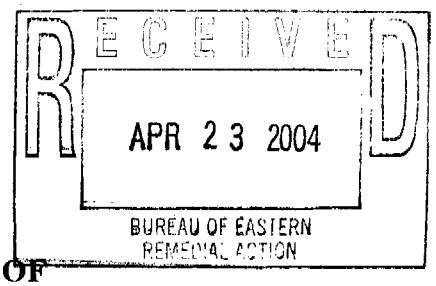
ANNUAL REPORT
OCTOBER 2002 THROUGH AUGUST 2003

OFF-SITE GROUNDWATER MONITORING
AND ASSESSMENT PROGRAM

NEW CASSEL INDUSTRIAL AREA
(SITE NO. 1-30-043)
NEW CASSEL, NEW YORK



Prepared for

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

By

DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK

APRIL 2004

ANNUAL REPORT
OCTOBER 2002 THROUGH AUGUST 2003
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
NEW CASSEL INDUSTRIAL AREA

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Section 1

1.0 INTRODUCTION

As part of New York State's program to investigate and remediate hazardous waste sites, the New York State Department of Environmental Conservation (NYSDEC) issued a work assignment to Dvirka and Bartilucci Consulting Engineers (D&B) of Woodbury, New York. The work assignment was issued under the Superfund Standby Contract between D&B and the NYSDEC, and involves conducting off-site groundwater monitoring and assessment for the New Cassel Industrial Area (NCIA) located in the Town of North Hempstead, Nassau County, New York. The off-site groundwater investigation is being conducted with funds allocated under the New York State Superfund Program.

The approach for this investigation was to construct monitoring wells at locations off-site and downgradient of the NCIA, and collect groundwater samples from the newly installed wells and previously installed early warning wells for the nearby Bowling Green Estates Water District supply wells.

The objectives of this investigation are to:

- Characterize and evaluate off-site groundwater quality downgradient of the NCIA;
- Determine to what extent the Bowling Green Estates Water District supply wells have been impacted; and
- Determine whether the existing treatment system for the Bowling Green Estates Water District supply wells will continue to provide protection of human health.

This annual report provides the results of the quarterly monitoring events conducted in October 2002, January and February 2003, May 2003, and July and August 2003.

This report provides a description of the study area location, a summary of the site history and previous investigations conducted at the NCIA, and activities performed as part of this off-site groundwater monitoring and assessment program, which comprised drilling, well construction, groundwater sampling, data validation and reporting. This report also includes an

evaluation of the groundwater analytical results obtained during the second year of this monitoring program and a comparison of the results to New York State groundwater quality standards and guidance values. In addition, an evaluation of the nature and extent of groundwater contamination, and a groundwater quality assessment are provided. Based on the findings of the groundwater monitoring and assessment program, recommendations regarding future monitoring activities are presented.

Section 2

2.0 SITE LOCATION AND BACKGROUND

2.1 Site Location and Description

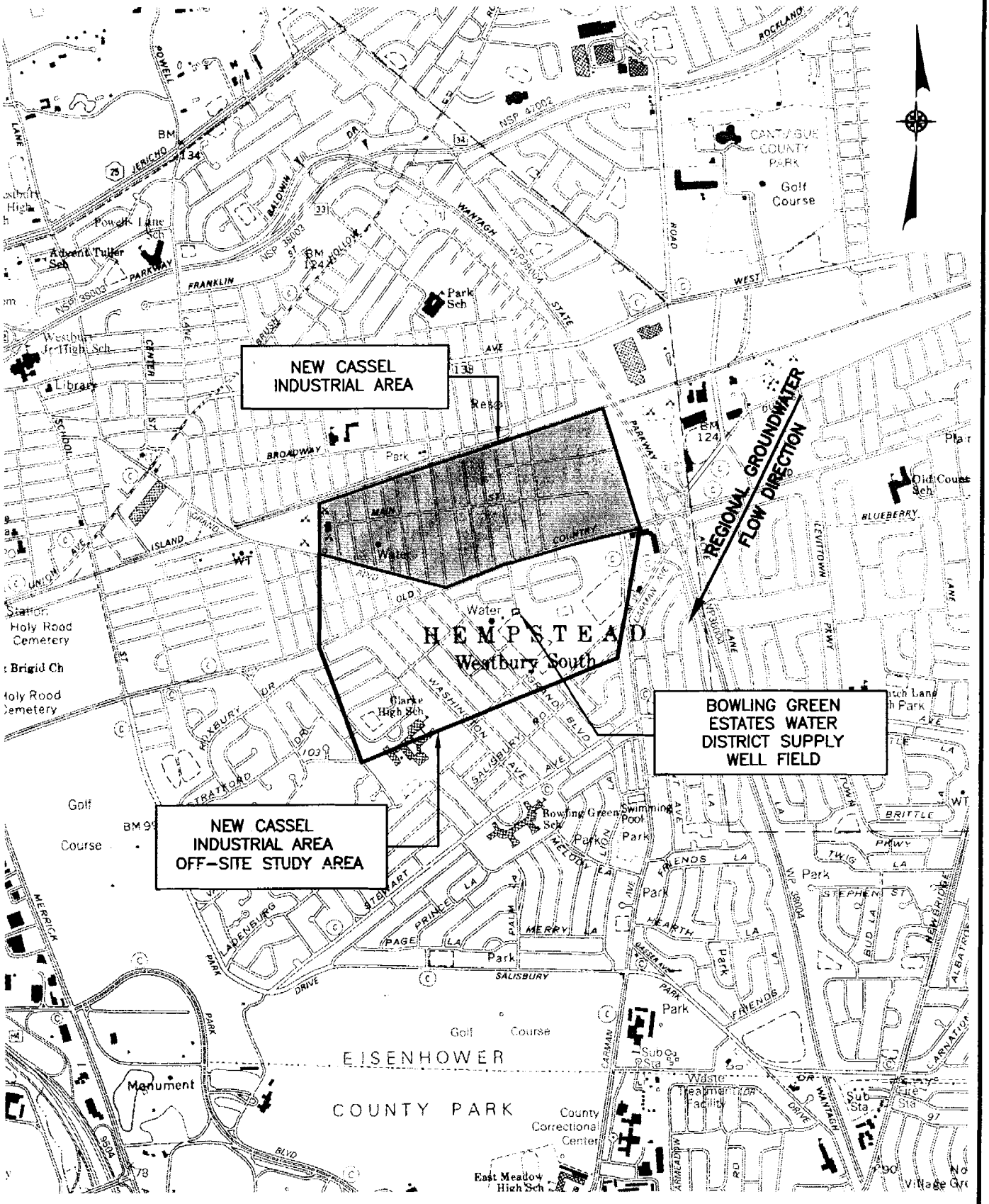
The New Cassel Industrial Area (NCIA) is located in the Town of Hempstead, Nassau County, New York (see Figure 2-1). The NCIA is approximately 170 acres in size and is bounded by Long Island Rail Road tracks on the north, Old Country Road on the south, Frost Street on the east and Grand Boulevard on the west. Regional groundwater flow is reported to be toward the southwest, although the flow direction may vary locally due to the pumping of the nearby Bowling Green Estates Water District supply wells.

According to information provided by the NYSDEC, the NCIA was developed in the early 1950s. There are approximately 200 properties in the NCIA, which are used for industrial and commercial purposes.

