1	< 1	< 1	<1
1,1,2-TRICHLOROETHANE	< 1	<1	< 1	< 1	< 1	<1
1,1-DICHLOROETHANE	< 1	11	< 1	< 1	< 1	<1
1,1-DICHLOROETHENE	< 1	1	< 1	< 1	< 1	<1
1,2-DICHLOROETHANE	< 1	1	< 1	< 1	< 1	<1
1,2-DICHLOROPROPANE	< 1	<1	< 1	< 1	< 1	<1
2-CHLOROETHYLVINYL ETHER	< 1	<1	< 1	< 1	< 1	<1
BROMODICHLOROMETHANE	< 1	<1	< 1	< 1	< 1	<1
BROMOFORM	< 1	<1	< 1	< 1	< 1	<1
BROMOMETHANE	< 1	<1	< 1	< 1	< 1	<1
CARBON TETRACHLORIDE	< 1	<1	< 1	< 1	< 1	<1
CHLORODIBROMOMETHANE	< 1	<1	< 1	< 1	< 1	<1
CHLOROETHANE	< 1	12	< 1	< 1	< 1	<1
CHLOROFORM	< 1	<1	< 1	< 1	< 1	<1
CHLOROMETHANE	< 1	<1	< 1	< 1	< 1	<1
CIS-1,2-DICHLOROETHENE	< 1	12	1	< 1	12	<1
CIS-1,3-DICHLOROPROPENE	< 1	<1	< 1	< 1	< 1	<1
DICHLORODIFLUOROMETHANE	< 1	17	< 1	< 1	< 1	<1
METHYLENE CHLORIDE	< 1	1	< 1	< 1	< 1	<1
TRANS-1,2-DICHLOROETHENE	< 1	1	< 1	< 1	< 1	<1
TRANS-1,3-DICHLOROPROPENE	< 1	<1	< 1	< 1	< 1	<1
TRICHLOROETHENE	< 1	2	1	< 1	1	<1
TRICHLOROFLUOROMETHANE	< 1	1	< 1	< 1	< 1	<1
VINYL CHLORIDE	< 1	4	< 1	< 1	1	<1
TETRACHLOROETHENE						
TETRACHLOROETHENE	< 1	3	< 1	< 1	6	<1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: / PARAMETERS (Units- ppb)	FIELD BLANK	TRIP BLANK #1	TRIP BLANK #2	TRIP BLANK #3	TRIP BLANK #4
TOTAL VOCs	0	0	0	0	0
AROMATIC HYDROCARBONS					
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1
BENZENE	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS					
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE					
TETRACHLOROETHENE	< 1	< 1	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6B DUPLICATE	MW-6C	MW-6E	MW-6F	MW-7B	MW-8A
ALUMINUM	<0.2	< 0.2	< 0.2	< 0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
AMMONIA (AS N)	0.1	1.3	0.16	112	112	53	30.9	0.13	<0.1	0.6
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	< 0.2	<0.2	< 0.2	< 0.2	< 0.2
BICARBONATE (AS CACO3)	22.6	46.9	<1	1030	1030	702	151	< 1	3.3	13.4
CALCIUM	18.2	11.6	0.71	34	35.1	42.8	18.2	28.6	5.05	18.6
CARBONATE (AS CACO3)	< 1	< 1	<1	< 1	<1	< 1	< 1	< 1	< 1	< 1
CHLORIDE	116	108	11.4	261	262	298	175	199	30.8	115
CHROMIUM	<0.01	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HARDNESS	90	88	4.15	232	220	180	83.2	120	26	78
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	0.2	0.09	0.1	30.9	31.9	12.8	0.62	0.08	0.41	< 0.02
KJELDAHL NITROGEN	0.3	1.1	0.16	113	102	57.5	27.6	<0.1	<0.1	0.8
LEAD (Units - ppb)	<5	< 5	< 5	< 5	<5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	9.53	11.9	0.58	32.9	34	11.4	9.2	11.9	2.85	5.02
MANGANESE	<0.2	1.78	0.02	0.38	0.39	0.21	0.46	0.06	0.04	0.44
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	< 0.2	< 0.2	0.41	< 0.2	< 0.2
NICKEL	<0.04	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
NITRATE (AS N)	6.2	<0.1	1.2	< 0.1	<0.1	< 0.1	< 0.1	0.52	2.9	5.7
POTASSIUM	7.29	9.46	12.3	128	134	79.9	36.8	2.73	0.92	21.7
SODIUM	46.7	51.9	7	238	248	274	58.9	45.4	13.1	93.6
SULFATE	13.9	13	< 5	< 5	<5	12.3	11.6	< 5	< 5	86.5
TOTAL ALKALINITY	22.6	46.9	10	1030	1030	702	151	< 1	3.3	13.4
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	< 10	<10	< 10	< 10	< 10	< 10	< 10
TOTAL DISSOLVED SOLIDS	292	328	149	261	32	357	622	640	121	470
TOTAL PHENOLS	<5	<5	<5	<5	5	<5	<5	<5	<5	<5
ZINC	< 0.02	< 0.02	< 0.02	< 0.02	<0.02	< 0.02	0.02	0.02	< 0.02	<0.02

NOTES:

ppm - parts per million

ppb - parts per billion

NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: PARAMETERS (Units- ppm)	MW-8B	MW-9B	MW-9C	MW-9D	MW-11A	MW-11B	OBS-1	LF-1	FIELD BLANK
ALUMINUM	< 0.2	< 0.2	< 0.2	0.94	< 0.2	< 0.2	< 0.2	NA	< 0.2
AMMONIA (AS N)	1.6	1.3	17.7	0.97	<0.1	<0.1	1.4	NA	<0.1
BARIUM	< 0.2	< 0.2	< 0.2	0.27	< 0.2	< 0.2	< 0.2	NA	< 0.2
BICARBONATE (AS CACO3)	26.5	10.1	56.9	<1.0	2	1.7	48.1	170	<1
CALCIUM	37	7.17	1.06	22.8	3.35	1.17	15.1	NA	< 0.2
CARBONATE (AS CACO3)	< 1	< 1	< 1	<1.0	< 1	< 1	< 1	< 1	< 1
CHLORIDE	168	46.3	108	255	6.1	4.3	89.7	192	<2
CHROMIUM	< 0.01	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	<0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
HARDNESS	142	40	10	134	24	18	106	136	<5
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	<0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
IRON	0.17	0.05	0.07	1.13	0.05	<0.02	0.23	NA	< 0.02
KJELDAHL NITROGEN	1.6	1.3	16.4	1.3	<0.10	0.14	1.4	16.9	<0.1
LEAD (Units - ppb)	< 5	< 5	< 5	<5	< 5	< 5	< 5	NA	< 5
MAGNESIUM	10.7	4.75	1.43	16.8	1.1	0.58	16.6	NA	< 0.2
MANGANESE	1.03	0.12	0.03	0.12	1.91	<0.02	0.85	NA	<0.02
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	3.8	<0.2	< 0.2	< 0.2	NA	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	< 0.04	< 0.04	NA	< 0.04
NITRATE (AS N)	< 0.1	4.1	< 0.1	<0.10	4.4	1	1.1	< 0.1	< 0.1
POTASSIUM	17.6	6.32	24.6	4.32	0.85	0.5	5.3	NA	<0.04
SODIUM	61.7	21.4	51.4	98.2	5.6	3.37	50.1	NA	0.58
SULFATE	25.4	9.4	9.2	<5.0	< 5	< 5	33	11.6	<5
TOTAL ALKALINITY	26.5	10.1	56.9	<1.0	2	1.7	48.1	170	<1
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	<10.0	< 10	< 10	< 10	< 10	< 10
TOTAL DISSOLVED SOLIDS	543	157	222	607	154	197	474	582	<10
TOTAL PHENOLS	<5	<5	<5	<5.0	<5	<5	<5	<5	<5
ZINC	0.04	< 0.02	< 0.02	0.08	< 0.02	< 0.02	< 0.02	NA	< 0.02

NOTES:

ppm - parts per million

ppb - parts per billion

NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: / PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6B DUPLICATE	MW-6C	MW-6E	MW-6F	MW-7B
ALUMINUM	< 0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	< 0.2	< 0.2
CALCIUM	17	11	0.98	36.8	33.3	41.4	17.6	27.8	5
CHROMIUM	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	< 0.02	0.06	0.03	5.6	2.6	0.12	0.03	0.03	< 0.02
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	9	11.2	0.66	34.3	32.4	11.3	8.5	11.6	2.9
MANGANESE	<0.02	1.6	0.02	0.38	0.35	0.2	0.44	0.06	0.04
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.26	< 0.2
NICKEL	<0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	7.2	10	11.4	134	125	77.3	34.4	2.6	0.99
SODIUM	45.4	50.5	7	256	233	264	54.3	44	14
ZINC	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	<0.02	0.02	<0.02

NOTES:

ppm - parts per million

ppb - part per billion

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

SAMPLE ID: / PARAMETERS (Units- ppm)	MW-8A	MW-8B	MW-9B	MW-9C	MW-9D	MW-11A	MW-11B	OBS-1	FIELD BLANK
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	0.89	<0.2	< 0.2	0.38	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	0.26	<0.2	< 0.2	< 0.2	< 0.2
CALCIUM	18.4	35.6	7.1	1.1	22.2	3.2	1.3	15.6	0.28
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	<0.02	< 0.02	< 0.02	< 0.02	0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	<0.02	< 0.02	< 0.02	< 0.02	<0.02
IRON	< 0.02	0.15	< 0.02	0.02	1	0.03	< 0.02	0.18	0.02
LEAD (Units - ppb)	< 5	5	< 5	< 5	<5.0	< 5	<0.02	< 5	< 5
MAGNESIUM	5	10.6	4.7	1.4	16.3	1.8	0.62	16.4	< 0.2
MANGANESE	0.44	0.99	0.12	0.03	0.12	<0.02	<0.02	0.85	<0.02
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	1.7	< 0.2	< 0.2	< 0.2	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	22	17.8	6.2	23.5	4.2	0.76	0.49	5.3	< 0.2
SODIUM	94.3	62.4	21.2	49.1	95.4	5.1	3.5	49.8	1.5
ZINC	<0.02	0.04	< 0.02	< 0.02	0.08	< 0.02	<5.0	< 0.02	< 0.02

NOTES:

ppm - parts per million

ppb - part per billion

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 6

RECOVERY WELL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
THIRD QUARTERLY SAMPLING ROUND - JULY 2000

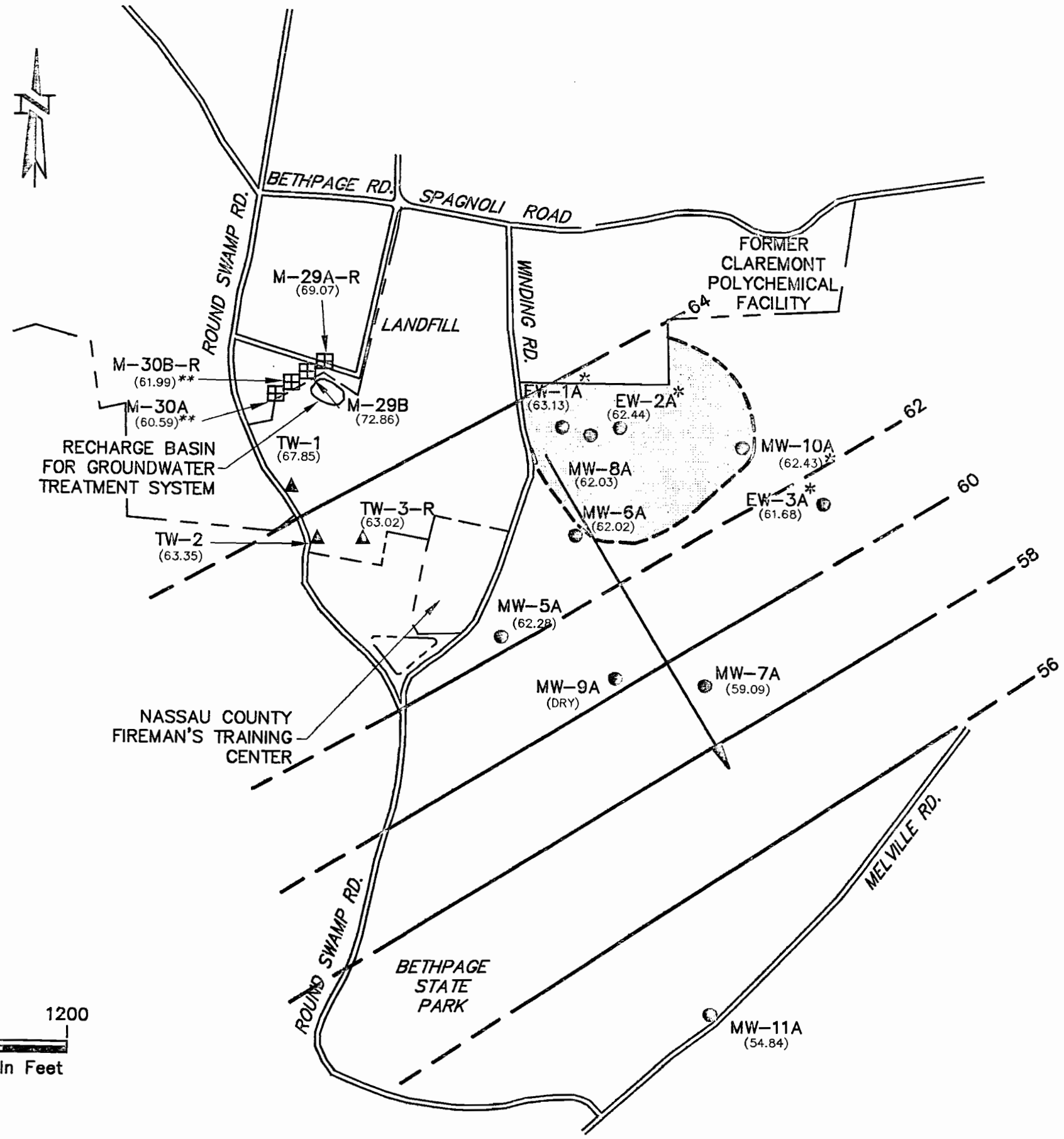
SAMPLE DESIGNATION: / SAMPLE COLLECTION DATE:	RW-1 07/18/2000	RW-2 07/18/2000	RW-3 07/18/2000	RW-4 07/18/2000	RW-5 07/18/2000
Benzene	0.46	0.72	1.17	0.14	*
Bromodichloromethane	ND	ND	ND	ND	*
Bromoform	ND	ND	ND	ND	*
Carbon tetrachloride	ND	ND	ND	ND	*
Chlorobenzene	0.73	0.74	0.71	0.35	*
Chlorodibromomethane	ND	ND	ND	ND	*
Chloroethane	ND	0.16	0.31	0.02	*
Chloroform	ND	ND	ND	0.45	*
o,p-Dichlorobenzene	3.02	2.27	1.98	0.76	*
m,o,p-Dichlorobenzene	3.02	2.27	1.98	0.76	*
1,1-Dichloroethane	0.58	0.51	1.45	ND	*
1,2-Dichloroethane	ND	ND	ND	ND	*
1,1-Dichloroethene	ND	0.02	0.05	0.31	*
cis-1,2-Dichloroethene	2.26	2.15	13.96	3.91	*
trans-1,2-Dichloroethene	0.04	0.03	0.07	ND	*
1,2-Dichloropropane	ND	ND	ND	ND	*
Ethylbenzene	ND	ND	ND	ND	*
Methylene chloride	ND	ND	0.10	ND	*
Tetrachloroethene	0.48	0.31	17.05	41.78	*
Toluene	0.02	0.01	0.01	ND	*
1,1,1-Trichloroethane	ND	0.10	0.29	0.97	*
Trichloroethylene	0.32	0.37	1.61	25.11	*
Vinyl chloride	0.73	0.11	0.87	0.06	*
o-Xylene	ND	ND	ND	ND	*
m+p-Xylene	0.03	0.03	0.03	0.05	*
Xylenes (total)	0.03	0.03	0.03	0.05	*
Dichlorodifluoromethane	0.03	0.02	0.04	0.01	*
Isopropylbenzene	0.13	0.19	0.34	0.10	*
n-Butylbenzene	0.17	0.27	0.31	0.07	*
tert-Butylbenzene	0.18	0.07	0.08	0.08	*
Total VOCs	9.18	8.08	40.43	74.17	*

Notes:

All concentrations in ppb.

ND - Not detected

* RW-5 was off-line when samples were collected.



LEGEND

- MW-5A (62.71) — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- TW-2 — *Phase II Extension Well*
- M-29A — *Upgradient Well*
- — — — — *Property Boundary*
- ——→ *Groundwater Flow Direction*
- 60 —— *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- *Approximate Areal Extent Of The VOC Plume In Water Table Wells – July 2000*
- ** *Anomalous Water Level Elevation*
- * *Plume Extent Based On Third Quarter 1998 Data.*

GROUNDWATER FLOW MA
WATER TABLE
JULY 11, 2000
OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

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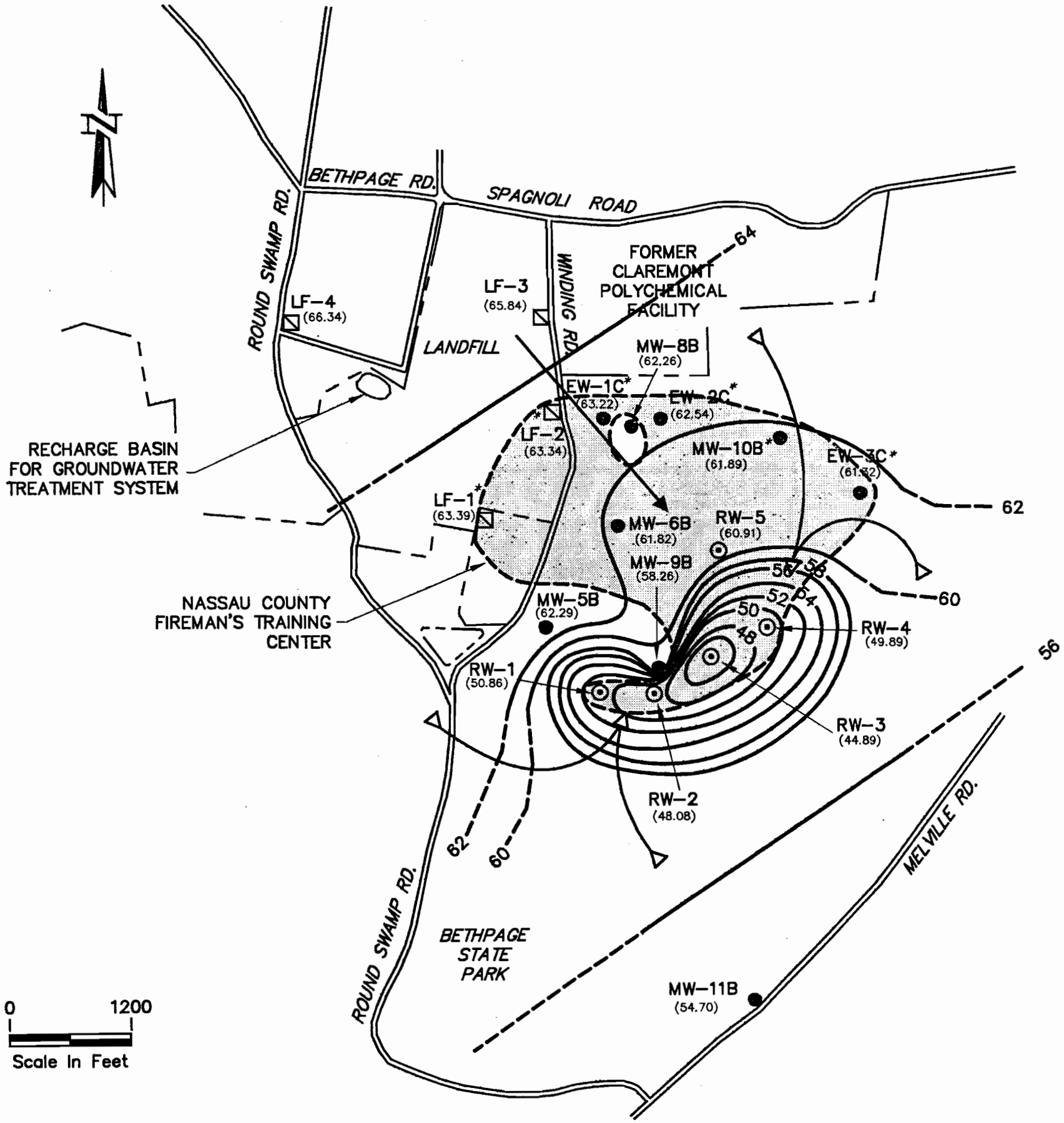
082900