The Bowling Green Estates Water District well field, which is owned and operated by the Town of Hempstead, is located approximately 1/4 mile south of the NCIA (see Figure 2-1). The well field is comprised of two public water supply wells, BGE-1 and BGE-2. BGE-1 is screened from 478 feet to 528 feet below ground surface and BGE-2 is screened from 524 feet to 584 feet below ground surface. Each well is permitted to pump at a rate of 1,400 gallons per minute. Extracted water is treated for removal of volatile organic compounds (VOCs) using air stripping and carbon filtration prior to distribution. The drawdown near the well head during pumping is reported to be approximately 50 feet.

2.2 Previous Investigations

In 1986, the NCIA was identified by the Nassau County Department of Health as an area with widespread contamination of groundwater by VOCs. As a result, the entire NCIA was listed as a Class 2 site on the Registry of Inactive Hazardous Waste Disposal Sites (Registry) by the NYSDEC in 1988. A Class 2 site is one that poses a significant threat to public health and/or the environment, and for which remedial action is required.



NEW CASTLE INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

SITE LOCATION MAP

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A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

FIGURE 2-1

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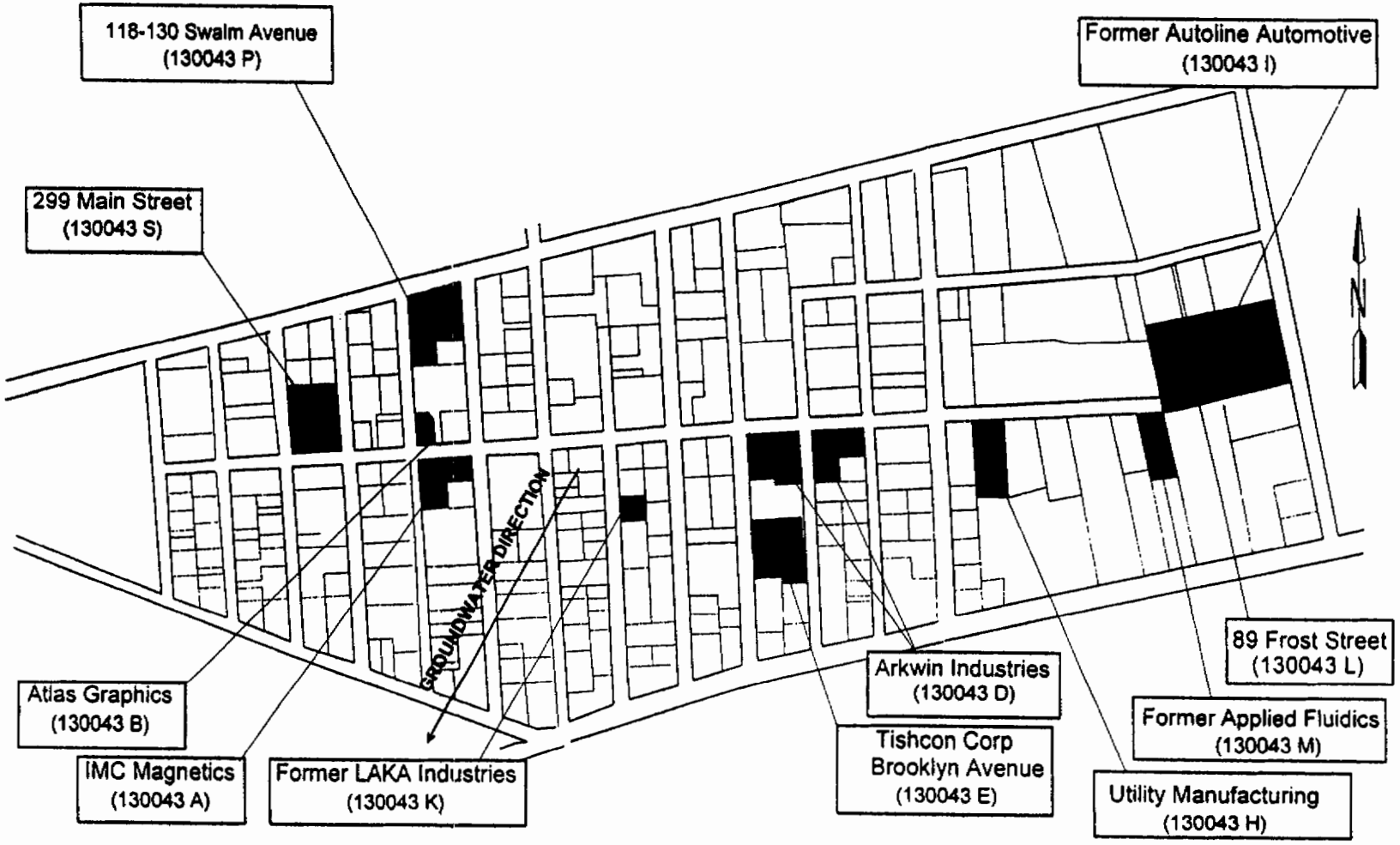
In order to identify specific contaminant sources within the NCIA, preliminary site assessments were conducted by NYSDEC consultants between 1994 and 1996. Soil and groundwater samples were also collected at several properties in 1998 and 1999. Based on the site assessments and sampling activities, 17 individual properties within the NCIA were listed on the Registry as Class 2 sites between 1995 and 1999. To date, five of these sites have been delisted from the Registry and one has been reclassified as a Class 4 site (on-going monitoring required), leaving 11 Class 2 sites remaining within the NCIA (see Figure 2-2).

Sampling of monitoring wells in and around the NCIA was conducted on behalf of the NYSDEC in April 1999, August 1999 and January 2000. Additional Hydropunch groundwater samples were collected at four locations south of the NCIA in January and February 2000 to evaluate the vertical distribution of contamination downgradient of the NCIA. The results of these activities were described in the September 2000 Remedial Investigation/Feasibility Study (RI/FS) Report. The RI/FS Report identified three separate VOC plumes in groundwater beneath the NCIA.

The eastern plume is the smallest and is comprised primarily of tetrachloroethene (PCE) and its breakdown products, trichloroethene (TCE) and 1,2-dichloroethene (1,2-DCE). The concentrations of total VOCs (TVOCs) within this plume increase with depth to approximately 100 feet below ground surface (bgs), then decrease from 100 feet to the deepest horizon sampled (200 feet below ground surface). Depth to groundwater in the NCIA is approximately 50 to 55 feet bgs.

The central plume is the most areally extensive of the identified plumes and is comprised primarily of PCE, TCE, 1,1,1-trichloroethane (TCA) and the TCA breakdown product 1,1-dichloroethane (1,1-DCA). Data collected during the RI/FS show that TVOC concentrations above 1,000 micrograms per liter (ug/l) associated with the central plume are present at depths of 100 to 200 feet bgs. This plume extends from the NCIA toward the Bowling Green Estates Water District well field. According to the RI/FS Report, data collected during the construction of early warning wells upgradient of the Bowling Green Estates Water District well field indicate that the VOC concentrations tend to decrease significantly below a depth of 150 feet.