LEGEND

- MW-5B (62.70) ● — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- RW-5 ⊙ — *Recovery Well*
- LF-2 ⊠ — *Phase III Well*
- ——▷ — *Limiting Flow Lines Depicting Effective Capture Zones*
- ——→ — *Groundwater Flow Direction*
- 60 —— — *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- — — — — *Property Boundary*
- ⬭ — *Approximate Areal Extent Of The VOC Plume In Shallow Potentiometric Zone July 2000.*
- * — *Plume Extent Based On Third Quarter 1998 Data.*

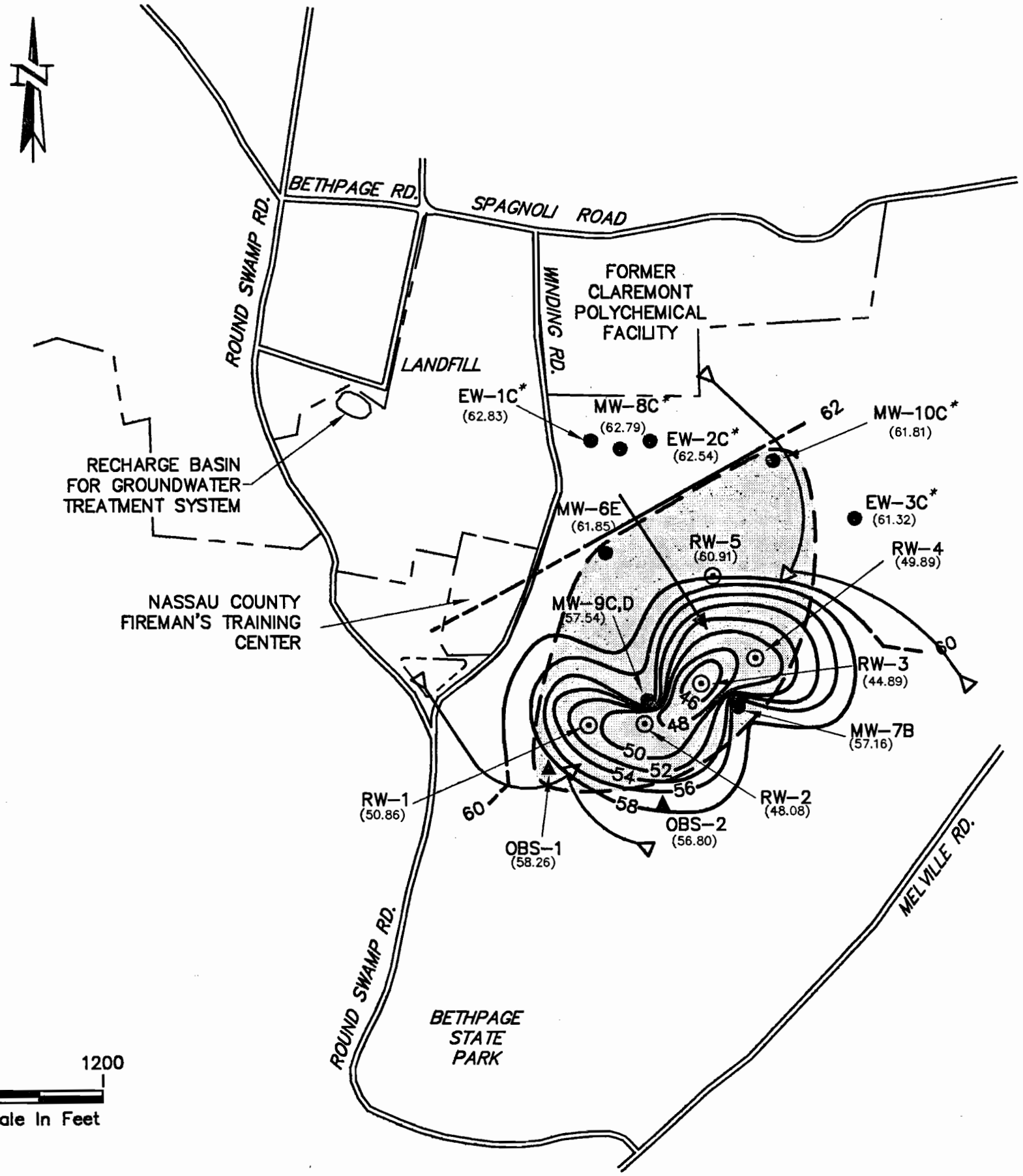
GROUNDWATER FLOW MAP SHALLOW POTENTIOMETRIC JULY 11, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

SN374580
092800

Gannett Fleming

FIGURE 3



LEGEND

MW-8C (64.00) ●	*Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
RW-4 ⊙	*Recovery Well*
OBS-2 ▲	*Phase II Extension Well*
— — — —	*Property Boundary*
→	*Limiting Flow Lines Depicting Effective Capture Zone*
→	*Groundwater Flow Direction*
60 ——	*Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
⬭	*Approximate Areal Extent Of The VOC Plume In The Deep Potentiometric Zone – July 2000*
*	*Plume Extent Based On Third Quarter 1998 Data*

GROUNDWATER FLOW MAP
DEEP POTENTIOMETRIC
JULY 11, 2000

OLD BETHPAGE LANDFILL

TOWN OF OYSTER BAY

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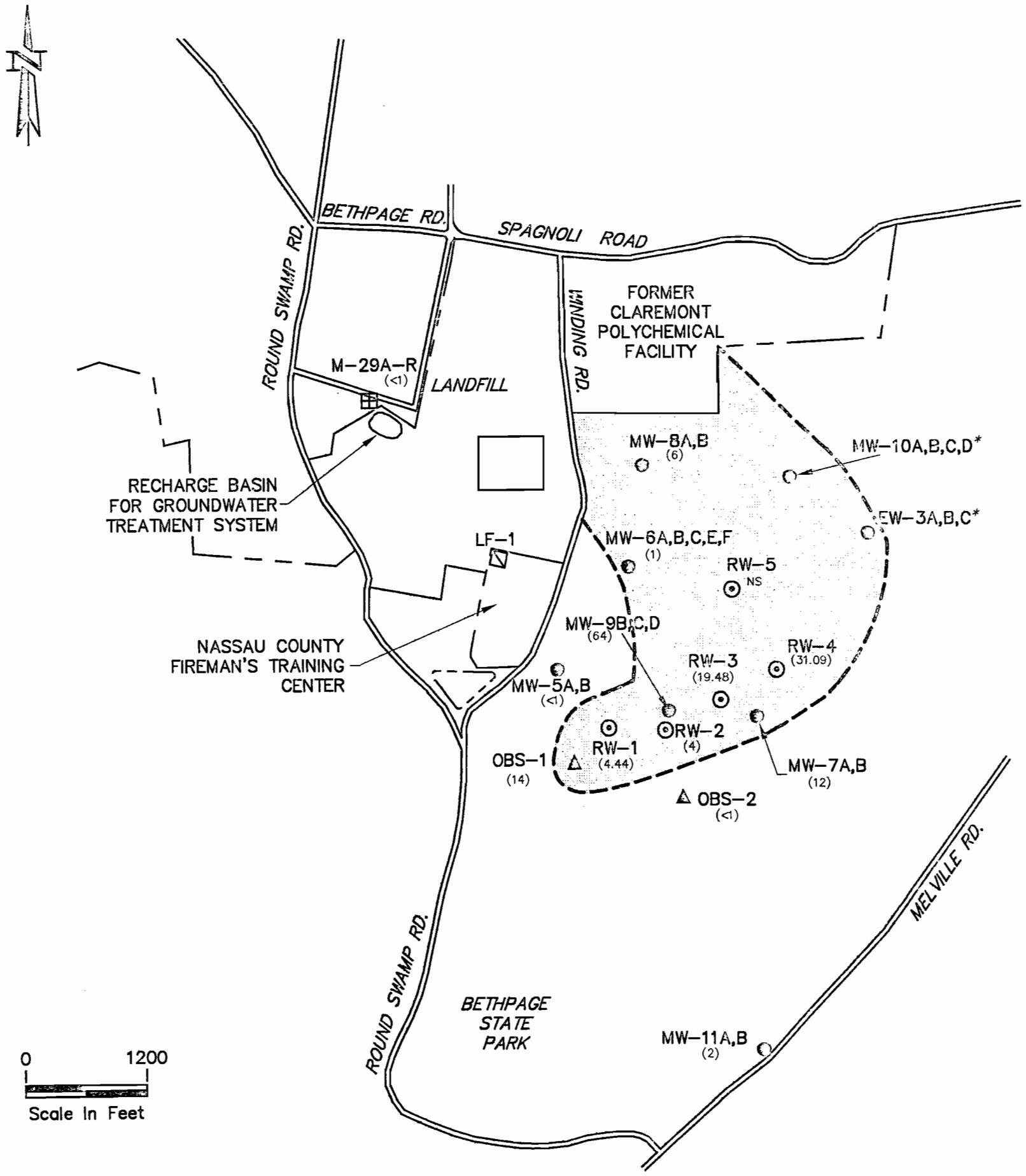
092800



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090500

LEGEND

- MW-5B (<1) — *Monitoring Well Location And Total Volatile Halogenated Organics Concentration, ppb*
- RW-5 — *Recovery Well*
- OBS-2 — *Phase II Extension Well*
- LF-1 — *Phase III Well*
- M-29A-R — *Upgradient Well*
- *Property Boundary*
- *Approximate Areal Extent Of The Volatile Halogenated Organic Plume*