LEGEND

(130043 B) - Registry Number

0 1000 ft

APPROXIMATE SCALE IN FEET

SOURCE: NYSDEC

RLA/DWGS/NEWCASSELIND1898(11/06/03)

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NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

LOCATIONS OF CLASS 2 SITES IN THE NEW CASSEL INDUSTRIAL AREA

FIGURE 2-2

According to the RI/FS Report, the western plume is located in the western section of the industrial area and extends from the Long Island Rail Road to just south of Old Country Road. The primary contaminants in the western plume are TCE, PCE and TCA. TVOC concentrations in shallow groundwater in this area exceeded 1,000 ug/l. The western plume area reaches its maximum apparent extent in the shallow groundwater with lesser concentrations detected in deeper wells.

In 1992, VOC contamination was detected in the Bowling Green Estates Water District supply wells. The identified contamination in both wells was primarily TCE, with lower concentrations of PCE, 1,2-DCE, 1,1-dichloroethene (1,1-DCE), TCA and carbon tetrachloride. The TVOC concentrations in BGE-1 (the more shallow well) are generally greater than those detected in BGE-2, and for both wells, the total VOC concentrations have been generally increasing since 1988. A treatment system for these wells, designed and constructed to address the detected VOCs, has been in operation since 1996. Extracted water is treated by air stripping followed by activated carbon filtration, if necessary, prior to distribution.

Public concerns regarding the migration of contaminated groundwater from the NCIA resulted in the construction of four early warning wells between the Bowling Green Estates Water District well field and the NCIA in 1997. The early warning wells were constructed as two 2-well clusters. The first well cluster consisted of wells EW-1B (screened 154 to 164 feet below ground surface) and EW-1C (screened 506 to 516 feet below ground surface). The second well cluster consisted of wells EW-2B (screened 132 to 142 feet below ground surface) and EW-2C (screened 504 to 514 feet below ground surface). These wells have been periodically sampled since 1997.

Section 3

3.0 SCOPE OF THE MONITORING AND ASSESSMENT PROGRAM

The approach for this program was to construct and sample monitoring wells in order to characterize off-site groundwater quality downgradient of the NCIA. This was accomplished by construction of nine new monitoring wells and collection of quarterly groundwater samples from the new wells and the four existing early warning wells. The activities related to construction of the new wells, groundwater sampling, data validation and reporting are provided below.

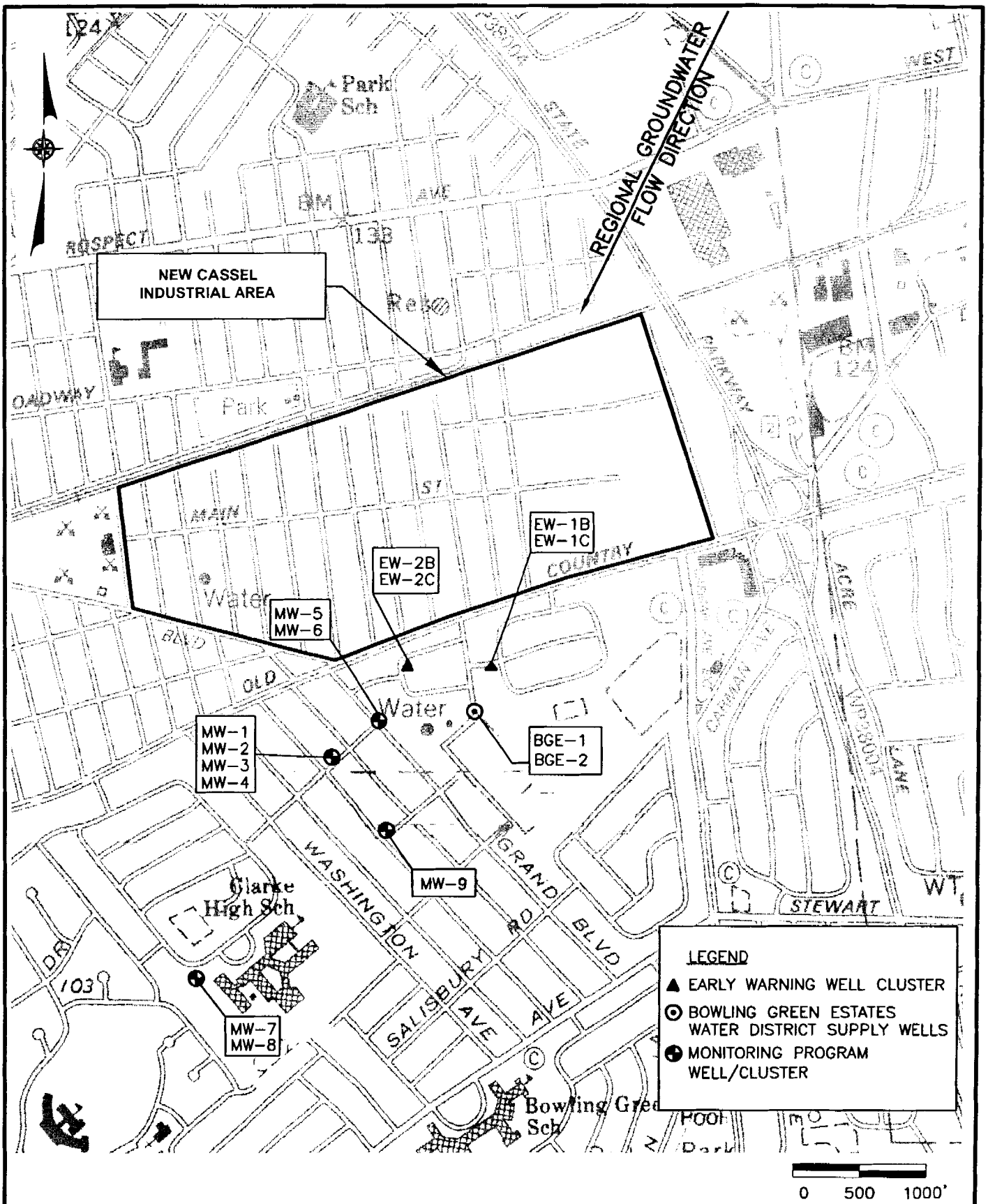
3.1 Groundwater Monitoring Well Construction

The initial scope of work for this program included the installation, development and surveying of eight monitoring wells (MW-1 through MW-8). These wells were constructed in a residential area downgradient of the NCIA. The well locations and depths of the wells were selected by the NYSDEC to supplement the existing NCIA monitoring well and off-site early warning well network. The eight monitoring wells were constructed as two 2-well clusters and one 4-well cluster. The locations of the eight monitoring wells and four existing early warning wells (EW-1B, EW-1C, EW-2B and EW-2C), as well as the Bowling Green Estates Water District supply wells (BGE-1 and BGE-2), are illustrated on Figure 3-1.

Table 3-1 summarizes the well construction details for the off-site monitoring wells. Seven of the eight boreholes (MW-1 through MW-3 and MW-5 through MW-8) were drilled using the hollow stem auger drilling method. MW-4 was drilled using the mud rotary method.

Specific activities related to the eight monitoring wells, including drilling, logging, well construction, well development, and cuttings disposal are contained in the monitoring well construction letter report, dated December 17, 2001.

Based on the analytical results from the initial sampling event (November 2001). At the request of the NYSDEC, an additional monitoring well (MW-9) was installed in the residential area, southeast of the existing four-well cluster (MW-1 through MW-4). The location for MW-9



NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

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WELL LOCATION MAP

FIGURE 3-1

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Table 3-1

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS

Well ID	Diameter and Material	Outer Casing Depth*	Screen Zone*	Sand Pack*	Bentonite Seal*	Top of PVC Elevation**	Ground Elevation**
MW-1	2-inch PVC	--	90-110	87-110	84-87	115.11	115.44
MW-2	2-inch PVC	--	110-130	107-130	104-107	115.14	115.40
MW-3	2-inch PVC	--	130-150	127-150	51-127	115.13	115.35
MW-4	4-inch PVC	--	180-200	175-200	30-175	115.24	115.49
MW-5	2-inch PVC	--	90-110	87-110	84-87	117.11	117.38
MW-6	2-inch PVC	--	110-130	107-130	75-107	117.14	117.37
MW-7	2-inch PVC	--	90-110	86-110	83-86	107.05	107.34
MW-8	2-inch PVC	--	119-139	116-139	55-116	106.98	107.22
MW-9	4-inch PVC[(1)]	0-280	305-315	295-315	265-295	111.29	111.63

*Feet below ground surface.

**Feet above mean sea level.

[(1)]Outer casing is 8-inch diameter carbon steel with welded joints.

(see Figure 3-1) was selected by the NYSDEC to supplement the existing off-site monitoring well network.

The borehole for MW-9 was drilled using the mud rotary method. The initial scope of work for MW-9 included drilling, geophysical logging and Hydropunch groundwater sampling to a depth of 300 feet bgs. However, due to significant clay layers encountered between 200 feet and 300 feet, the borehole was extended to 320 feet bgs with concurrence from the NYSDEC.

Hydropunch groundwater samples were collected from the MW-9 borehole to aid in selection of an appropriate screen zone. Samples were collected at depths of 80 feet, 100 feet, 120 feet, 140 feet, 180 feet, 200 feet and 260 feet bgs. The Hydropunch samples were analyzed for VOCs. Only two VOCs, acetone and chloroform, were detected in the Hydropunch samples, at concentrations ranging from 5 ug/l to 33 ug/l. These compounds are typical laboratory contaminants.

Because the screen zone for MW-9 was to be installed in the zone with the highest TVOC concentration below 200 feet and no worst-case horizon was identified, it was determined by the NYSDEC that MW-9 would be screened from 305 feet to 315 feet below ground surface.

Well MW-9 was constructed as a double-cased well. The outer casing is comprised of 8-inch diameter carbon steel with welded joints and the well is constructed of 4-inch diameter PVC casing and screen. The well construction details for MW-9 are included in Table 3-1.

Specific activities related to MW-9, including drilling, logging, well construction, Hydropunch sampling, well development, containment and disposal of drill cuttings, and well surveying are contained in the Drilling Report for MW-9, dated September 16, 2002.

3.2 Groundwater Sampling

For each of the four quarterly groundwater sampling events, the four early warning wells and nine off-site monitoring wells were sampled.

Groundwater sampling for the early warning wells and off-site monitoring wells was conducted in accordance with the NYSDEC approved work plan, dated May 2001. Specific groundwater sampling procedures, field parameter measurements collected during purging of the wells, quality assurance/quality control (QA/QC) and decontamination of equipment have been provided in the four quarterly sampling reports submitted to the NYSDEC.

The analytical and field parameter results for the four quarterly sampling events (October 2002 through August 2003) are discussed in Section 4.0.

3.3 Data Validation and Reporting

For each of the four quarterly reports, the data packages submitted by the laboratory (Southwest Laboratories of Oklahoma, Inc. under Contract to the NYSDEC) were validated in accordance with NYSDEC Analytical Services Protocol (ASP) requirements and a data usability summary report (DUSR) was prepared. The DUSR for each sampling event was included in the sampling report for that event. The results (VOCs and natural attenuation monitoring parameters) provided in the data tables in Appendices B and D of this report reflect the findings of the data validation.

Section 4

4.0 GROUNDWATER MONITORING RESULTS

This section presents the water level data and analytical results for groundwater samples collected from October 2002 through August 2003, as part of the Off-site Groundwater Monitoring and Assessment Program, and describes the location, nature and significance of contamination found off-site and downgradient of the New Cassel Industrial Area.

For review and interpretation, the analytical results are compared to NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values (1998). The water quality standards and guidance values provide ambient contaminant concentrations developed to protect New York State groundwater based on its best classified usage. Analytical results obtained for groundwater samples are compared to Class GA standards for which the best use is potable water supply. The Class GA standards and guidance values are also included in the data tables.

4.1 Groundwater Levels

As part of the four quarterly sampling events, groundwater level measurements were obtained from off-site monitoring wells MW-1 through MW-9. Groundwater contour maps were not prepared as part of the Off-site Groundwater Monitoring and Assessment Program due to the approximately linear orientation of the monitoring wells parallel to the groundwater flow direction. The depth to water measurements and groundwater elevations for the off-site monitoring wells are presented in Table 4-1.

The average depth to groundwater measured in the off-site wells during the period, October 2002 through August 2003, is approximately 63 feet above mean sea level. For each of the monitoring periods, the water levels were highest in the northernmost wells (MW-5 and 6) and lowest in the southernmost wells (MW-7 and 8), which is consistent with the reported regional southwestern groundwater flow direction.

Table 4-1

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
SUMMARY OF WATER LEVEL DATA

Well	Measuring Point Elevation*	1st Quarter October 2002		2nd Quarter January/February 2003		3rd Quarter May 2003		4th Quarter July/August 2003	
		DTW	Groundwater Elevation*	DTW	Groundwater Elevation*	DTW	Groundwater Elevation*	DTW	Groundwater Elevation*
MW-1	115.11	53.80	61.31	52.03	63.08	51.01	64.10	48.89	66.22
MW-2	115.14	53.85	61.29	52.07	63.07	51.16	63.98	48.98	66.16
MW-3	115.13	53.90	61.23	52.07	63.06	51.08	64.05	49.28	65.85
MW-4	115.24	54.15	61.09	52.41	62.83	51.40	63.84	49.48	65.76
MW-5	117.11	55.35	61.76	53.80	63.31	52.63	64.48	50.51	66.60
MW-6	117.14	55.43	61.71	53.88	63.26	52.69	64.45	50.58	66.56
MW-7	107.05	47.80	59.25	46.05	61.00	45.01	62.04	42.75	64.30
MW-8	106.98	48.17	58.81	46.13	60.85	45.35	61.63	43.11	63.87
MW-9	111.29	51.85	59.44	49.48	61.81	48.40	62.89	46.64	64.65

Notes:

* - Relative to mean sea level
DTW - Depth to water in feet below Measuring Point

In general, the groundwater levels measured during the four quarters fluctuated approximately 5 feet. Water levels were highest during July 2003 (Fourth Quarter), and lowest during October 2002 (First Quarter). Data collected from wells MW-1 through MW-8 show that groundwater flow is generally toward the southwest with a slight downward component. The July 2003 groundwater elevations are typical for the 2002/2003 monitoring period for the well clusters and, as shown in Table 4-1, from north to south, ranged from 66.60 feet (MW-5) to 66.56 feet (MW-6), 66.22 feet (MW-1) to 65.76 feet (MW-4) and 64.30 (MW-7) to 63.87 feet (MW-8).

4.2 Groundwater Quality Results

The groundwater samples from the early warning wells and the off-site monitoring wells were analyzed for VOCs, total iron, total organic carbon (TOC), alkalinity, chloride, nitrate, sulfate, carbon dioxide and methane. In addition, groundwater samples were monitored in the field for pH, temperature, specific conductance, dissolved oxygen, oxidation-reduction potential (Eh) and turbidity.