NOTE

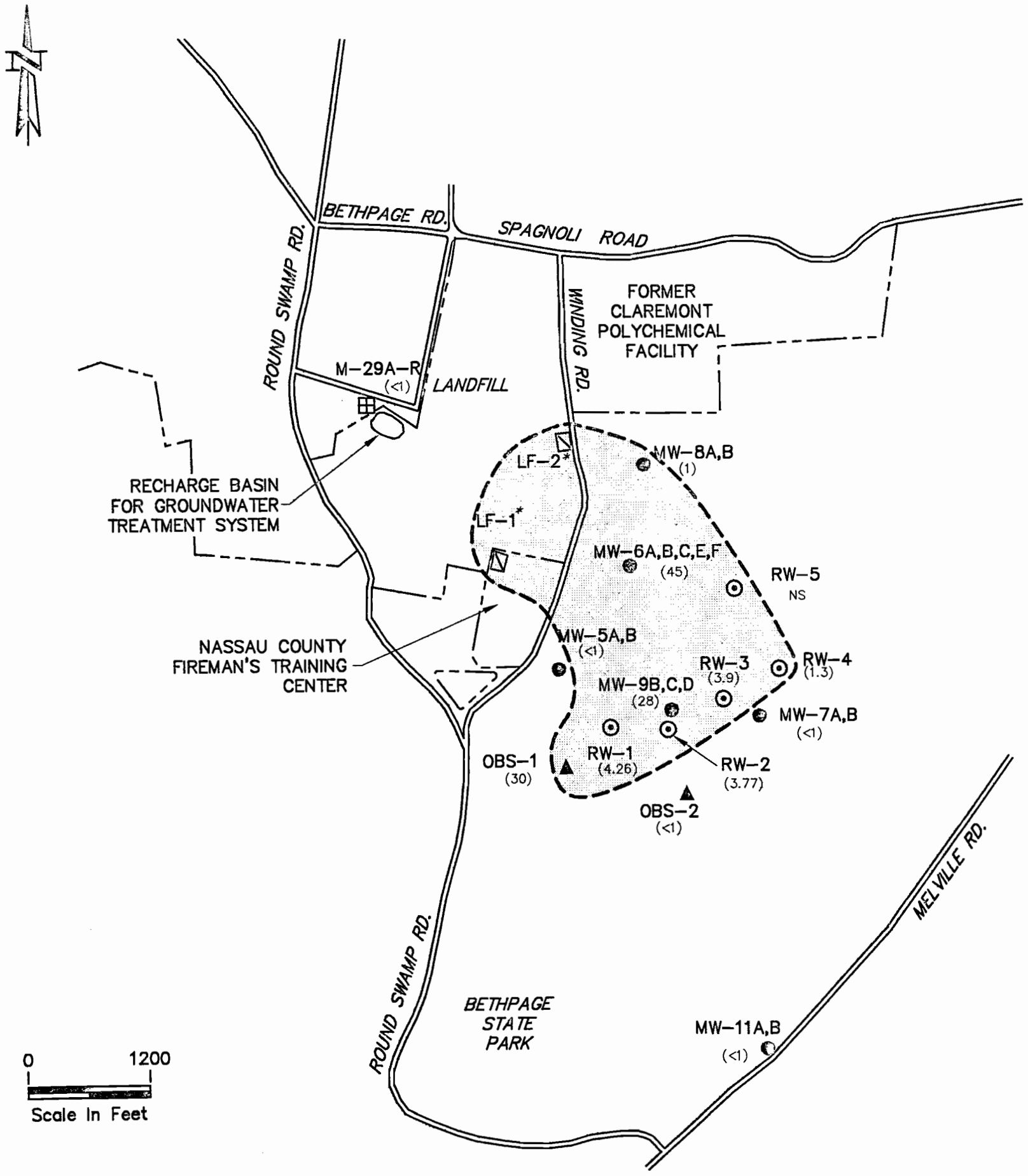
Plume Contour Is Based On Total Volatile Halogenated Organics Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

NS – Recovery Well Off-line When Samples Were Collected.

APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL VOLATILE HALOGENATED ORGANICS JULY 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY



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LEGEND

MW-5B (<1)	*Monitoring Well Location And Total Aromatic Hydrocarbon Concentration, ppb*
RW-4	*Recovery Well*
OBS-1	*Phase II Extension Well*
LF-1	*Phase III Well*
M-29A-R	*Upgradient Well*
———	*Property Boundary*
	Approximate Areal Extent Of The Aromatic Hydrocarbon Plume

NOTE

Plume Contour Is Based On Total Aromatic Hydrocarbon Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quater 1998 Data*

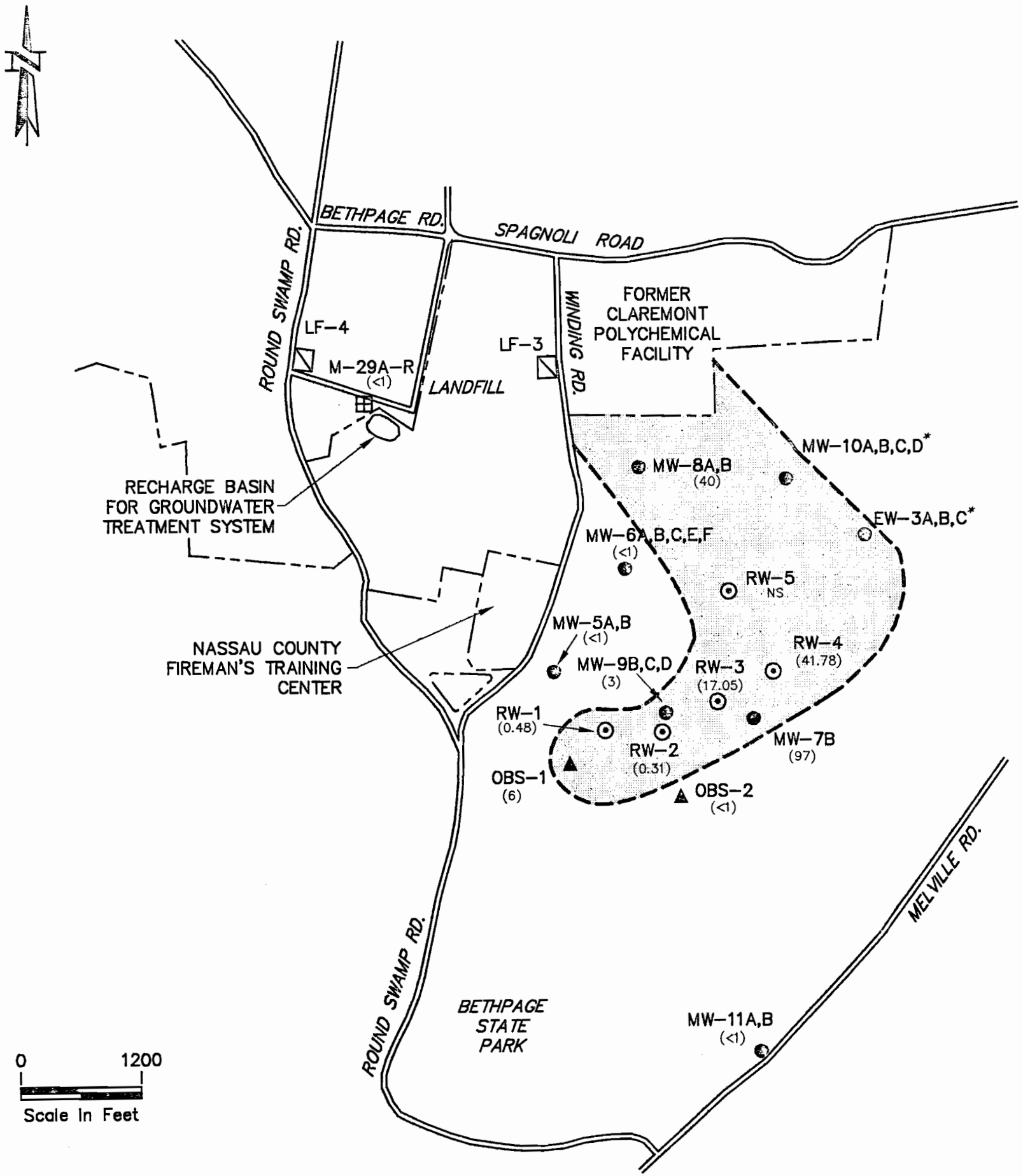
NS – Recovery Well Off-line When Samples Were Collected.

APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL AROMATIC HYDROCARBONS JULY 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

Dunnett Fleming

FIGURE 6



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090500

LEGEND

MW-5B (<1)	*Monitoring Well Location And Tetrachloroethene Concentration, ppb*
RW-4	*Recovery Well*
OBS-1	*Phase II Extension Well*
LF-3	*Phase III Well*
M-29A-R	*Upgradient Well*
———	*Property Boundary*
	Approximate Areal Extent Of The Tetrachloroethene Plume

NOTE

Plume Contour Is Based On Tetrachloroethene Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

NS – Recovery Well Off-line When Samples Were Collected.

APPROXIMATE EXTENT AND DISTRIBUTION OF TETRACHLOROETHENE JULY 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

Gannett Fleming

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 1

WATER LEVEL MEASUREMENTS - OCTOBER 4, 2000

WELL NUMBER	M.P. ELEVATION (feet above mean sea level)	DEPTH TO WATER FROM M.P. (feet):	G.W. ELEVATION (feet above mean sea level)
5A	137.13	74.85	62.28
5B	138.43	76.17	62.26
6A	160.24	98.03	62.21
6B	160.39	98.38	62.01
6C	159.99	98.81	61.18
6D	160.39	98.16	62.23
6E	160.88	98.79	62.09
6F	159.88	98.17	61.71
7A	148.44	89.41	59.03
7B	147.94	89.94	58.00
8A	134.94	72.99	61.95
8B	134.24	71.90	62.34
8C	135.72	72.60	63.12
9A	153.35	Dry	Not Available
9B	153.28	94.43	58.85
9C	153.53	95.55	57.98
9D	152.95	94.41	58.54
10A	161.28	98.89	62.39
10B	161.12	99.12	62.00
10C	160.27	98.23	62.04
10D	161.17	99.30	61.87
11A	80.19	25.74	54.45
11B	79.91	25.57	54.34
M-29A-R	157.50	88.30	69.20
M-29B	157.41	84.42	72.99
M-30A	151.20	90.69	60.51
M-30B-R	154.51	92.47	62.04
N-9980 (N-9936)	80.46	32.24	48.22
N-9880	Not Available	Not Available	Not Available
TW-3-R	133.93	70.64	63.29
EW-1A	130.09	66.93	63.16
EW-1B	130.65	67.52	63.13
EW-1C	130.60	67.17	63.43
EW-2A	157.14	94.72	62.42
EW-2B	157.61	95.00	62.61
EW-2C	157.54	94.95	62.59
EW-3A	159.24	97.82	61.42
EW-3B	159.36	97.99	61.37
EW-3C	159.25	97.85	61.40
LF-1	111.40	47.66	63.74
LF-2	118.70	55.15	63.55
LF-3	126.50	59.83	66.67
LF-4	149.93	83.29	66.64
OBS-1	110.61	52.25	58.36
OBS-2	105.26	48.28	56.98
RW-1 (1)	110.94	60.58	50.36
RW-2 (1)	145.31	98.10	47.21
RW-3	120.92	62.08	58.84
RW-4 (1)	144.82	95.81	49.01
RW-5	149.74	88.15	61.59
TW-1	121.12	53.76	67.36
TW-2	117.52	53.83	63.69
Farmingdale 1-3 (1)	77.3	67.00	10.30
Farmingdale 2-2 (1)	104.2	Out of Service	104.20
Farmingdale 2-3 (1)	113.2	67.00	46.20

Note:
(1) - Pumping level

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 2

GROUNDWATER REMEDIATION SYSTEM PUMPAGE RECORDS

OCTOBER THROUGH DECEMBER 2000

DATE	ESTIMATED AVERAGE SYSTEM FLOW (GPM)	COMMENTS
October 1 - November 12	725	RW-3 & RW-5 off-line.
November 13	373	RW-3 & RW-5 off line for 13hrs. GTF off-line 11hrs.
November 14	228	GTF off-line 17hrs. RW-5 off-line 7hrs.
November 15-December 7	910	RW-5 off line.
December 8	842	RW-5 off line. RW-1 off-line 8hrs.
December 9 - 10	766	RW-1 & RW-5 off line.
December 11	753	RW-5 off line. RW-1 off line 12 hrs.
December 12	700	RW-1 off-line 4hrs. RW-5 off-line 20hrs. GTF off-line 4 hrs.
December 13	750	RW-1 off-line 10hrs. RW-2 off-line 9hrs. RW-5 off-line.
December 14-24	909	RW-5 off-line.
December 25	0	GTF off-line for holiday.
December 26-30	889	RW-5 off-line
December 31	800	RW-5 off-line; GTF off-line 3hrs.