Historic VOC results for the early warning wells from June 1997 to March 2001 are incorporated into the following discussion. In addition, historic VOC results for the Bowling Green Estates Water District supply wells from 1988 through 2003 are discussed. The VOC results for the supply wells were provided by the Town of Hempstead Department of Water.

4.2.1 Field Parameters

A summary of the sample field parameter values measured at the time of sample collection for the sampling events from October 2002 through August 2003 is provided in Appendix A. Ranges for the field parameter values for the early warning wells and monitoring wells are provided below.

Levels of pH ranged from 4.64 in well MW-3 to 7.08 in well MW-9. Temperature readings ranged from 11.4°C in well EW-2C to 17.2°C in well MW-1, with higher temperature

readings generally recorded during the fall and summer sampling events. Specific conductance values ranged from 0.047 millisiemens per centimeter (ms/cm) in well EW-2C to 0.455 ms/cm in well MW-6. Turbidity levels ranged from 0 Nephelometric Turbidity Units (NTUs) in wells EW-2C and MW-4 to 42 NTUs in well EW-1C. Dissolved oxygen levels ranged from 0.26 milligrams per liter (mg/l) in well EW-1B to 11.51 mg/l in well EW-1C. Eh levels ranged from 2 millivolts (mv) in well MW-8 to 434 mv in well MW-6.

4.2.2 Early Warning Wells

The locations of the early warning wells are shown on Figure 3-1. These wells constitute two clusters, each containing a shallow and deep well screened in the Magothy aquifer.

Volatile Organic Compounds

The results of the individual VOC analyses and comparison to NYSDEC Class GA groundwater standards and guidance values are presented in Appendix B. Graphs illustrating historic TVOC concentrations for the early warning wells are presented in Appendix C. Table 4-2 presents the four quarterly 2002/2003 sample results for TVOCs, the trends of these results and historic TVOC concentration trends.

The sample results show that wells EW-1B and EW-2B (screened in the shallow Magothy aquifer) contained elevated concentrations of VOCs in excess of the Class GA groundwater standards. TVOCs in samples collected during the reporting period from well EW-1B (screened 154 to 164 feet bgs) ranged from 565 micrograms per liter (ug/l) to 1,112 ug/l. A number of individual compounds exceeded the NYSDEC Class GA groundwater standards, including PCE, TCE, cis-1,2-DCE, 1,1-DCE, TCA and 1,1-DCA (Appendix B). Among these compounds, PCE exhibited the highest concentrations, ranging from 420 ug/l to 830 ug/l.

TVOCs in samples collected during the reporting period from well EW-2B (screened from 132 to 142 feet bgs) ranged from 172 ug/l to 186 ug/l. A number of individual compounds exceeded the NYSDEC Class GA groundwater standards, including PCE, TCE, 1,1-DCE, cis-

Table 4-3

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
CONCENTRATION RANGES FOR NATURAL ATTENUATION MONITORING PARAMETERS

	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9
Iron (Total)	U	0.091–0.204	1.68-5.56	U	U–0.123	U–0.33	U–0.138	2.54–7.5	U
TOC	U-2	U–4.4	U–3.9	U–4.3	U-2.5	U–3.3	U-2.3	U–3.1	U-1.4
Alkalinity	U–10	26-30	U	19	14-25	18-24	U	14-28	15-27
Chloride	51.2-69.2	34.2-41.2	35.2-41.3	41.1-57.8	48.4-95.7	52.9-130	23.2-32.5	23.4-52	12.6-13.4
Nitrate	4-5.2	5.6-6.3	2.5-5.6	8-9.3	4.7-6.7	4.5-5	5.7-5.9	3.3-5	1.8-2.2
Sulfate	25.2-30.4	18-19.8	16.5-23.9	5-5.6	26.2-36.4	22.9-36.8	26.8-31.1	28.8-30.7	16.9-22.3
Carbon Dioxide	U-89	70-84	U	84-98	44-57	51-68	U	48-60	13-17
Methane	U-0.002	0.052-0.15	0.053-0.077	U-0.004	U-0.001	U-0.001	U-0.001	U-0.006	U-0.001

	EW-1B	EW-1C	EW-2B	EW-2C
Iron (Total)	U-0.04	0.31-1.05	U	0.552-1.27
TOC	U	U	U-2.9	U-1
Alkalinity	16-18	10-12	12-13	10-11
Chloride	30-36.6	13.9-18.7	34.9-37.7	6.9-7.6
Nitrate	5.7-6.2	5.9-6.3	2.3-2.5	1.8-2
Sulfate	20.6-23.8	U-2.2	11.2-13.1	U-1.3
Carbon Dioxide	57-77	14-21	60-72	12-25
Methane	U-0.001	U	U-0.022	U-0.001

Notes:

Concentrations in mg/l
U: Undetected
Ranges are for 10/02, 1/03-2/03, 5/03 and 7/03-8/03 quarterly sampling events.

4.2.3 Off-site Monitoring Wells

The topography in the area of the off-site wells is relatively flat and the ground surface elevations at the nine well locations do not vary by more than 10 feet. Based on geologic information obtained during this investigation and existing geologic information provided by the NYSDEC, wells MW-1 through MW-9 are all screened within the Magothy aquifer.

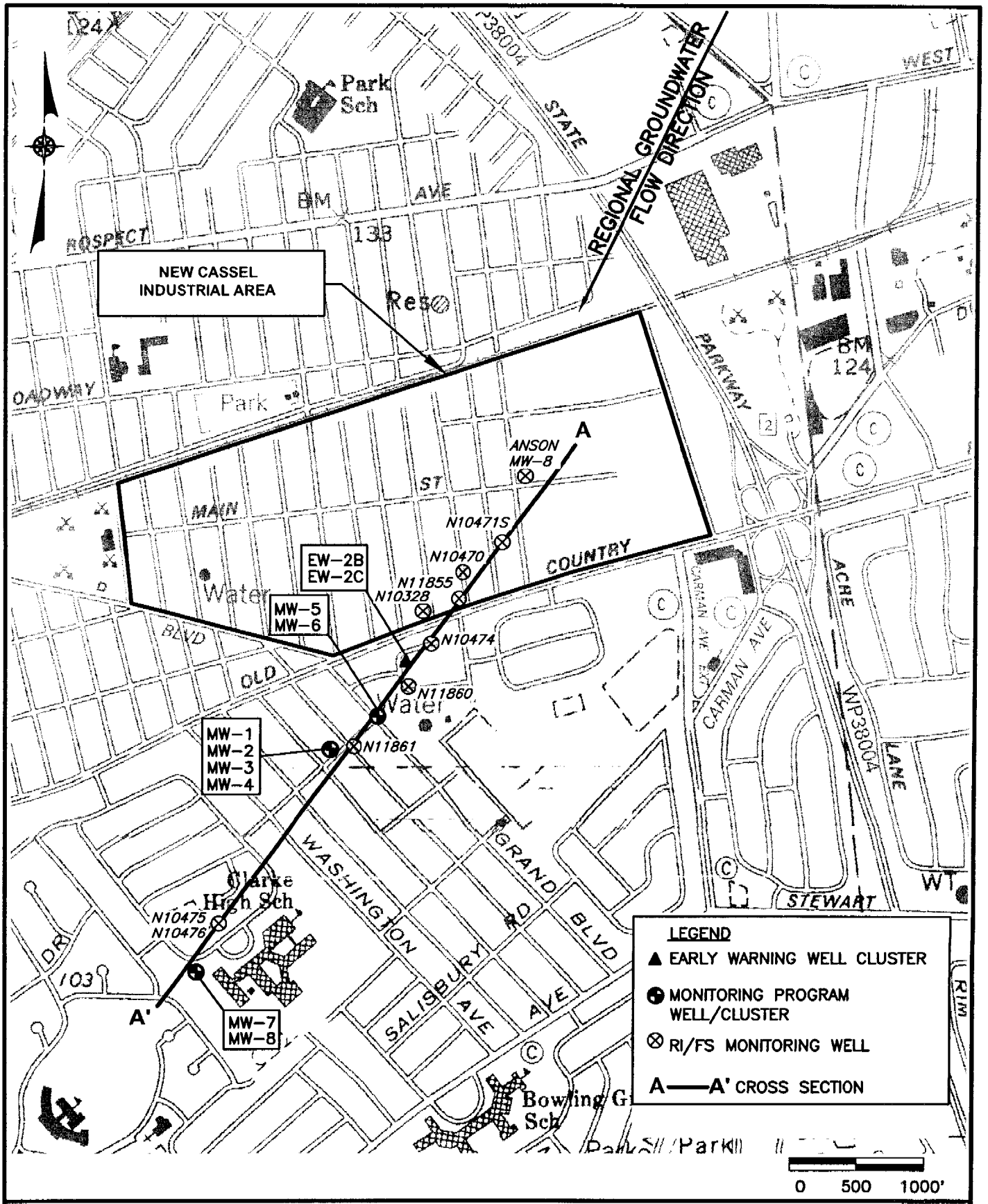
Figure 4-1 shows the location of cross section A-A'. The screen zones for selected off-site wells, in addition to selected monitoring wells from the RI/FS, are illustrated in cross section (A-A') on Figure 4-2. The cross section is oriented northeast to southwest, approximately parallel to the regional groundwater flow direction.