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TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCS)
FOURTH QUARTER SAMPLING ROUND- OCTOBER 2000

SAMPLE ID: PARAMETERS (Units- ppb)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C
TOTAL VOCs	0	0	0	17	15
AROMATIC HYDROCARBONS					
1,2-DICHLOROBENZENE	< 1	< 1	< 1	<1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	1	2
1,4-DICHLOROBENZENE	< 1	< 1	< 1	2	5
BENZENE	< 1	< 1	< 1	2	3
CHLOROBENZENE	< 1	< 1	< 1	11	5
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	1	< 1
O-XYLENE	< 1	< 1	< 1	<1	< 1
P-XYLENE	< 1	< 1	< 1	<1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS					
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE					
TETRACHLOROETHENE	< 1	< 1	< 1	< 1	< 1

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TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCS)
FOURTH QUARTER SAMPLING ROUND- OCTOBER 2000

SAMPLE ID: PARAMETERS (Units- ppb)	MW-6E	MW-6F	MW-7B	MW-8A	MW-8A DUPLICATE	MW-8B
TOTAL VOCs	0	0	76	27	28	0
AROMATIC HYDROCARBONS						
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
BENZENE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS						
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	<1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	<1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	10	1	1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE						
TETRACHLOROETHENE	< 1	< 1	66	26	27	< 1

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TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCS)
FOURTH QUARTER SAMPLING ROUND- OCTOBER 2000

SAMPLE ID: / PARAMETERS (Units- ppb)	MW-9B	MW-9C	MW-11A	MW-11B	OBS-1
TOTAL VOCs	0	0	0	0	51
AROMATIC HYDROCARBONS					
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	1
BENZENE	< 1	< 1	< 1	< 1	27
CHLOROBENZENE	< 1	< 1	< 1	< 1	1
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS					
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	13
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1	< 1	1
TETRACHLOROETHENE					
TETRACHLOROETHENE	< 1	< 1	< 1	< 1	6

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TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 3

GROUNDWATER ANALYTICAL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCS)
FOURTH QUARTER SAMPLING ROUND- OCTOBER 2000

SAMPLE ID: PARAMETERS (Units- ppb)	FIELD BLANK 10/6/00	TRIP BLANK #1 10/5/00	TRIP BLANK #2 10/6/00
TOTAL VOCs	0	0	0
AROMATIC HYDROCARBONS			
1,2-DICHLOROBENZENE	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1
BENZENE	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1
ETHYLBENZENE	< 1	< 1	< 1
M-XYLENE	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1
P-XYLENE	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1
VOLATILE HALOGENATED HYDROCARBONS			
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1
BROMOMETHANE	< 1	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1
CHLORODIBROMOMETHANE	< 1	< 1	< 1
CHLOROETHANE	< 1	< 1	< 1
CHLOROFORM	< 1	< 1	< 1
CHLOROMETHANE	< 1	< 1	< 1
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 1	< 1	< 1
METHYLENE CHLORIDE	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 1	< 1	< 1
VINYL CHLORIDE	< 1	< 1	< 1
TETRACHLOROETHENE			
TETRACHLOROETHENE	< 1	< 1	< 1

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
FOURTH QUARTER SAMPLING ROUND - OCTOBER 2000

SAMPLE ID: PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E	MW-6F	MW-7B	MW-8A	MW-8A DUPLICATE
CHLORIDE	113	116	36.7	270	302	153	163	32.3	127	128
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
CARBONATE (AS CACO3)	< 1	< 1	<1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
BICARBONATE (AS CACO3)	20.1	44.8	5.8	924	716	92	< 1	4	9.6	9.7
AMMONIA (AS N)	< 0.10	0.81	0.16	119	59.7	19.6	0.24	<0.1	3.4	3.3
NITRATE (AS N)	5.6	<0.1	1.5	< 0.1	< 0.1	< 0.1	0.41	2.8	10.1	9.6
TOTAL PHENOLS (Units - ppb)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
SULFATE	19.8	15.7	< 5	< 5	11.7	14.3	< 5	< 5	65.6	69.4
TOTAL ALKALINITY	20.1	44.8	5.8	924	717	92	< 1	4	9.6	9.1
TOTAL DISSOLVED SOLIDS	388	427	124	1830	1910	689	505	141	614	608
KJELDAHL NITROGEN	0.13	1.2	0.37	148	79.4	19.5	4.3	<0.1	4	4.6
HARDNESS	85	80.9	7.92	188	165	109	119	25.9	69.7	79.5
ALUMINUM	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
CALCIUM	18.9	12.5	1.2	29.8	46.5	25	28.9	5.6	19.2	21.8
CHROMIUM	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	0.06	0.12	0.06	25.7	12.2	0.87	0.09	0.1	< 0.02	0.03
LEAD (Units - ppb)	<5	7	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	9.2	12.1	1.2	27.8	11.8	11.4	11.5	2.9	5.3	6.1
MANGANESE	<0.2	2.2	0.05	0.28	0.19	0.61	0.06	0.05	0.53	0.6
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.31	< 0.2	< 0.2	0.29
NICKEL	<0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	8.5	8.8	12.5	111	82.8	31.1	2.7	0.94	31.4	35.4
SODIUM	54	57.9	14.4	195	272	49.6	44.7	14.6	75.2	86.8
ZINC	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.05	< 0.02	< 0.02	< 0.02	<0.02

NOTES:

ppm - parts per million

ppb - parts per billion

NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 4

GROUNDWATER ANALYTICAL SAMPLING RESULTS - TOTAL (UNFILTERED) METALS AND LEACHATE INDICATORS
FOURTH QUARTER SAMPLING ROUND - OCTOBER 2000

SAMPLE ID: PARAMETERS (Units- ppm)	MW-8B	MW-9B	MW-9C	MW-11A	MW-11B	OBS-1	LF-1	FIELD BLANK
CHLORIDE	158	44.5	123	6	4.4	82.3	258	<2
TOTAL CYANIDE (Units - ppb)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
CARBONATE (AS CACO3)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
BICARBONATE (AS CACO3)	10	7.3	69	2	1	47.6	228	<1
AMMONIA (AS N)	2.7	0.59	20.3	0.1	<0.1	2.6	NA	0.13
NITRATE (AS N)	< 0.1	5	< 0.1	4.4	0.98	1	< 0.1	< 0.1
TOTAL PHENOLS (Units - ppb)	<5	<5	<5	<5	<5	<5	<5	<5
SULFATE	24.7	10.7	11.7	< 5	< 5	37.2	10.7	<5
TOTAL ALKALINITY	10	7.3	69	2	1	47.6	228	<1
TOTAL DISSOLVED SOLIDS	540	214	470	68	30	465	893	<10
KJELDAHL NITROGEN	1.9	1	24.9	0.17	< 0.10	1.9	33	0.1
HARDNESS	130	41.4	10.2	15.9	5.63	102	158	< 1.32
ALUMINUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2
CALCIUM	33.5	8.2	1.3	3.4	1.3	15.3	NA	< 0.2
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02
IRON	0.2	0.02	0.07	<0.02	<0.02	0.09	NA	0.03
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	NA	< 5
MAGNESIUM	11.4	5.1	1.7	1.8	0.58	15.6	NA	< 0.2
MANGANESE	1.2	0.13	0.04	< 0.02	<0.02	0.73	NA	<0.02
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.20	< 0.2	< 0.2	NA	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	NA	< 0.04
POTASSIUM	18.9	6.3	25.4	0.9	0.54	5.2	NA	< 0.20
SODIUM	54.3	22.3	52.7	5.5	3.9	50.2	NA	< 0.20
ZINC	0.06	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	< 0.02

NOTES:

ppm - parts per million
ppb - parts per billion
NA - Not analyzed

TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
FOURTH QUARTER SAMPLING ROUND - OCTOBER 2000

SAMPLE ID: PARAMETERS (Units- ppm)	M-29A-R	MW-5B	MW-6A	MW-6B	MW-6C	MW-6E	MW-6F	MW-7B
ALUMINUM	< 0.2	<0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
BARIUM	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	<0.2	< 0.2	< 0.2
CALCIUM	17.2	10.5	1.6	26.2	43.5	23.8	30	5.3
CHROMIUM	< 0.01	< 0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.03	< 0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
IRON	< 0.02	< 0.02	< 0.02	0.04	0.08	< 0.02	0.06	< 0.02
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	8.9	10.5	1.2	24.7	11.4	10.5	11.9	2.9
MANGANESE	<0.02	1.8	0.05	0.22	0.17	0.55	0.06	0.07
MERCURY (Units - ppb)	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.28	< 0.2
NICKEL	<0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	7.9	7.8	12.1	97.6	78.5	27.8	2.9	1
SODIUM	44.8	45.5	14.8	171	256	45.5	44.7	14.4
ZINC	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	<0.02	0.03	<0.02

NOTES:
pp parts per million
pp part per billion

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TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 5

GROUNDWATER ANALYTICAL SAMPLING RESULTS - DISSOLVED (FILTERED) METALS AND LEACHATE INDICATORS
FOURTH QUARTER SAMPLING ROUND - OCTOBER 2000