TVOC concentrations are presented on the cross section in Figure 4-2. TVOC concentrations for the selected wells are from data collected during the RI/FS (April 1999 through January 2000) and represent the maximum TVOC concentrations detected in the wells. For the early warning wells and the off-site monitoring program wells, TVOC concentrations are representative of the July/August 2003 contaminant levels.

Volatile Organic Compounds

The following discussion presents the four quarterly sample results for TVOCs for the off-site monitoring wells, the trends of these results and historical trends. The VOC results and NYSDEC Class GA groundwater standards and guidance values are presented in Appendix B. Graphs illustrating historic TVOC concentrations for the monitoring wells are presented in Appendix C.

A comparison of sample results from the three well clusters shows that the shallower wells in each cluster (MW-1, MW-5 and MW-7) exhibited low VOC concentrations. TVOCs in well MW-1 ranged from 65 ug/l to 169 ug/l, TVOCs in MW-5 ranged from 45 ug/l to 582 ug/l. Based on data validation and comparison to historical data, it should be noted that the TVOC result (582 ug/l) for well MW-5 (May 2003) appeared to have been inadvertently switched



NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

Dvirka and Bartilucci CONSULTING ENGINEERS
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LOCATION OF CROSS SECTION A-A'

FIGURE 4-1

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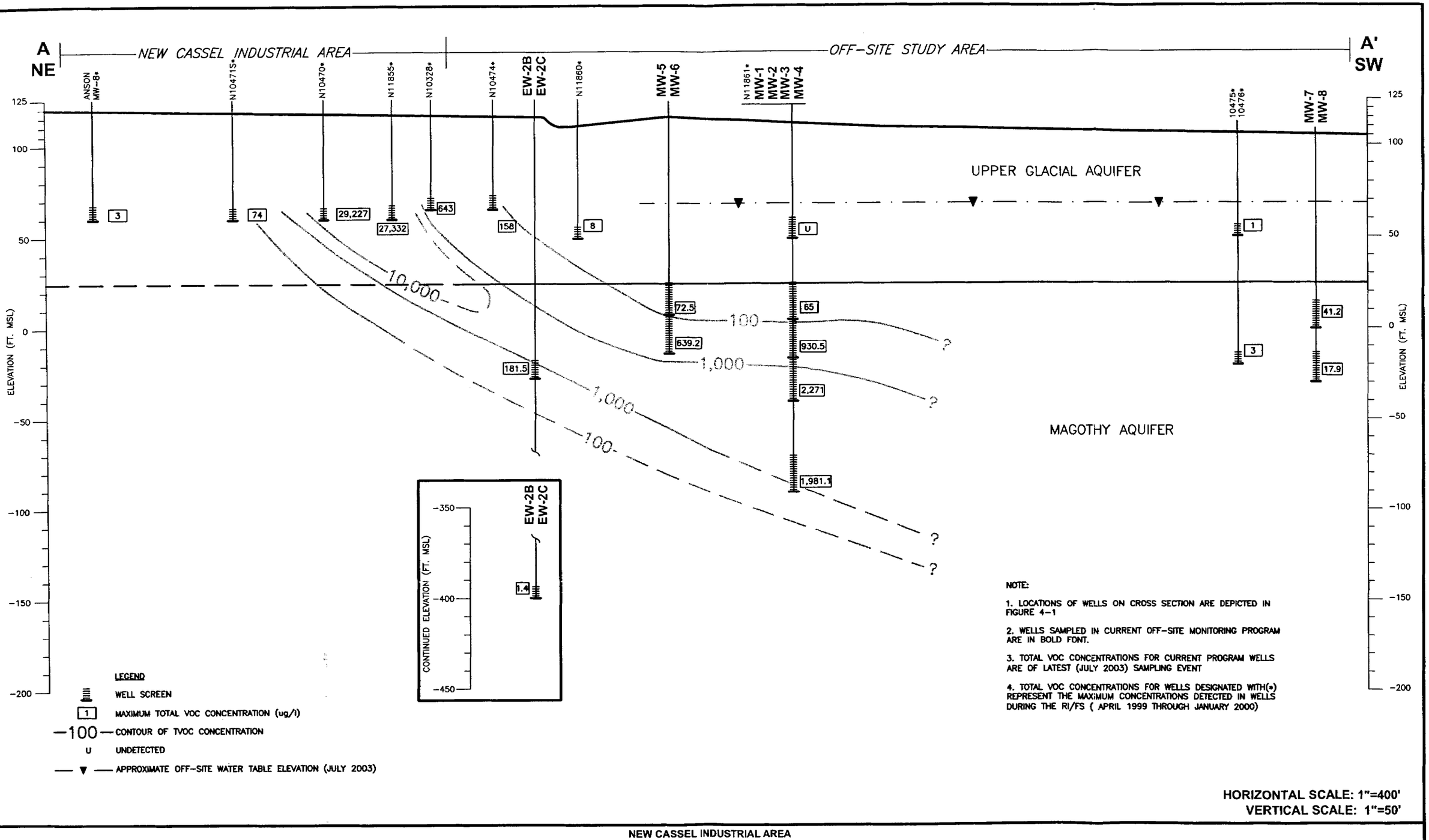

NOTE:

1. LOCATIONS OF WELLS ON CROSS SECTION ARE DEPICTED IN FIGURE 4-1
2. WELLS SAMPLED IN CURRENT OFF-SITE MONITORING PROGRAM ARE IN BOLD FONT.
3. TOTAL VOC CONCENTRATIONS FOR CURRENT PROGRAM WELLS ARE OF LATEST (JULY 2003) SAMPLING EVENT
4. TOTAL VOC CONCENTRATIONS FOR WELLS DESIGNATED WITH(*) REPRESENT THE MAXIMUM CONCENTRATIONS DETECTED IN WELLS DURING THE RI/FS (APRIL 1999 THROUGH JANUARY 2000)

HORIZONTAL SCALE: 1"=400'
VERTICAL SCALE: 1"=50'

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

CROSS SECTION A-A' SHOWING TOTAL VOC CONCENTRATIONS

Dvirka and Bartilucci CONSULTING ENGINEERS
A DIVISION OF WILLIAM F. COSULICH ASSOCIATES, P.C.