SAMPLE ID: PARAMETERS (Units- ppm)	MW-8A	MW-8A DUPLICATE	MW-8B	MW-9B	MW-9C	MW-9D	MW-11A	MW-11B	OBS-1	FIELD BLANK
ALUMINUM	< 0.2	< 0.20	< 0.2	< 0.2	< 0.2	0.89	<0.2	< 0.2	< 0.20	< 0.2
BARIUM	< 0.2	< 0.20	< 0.2	< 0.2	< 0.2	0.26	<0.2	< 0.2	< 0.2	< 0.2
CALCIUM	19.1	18.2	31.6	8.1	1.5	22.2	3.5	1.2	16.1	< 0.20
CHROMIUM	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01
COPPER	< 0.02	0.04	< 0.02	0.05	0.03	<0.02	0.03	0.04	0.03	0.02
HEXAVALENT CHROMIUM	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	<0.02
IRON	< 0.02	< 0.02	< 0.02	< 0.02	0.03	1	< 0.02	0.02	0.07	0.04
LEAD (Units - ppb)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
MAGNESIUM	5.6	5.3	11.3	5	1.8	16.3	1.9	0.56	16	< 0.2
MANGANESE	0.52	0.5	1.2	0.14	0.04	0.12	<0.02	<0.02	0.73	<0.02
MERCURY (Units - ppb)	< 0.2	< 0.20	< 0.2	< 0.2	< 0.2	1.7	< 0.2	< 0.2	< 0.2	< 0.2
NICKEL	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	<0.04	< 0.04	< 0.04	< 0.04	< 0.04
POTASSIUM	30.9	30.9	18	6.1	24.3	4.2	1	0.51	5.2	< 0.2
SODIUM	69.2	67.8	48.1	20.4	46.2	95.4	6	3.5	51	0.56
ZINC	0.03	0.04	0.07	0.04	0.03	0.08	0.03	0.03	< 0.02	< 0.02

NOTES:
pp parts per million
pp part per billion

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TOWN OF OYSTER BAY
OLD BETHPAGE LANDFILL
OLD BETHPAGE, NEW YORK

TABLE 6

RECOVERY WELL SAMPLING RESULTS - VOLATILE ORGANIC COMPOUNDS
FOURTH QUARTERLY SAMPLING ROUND - OCTOBER 2000

SAMPLE DESIGNATION: / SAMPLE COLLECTION DATE:	RW-1 10/03/00	RW-2 10/03/00	RW-3 10/03/00	RW-4 10/03/00	RW-5 10/03/00
Benzene	0.49	0.82	1.51	0.16	*
Bromodichloromethane	ND	ND	ND	ND	*
Bromoform	ND	ND	0.01	ND	*
Carbon tetrachloride	ND	ND	ND	ND	*
Chlorobenzene	0.81	0.90	1.08	0.14	*
Chlorodibromomethane	ND	ND	ND	ND	*
Chloroethane	0.24	ND	0.35	ND	*
Chloroform	ND	ND	0.05	0.58	*
o,p-Dichlorobenzene	1.58	1.21	4.81	0.91	*
m,o,p-Dichlorobenzene	1.58	1.21	4.94	0.91	*
1,1-Dichloroethane	0.86	0.89	0.84	0.74	*
1,2-Dichloroethane	ND	0.03	0.04	0.28	*
1,1-Dichloroethene	ND	0.03	0.06	0.71	*
cis-1,2-Dichloroethene	3.10	3.40	1.94	5.26	*
trans-1,2-Dichloroethene	0.06	0.05	0.06	0.03	*
1,2-Dichloropropane	0.06	ND	0.02	ND	*
Ethylbenzene	ND	ND	ND	ND	*
Methylene chloride	ND	0.02	0.44	0.01	*
Tetrachloroethene	0.55	0.35	1.86	47.62	*
Toluene	0.02	0.01	0.01	ND	*
1,1,1-Trichloroethane	ND	0.13	0.04	2.03	*
Trichloroethylene	0.37	0.43	0.32	40.81	*
Vinyl chloride	1.26	0.41	0.24	0.13	*
o-Xylene	ND	ND	ND	ND	*
m+p-Xylene	0.03	0.04	0.05	0.09	*
Xylenes (total)	0.03	0.04	0.05	0.09	*
Dichlorodifluoromethane	0.07	0.06	0.28	ND	*
Isopropylbenzene	0.14	0.21	0.43	0.16	*
n-Butylbenzene	0.14	0.11	0.36	0.37	*
tert-Butylbenzene	0.15	0.08	0.14	0.32	*
Total VOCs	9.93	9.18	15.07	100.35	*

Notes:

All concentrations in ppb.

ND - Not detected

* RW-3 and RW-5 were off-line when samples were collected.

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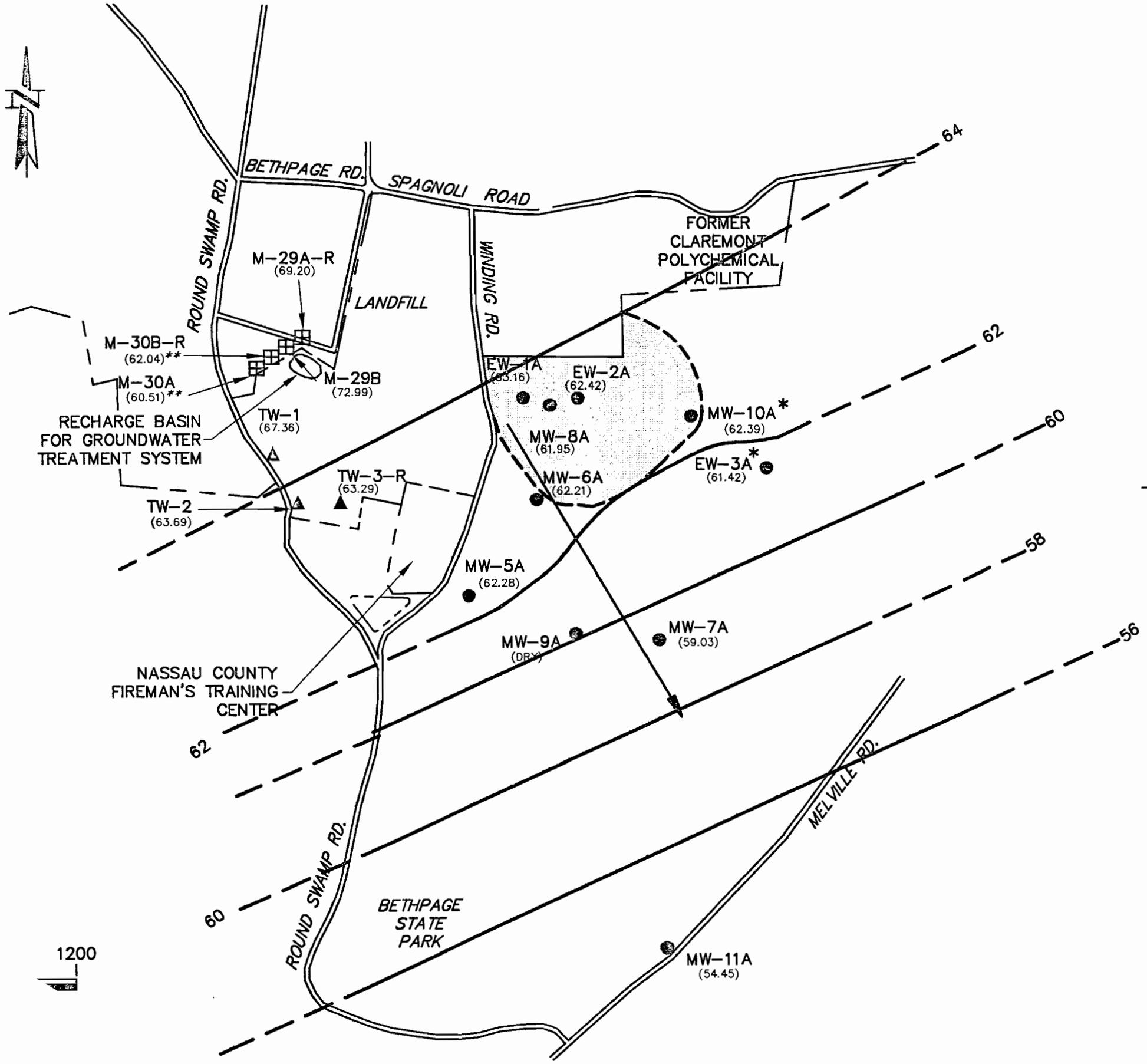
FIGURE 1



LEGEND

MW-5A (62.71) ●	*Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
TW-2 ▲	*Phase II Extension Well*
M-29A ⊞	*Upgradient Well*
—— - - - ——	*Property Boundary*
——→	*Groundwater Flow Direction*
60 ——	*Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
◯	*Approximate Areal Extent Of The VOC Plume In Water Table Wells – October 2000*
**	*Anomalous Water Level Elevation*
*	*Plume Extent Based On Third Quarter 1998 Data.*

GROUNDWATER FLOW MAP
WATER TABLE
OCTOBER 4, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

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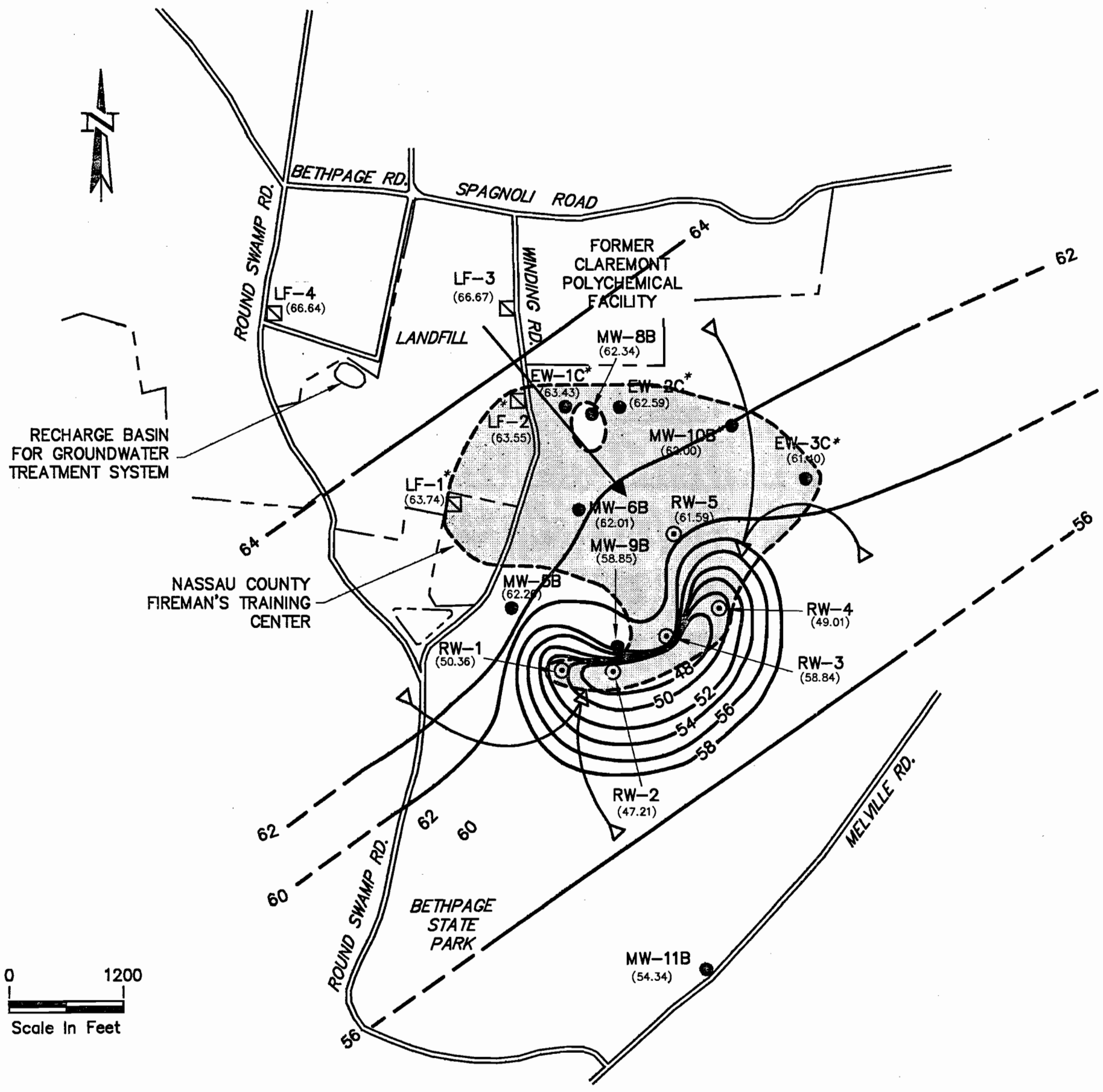
FIGURE 2