FIGURE 4-2

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with well MW-6 TVOC result (112 ug/l). TVOCs in MW-7 ranged from 27 ug/l to 43 ug/l. MW-1 contained several individual VOCs at concentrations exceeding NYSDEC Class GA standards, including PCE, TCE, 1,1-DCE, TCA and 1,1-DCA. Among these compounds, TCE exhibited the highest concentrations ranging from 27 ug/l to 79 ug/l. Class GA standards for PCE, TCE, cis-1,2-DCE, 1,1-DCE, TCA, 1,1-DCA and 1,2-DCA were exceeded in MW-5, and MW-7 contained PCE, TCE and cis-1,2-DCE at concentrations exceeding NYSDEC Class GA standards. For MW-5, TCA and 1,1-DCE exhibited the highest concentrations, ranging from 7 ug/l to 190 ug/l and 8 ug/l to 180 ug/l, respectively. Excluding the possibly-switched sample from May 2003, the concentration ranges in MW-5 are 7 ug/l to 39 ug/l for TCA and 8 ug/l to 55 ug/l for 1,1-DCE. For MW-7, cis-1,2-DCE exhibited the highest concentrations, ranging from 15 ug/l to 27 ug/l.

Deeper wells MW-2, MW-3, MW-4 and MW-6 show elevated TVOC concentrations. The maximum TVOC concentration in each of these wells was 1,113 ug/l, 2,271 ug/l, 2,652 ug/l and 639 ug/l, respectively. In wells MW-2, MW-3 and MW-4, PCE, TCE, cis-1,2-DCE, 1,1-DCE, TCA, 1,2-DCA, 1,1-DCA and 1,1,2-trichloroethane (1,1,2-TCA) were detected at concentrations exceeding Class GA standards. In well MW-6, these same compounds, exclusive of 1,2-DCA and 1,1,2-TCA, were detected at concentrations exceeding Class GA standards. In addition, methylene chloride was detected at concentrations exceeding Class GA standards on one occasion each in wells MW-4 and MW-6. In MW-2, MW-3 and MW-4, the compounds detected at the highest concentrations were TCE and 1,1-DCE. The maximum detected concentration was 360 ug/l for TCE and 420 ug/l for 1,1-DCE in MW-2, 1,000 ug/l for TCE and 730 ug/l for 1,1-DCE in MW-3, and 895 ug/l for TCE and 911 ug/l for 1,1-DCE in MW-4. In MW-6, 1,1-DCE and TCA were detected at the highest concentrations, at maximum concentrations of 190 ug/l and 270 ug/l, respectively. The deeper well in the southwesternmost cluster (MW-8) contained only trace levels of VOCs, with TVOCs ranging from 13 ug/l to 18 ug/l and no individual VOCs detected at a concentration exceeding Class GA standards or guidance values.

The deepest well, MW-9, showed low TVOC concentrations ranging from 18 ug/l to 27 ug/l. TCE was the only compound detected at concentrations exceeding the Class GA groundwater standard, at concentrations ranging from 13 ug/l to 22 ug/l.

As shown in Table 4-2, TVOC concentrations (October 2002 through August 2003) for wells MW-1 and MW-4 showed a decreasing trend, wells MW-2 and MW-5 showed little change (excluding the possibly-switched results from May 2003), and wells MW-3 and MW-6 (excluding the possibly-switched results from May 2003) showed increasing trends. Wells MW-7, MW-8 and MW-9 showed consistent trends.

With regard to historic TVOC trends, wells MW-1, MW-7, MW-8 and MW-9 remained fairly consistent to consistent. Well MW-6 showed little change, and well MW-5 showed a slight increasing trend. The remaining three wells (MW-2, MW-3 and MW-4) showed slight decreasing trends.

Natural Attenuation Monitoring Parameters

The following presents the natural attenuation monitoring parameter results for off-site monitoring well samples collected between October 2002 and August 2003. The concentrations of the individual monitoring parameters are presented in Appendix D. The ranges of concentrations detected in each well are provided in Table 4-3.

In general, a comparison of the four quarterly sample results for wells MW-1 through MW-9 showed concentrations of TOC, alkalinity, chloride, nitrate, sulfate, carbon dioxide and methane to have remained fairly consistent.

4.2.4 Bowling Green Estates Water District Supply Wells

Table 4-4 presents the historic TVOC concentrations from 1988 through 2003 for public water supply wells BGE-1 and BGE-2. A graph showing the historic TVOC concentrations during this period for the supply wells is included in Appendix E. In addition, Table 4-5 presents

Table 4-4

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
BOWLING GREEN ESTATES WATER DISTRICT SUPPLY WELLS
HISTORIC TOTAL VOLATILE ORGANIC COMPOUND RESULTS

DATE	BGE-1	BGE-2
Feb-1988	3	1
May-1988	3	U
Aug-1988	1	U
Nov-1988	2	U
Feb-1989	3.2	3
May-1989	3	2
Aug-1989	13.5	2
Nov-1989	1	1
Feb-1990	1	U
May-1990	1	1
Aug-1990	2.5	1
Nov-1990	U	U
Feb-1991	2	2
May-1991	4	2
Aug-1991	5	4
Nov-1991	3	2
Feb-1992	2.5	6.5
May-1992	20	0.5
Aug-1992	3	9
Nov-1992	4	1
Feb-1993	1	11.5
May-1993	6.5	10.5
Aug-1993	3	9
Feb-1994	10.5	8.5
May-1994	15	4
Aug-1994	11	14.5
Nov-1994	26.5	7
Feb-1995	35.5	9
May-1995	44	9
Aug-1995	20.5	23
Nov-1995	1	18.5
Feb-1996	9	4
May-1996	44.5	15

Table 4-4 (continued)

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
BOWLING GREEN ESTATES WATER DISTRICT SUPPLY WELLS
HISTORIC TOTAL VOLATILE ORGANIC COMPOUND RESULTS

DATE	BGE-1	BGE-2
Aug-1996	52	25.5
Nov-1996	46	10
Feb-1997	27	28
May-1997	39	23
Aug-1997	54	24.5
Nov-1997	61	5
Feb-1998	32	27
May-1998	49	26.5
Aug-1998	66	33
Nov-1998	58	47.5
Feb-1999	65	14.5
May-1999	77	34
Aug-1999	86	40
Nov-1999	22.5	39
Feb-2000	76	11.5
May-2000	63	39
Aug-2000	88	38
Nov-2000	69	32
Feb-2001	85	50
May-2001	86	14
Aug-2001	84	45
Nov-2001	88	56
Jan-2002	97	60
Feb-2002	91	56
Mar-2002	99	60.5
Apr-2002	100	63.5
May-2002	98	61
Jun-2002	99	56
Jul-2002	105	66
Aug-2002	88.5	58
Sep-2002	88	50
Oct-2002	119	69.5
Nov-2002	96	62.5
Dec-2002	68	63.5