LEGEND

- MW-5B (62.70) ● — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- RW-5 ⊙ — *Recovery Well*
- LF-2 ⧅ — *Phase III Well*
- → — *Limiting Flow Lines Depicting Effective Capture Zones*
- → — *Groundwater Flow Direction*
- 60 —— — *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- — — — — *Property Boundary*
- *Approximate Areal Extent Of The VOC Plume In Shallow Potentiometric Zone October 2000.*
- * *Plume Extent Based On Third Quarter 1998 Data.*

GROUNDWATER FLOW MAP SHALLOW POTENTIOMETRIC OCTOBER 4, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

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120600

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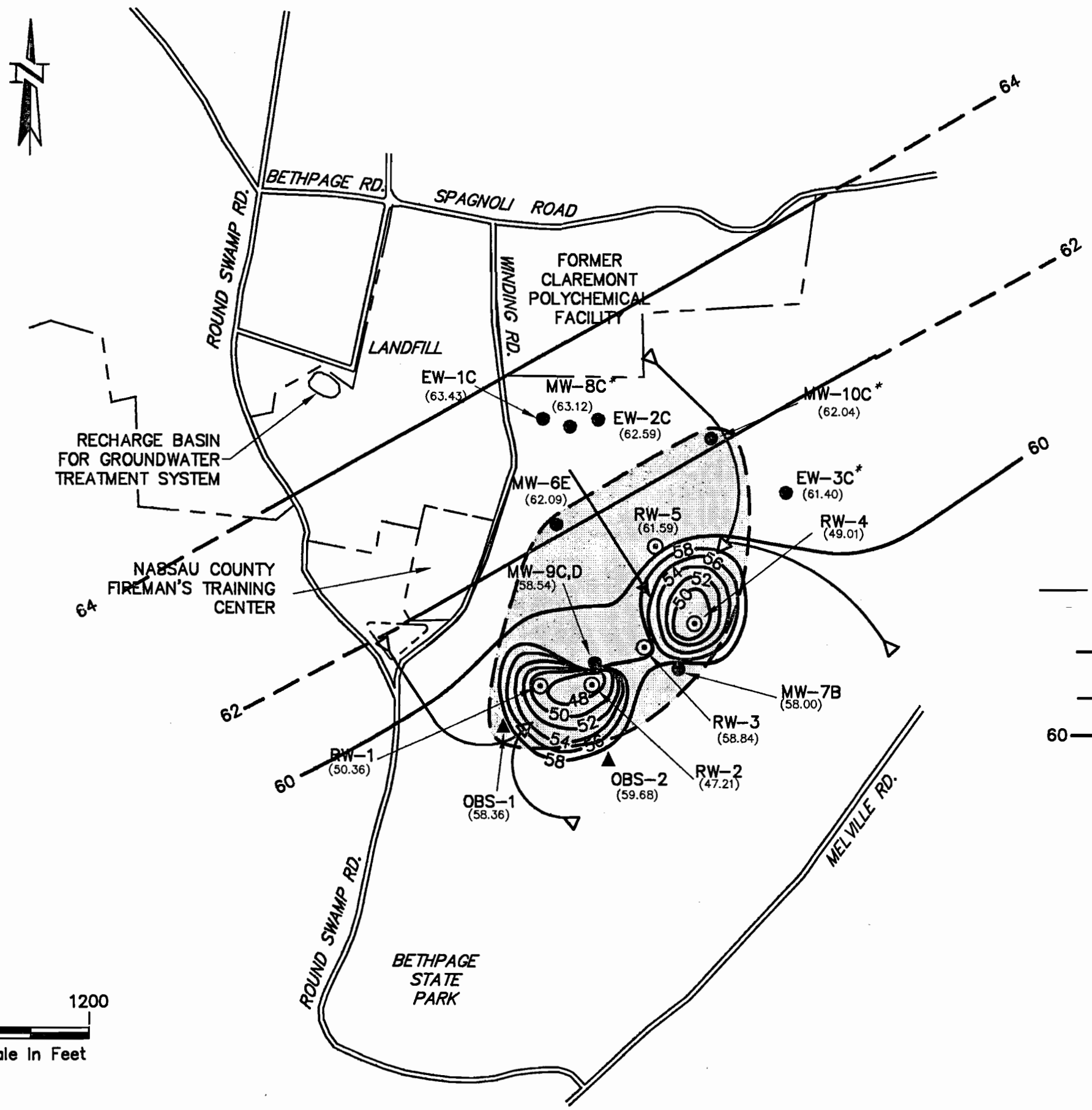
FIGURE 3



LEGEND

- MW-8C (64.00) ● — *Monitoring Well Location And Designation Water Level Elevation In Feet Above Mean Sea Level*
- RW-4 ⊙ — *Recovery Well*
- OBS-2 ▲ — *Phase II Extension Well*
- ——— — — ——— — *Property Boundary*
- ——→ — *Limiting Flow Lines Depicting Effective Capture Zone*
- ——→ — *Groundwater Flow Direction*
- 60 ——— — *Line Of Equal Elevation Of The Water Table In Feet Above Mean Sea Level (Dashed Where Inferred)*
- ⬭ — *Approximate Areal Extent Of The VOC Plume In The Deep Potentiometric Zone – October 2000*
- * — *Plume Extent Based On Third Quarter 1998 Data*

GROUNDWATER FLOW MAP
DEEP POTENTIOMETRIC
OCTOBER 4, 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

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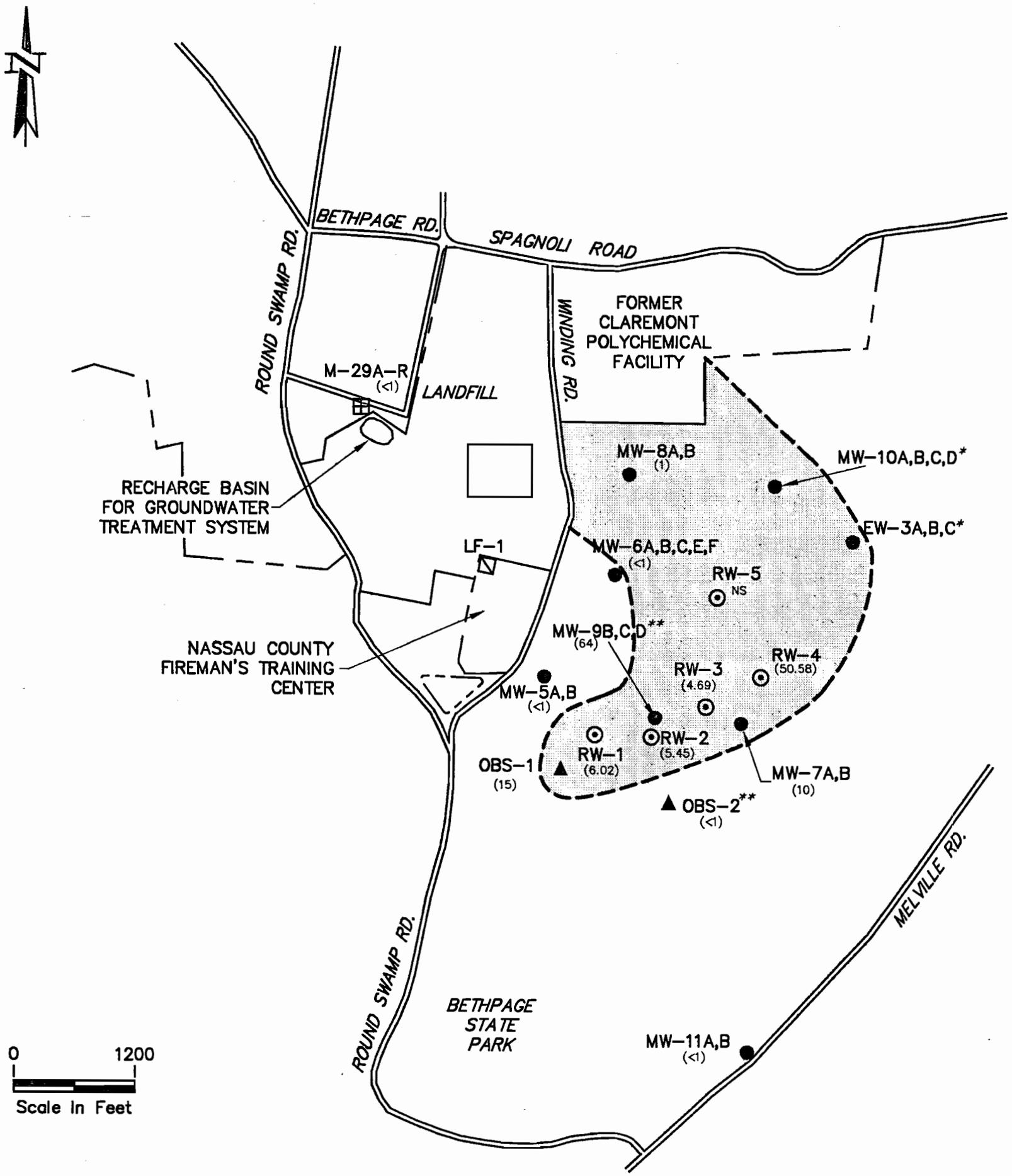
FIGURE 4



S 7458W
1: 00

LEGEND

MW-5B (<1) ●	*Monitoring Well Location And Total Volatile Halogenated Organics Concentration, ppb*
RW-5 ⊙	*Recovery Well*
OBS-2 ▲	*Phase II Extension Well*
LF-1 ⧅	*Phase III Well*
M-29A-R ⊞	*Upgradient Well*
— — — —	*Property Boundary*
⬭	*Approximate Areal Extent Of The Volatile Halogenated Organic Plume*

NOTE

Plume Contour Is Based On Total Volatile Halogenated Organics Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

** *Plume Extent Based On Third Quarter 2000 Data.*

NS – Recovery Well Off-line When Samples Were Collected.

APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL VOLATILE HALOGENATED ORGANICS OCTOBER 2000

OLD BETHPAGE LANDFILL
TOWN OF OYSTER BAY

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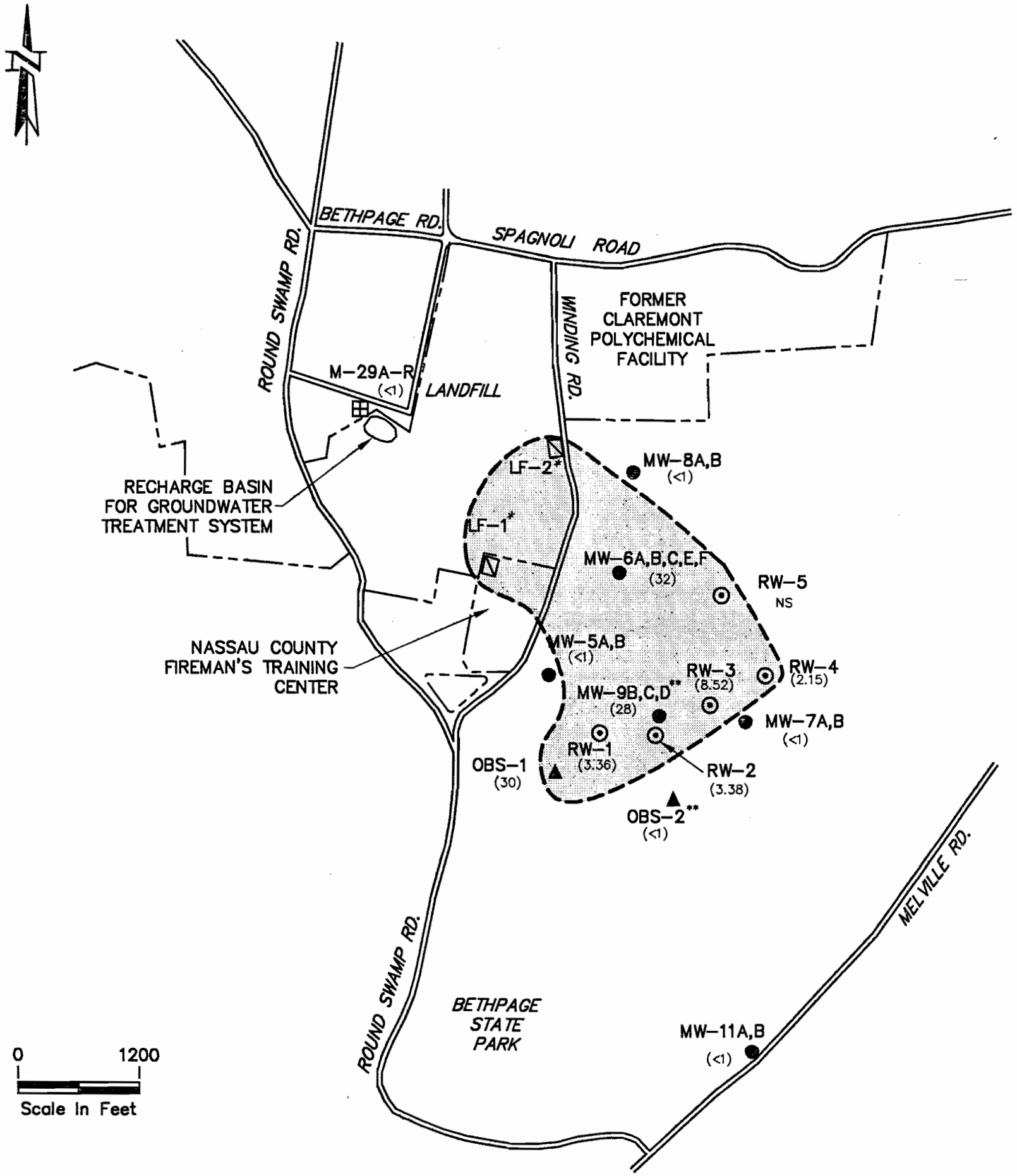
FIGURE 5



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0600

LEGEND

MW-5B (<1) ●	*Monitoring Well Location And Total Aromatic Hydrocarbon Concentration, ppb*
RW-4 ⊙	*Recovery Well*
OBS-1 ▲	*Phase II Extension Well*
LF-1 ⧄	*Phase III Well*
M-29A-R ⊞	*Upgradient Well*
———	*Property Boundary*
⬭	*Approximate Areal Extent Of The Aromatic Hydrocarbon Plume*

NOTE

Plume Contour Is Based On Total Aromatic Hydrocarbon Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quater 1998 Data*

** *Plume Extent Based On Third Quater 2000 Data*

NS – Recovery Well Off-line When Samples Were Collected.

APPROXIMATE EXTENT AND DISTRIBUTION OF TOTAL AROMATIC HYDROCARBONS OCTOBER 2000

OLD BETHPAGE LANDFILL

TOWN OF OYSTER BAY

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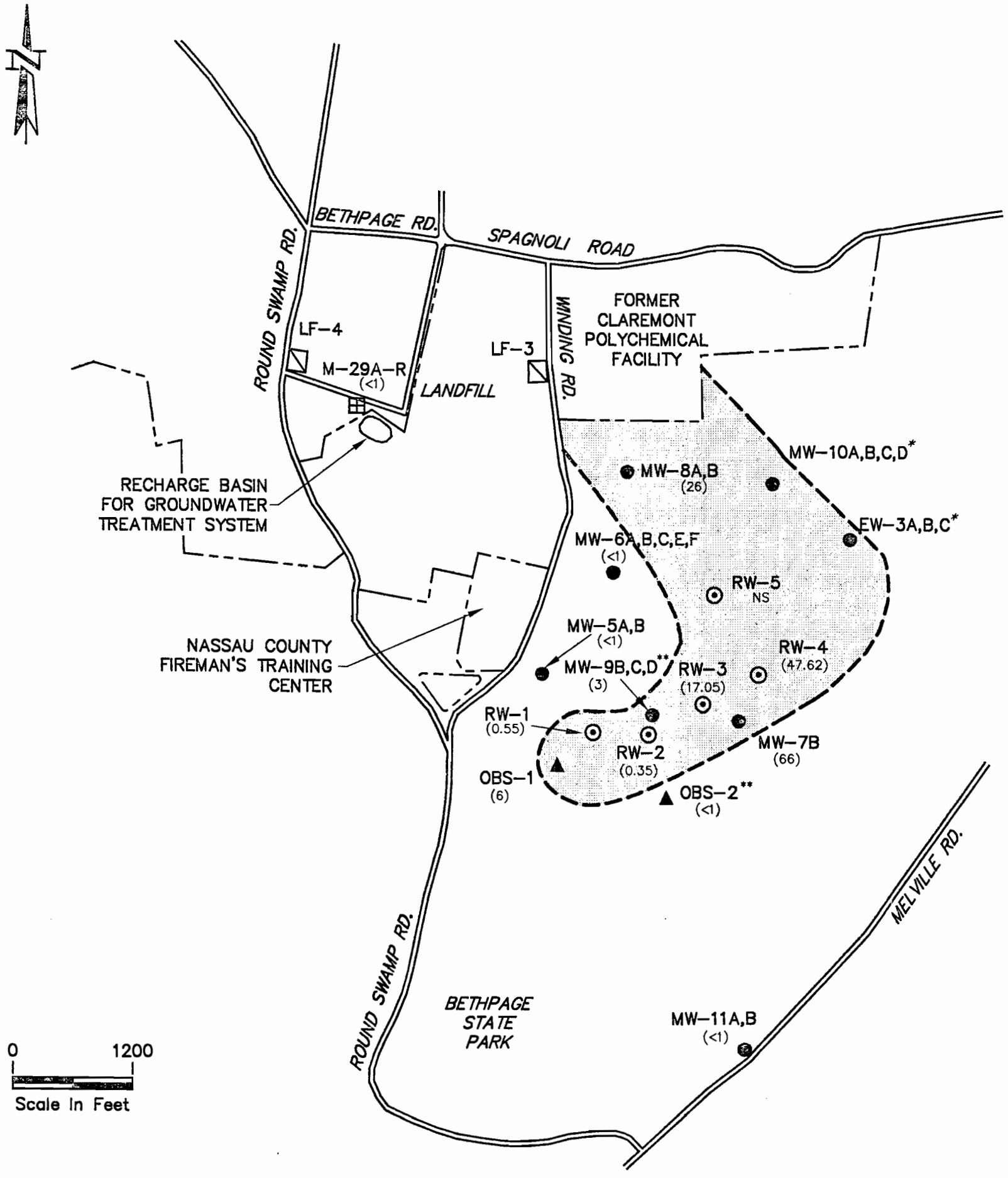
FIGURE 6



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121100

LEGEND

MW-5B (<1)	*Monitoring Well Location And Tetrachloroethene Concentration, ppb*
RW-4	*Recovery Well*
OBS-1	*Phase II Extension Well*
LF-3	*Phase III Well*
M-29A-R	*Upgradient Well*
	Property Boundary
	Approximate Areal Extent Of The Tetrachloroethene Plume

NOTE

Plume Contour Is Based On Tetrachloroethene Concentrations In The Monitoring And Recovery Wells.

* *Plume Extent Based On Third Quarter 1998 Data.*

** *Plume Extent Based On Third Quarter 2000 Data.*

NS – Recovery Well Off-line When Samples Were Collected.

APPROXIMATE EXTENT AND DISTRIBUTION OF TETRACHLOROETHENE OCTOBER 2000

OLD BETHPAGE LANDFILL

TOWN OF OYSTER BAY