Table 4-4 (continued)

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
BOWLING GREEN ESTATES WATER DISTRICT SUPPLY WELLS
HISTORIC TOTAL VOLATILE ORGANIC COMPOUND RESULTS

DATE	BGE-1	BGE-2
Jan-2003	73	81.5
Feb-2003	149	33.5
Mar-2003	134	25
Apr-2003	120	53
May-2003	124	62
Jun-2003	144	56.5

Source: Town of Hempstead Department of Water

Notes:

Results reported in ug/l
U: Undetected
BGE-1: screened 478 to 528 feet below ground surface
BGE-2: screened 524 to 584 feet below ground surface

Table 4-5

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
BOWLING GREEN ESTATES WATER DISTRICT SUPPLY WELLS
SUMMARY OF SELECTED VOLATILE ORGANIC COMPOUNDS RESULTS –
1999 THROUGH 2003

DATE	BGE-1 (screened from 478 to 528 feet below ground surface)						BGE-2 (screened from 524 to 584 feet below ground surface)					
	PCE	TCE	1,2-DCE	1,1-DCE	TCA	1,1-DCA	PCE	TCE	1,2-DCE	1,1-DCE	TCA	1,1-DCA
Feb-1999	7	30	1	6	8	2	1	13	U	U	0.5	U
May-1999	6	46	1	6	7	2	3	27	1	1	2	U
Aug-1999	7	51	2	6	7	2	4	31	1	1	2	U
Nov-1999	3	5	0.5	3	4	1	4	33	U	1	1	U
Feb-2000	9	43	1	6	6	2	0.5	11	U	U	U	U
May-2000	7	37	1	4	5	1	3	34	U	1	1	U
Aug-2000	14	40	1	8	7	2	5	29	1	1	2	U
Nov-2000	10	38	1	4	5	2	4	26	U	1	1	U
Feb-2001	13	45	1	6	6	2	5	41	1	1	2	U
May-2001	15	48	1	6	5	2	1	13	U	U	U	U
Sept-2001	15	47	1	5	4	2	5	35	U	2	2	1
Nov-2001	17	45	1	5	5	2	7	45	U	1	2	1
Jan-2002	20	48	1	6	6	2	8	46	1	2	3	U
Feb-2002	18	46	1	5	5	2	7	44	1	2	2	U
Mar-2002	21	47	2	6	6	2	8	47	1	2	2	U
Apr-2002	24	48	1	6	5	2	10	47	1	2	3	U
May-2002	24	47	1	5	5	2	9	47	1	2	2	U
Jun-2002	23	48	1	5	5	2	8	43	1	2	2	U
Jul-2002	22	48	2	8	7	2	11	46	2	3	3	U
Aug-2002	24	44	1	4	4	U	9	44	1	2	2	U
Sep-2002	24	44	U	5	4	U	7	43	U	U	1	U
Oct-2002	26	65	1	6	5	2	9	55	1	2	2	U
Nov-2002	17	46	2	8	8	3	10	46	1	2	2	U
Dec-2002	13	29	2	7	7	3	11	45	1	2	2	U

Table 4-5 (continued)

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
BOWLING GREEN ESTATES WATER DISTRICT SUPPLY WELLS
SUMMARY OF SELECTED VOLATILE ORGANIC COMPOUNDS RESULTS – 1999 THROUGH 2003

DATE	BGE-1 (screened from 478 to 528 feet below ground surface)						BGE-2 (screened from 524 to 584 feet below ground surface)					
	PCE	TCE	1,2-DCE	1,1-DCE	TCA	1,1-DCA	PCE	TCE	1,2-DCE	1,1-DCE	TCA	1,1-DCA
Jan-2003	13	28	2	7	7	4	16	56	1	3	3	U
Feb-2003	30	89	3	7	6	2	3	29	0.5	U	1	U
Mar-2003	28	81	2	6	5	2	3	21	U	U	1	U
Apr-2003	27	69	2	5	4	2	10	38	1	2	2	U
May-2003	31	65	1	6	4	2	11	43	2	2	3	U
Jun-2003	34	79	2	7	6	2	10	39	1	3	2	U

Source: Data provided by Town of Hempstead Department of Water.

Note: All results are reported in ug/l.

Abbreviations:

PCE: Tetrachloroethene
TCE: Trichloroethene
1,2-DCE: 1,2 Dichloroethene
1,1-DCE: 1,1-Dichloroethene
TCA: 1,1,1-Trichloroethane
1,1-DCA: 1,1-Dichloroethane
U: Undetected

the concentration of the most predominant VOCs detected in wells BGE-1 and BGE-2 from February 1999 through June 2003. This period and selected VOC concentrations are presented to provide additional evaluation of the contamination in the supply wells.

During the period between February 1988 and June 2003, TVOCs in well BGE-1 ranged from nondetect to 149 ug/l and TVOCs in well BGE-2 ranged from nondetect to 82 ug/l. The predominant compounds detected in both wells are PCE and TCE, with lower concentrations of 1,2-DCE, 1,1-DCE, TCA and 1,1-DCA. Between February 1999 and June 2003, well BGE-1 showed concentrations of PCE and TCE ranging from 3 ug/l to 34 ug/l and 5 ug/l to 89 ug/l, respectively. During the same time period, in well BGE-2, concentrations of PCE ranged from 0.5 ug/l to 16 ug/l, and TCE ranged from 11 ug/l to 56 ug/l.

In general, historic TVOC trends in wells BGE-1 and BGE-2 exhibit a generally increasing trend in total VOC concentrations (refer to Appendix E for historical graph).

Section 5

5.0 EVALUATION OF NATURAL ATTENUATION OF THE VOLATILE ORGANIC COMPOUND PLUME

An evaluation was conducted to determine if natural attenuation was occurring in the chlorinated VOC plume migrating from the New Cassel Industrial Area (NCIA). This task included an evaluation of the breakdown or transformation of the chlorinated VOCs, as well as the occurrence and changes in natural attenuation monitoring parameters within the plume.

5.1 Breakdown of Ethanes and Ethenes

A review of the chlorinated VOCs detected at and downgradient of the NCIA reveals that the compounds comprise two general suites of parent and degradation (daughter) products, ethanes and ethenes. These suites showing the general degradation pathways for these are as follows:

1. TCA → 1,1-DCA and/or 1,2-DCA
2. PCE → TCE → cis-1,2-DCE and/or trans-1,2-DCE and/or 1,1-DCE → VC

TCA: 1,1,1-Trichloroethane
1,1-DCA: 1,1-Dichloroethane
1,2-DCA: 1,2-Dichloroethane

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

Table 5-1 shows the chlorinated VOCs organized into these ethane and ethene suites. This table also provides the total VOC (TVOC) concentrations and relative percentages for the ethanes and ethenes for the four groundwater monitoring events (October 2002 through August 2003) discussed in this report.

Evaluation of the degradation of the ethane and ethene suite compounds is provided below. The percentages of ethane and ethene compounds relative to the TVOC concentrations for the July/August 2003 sampling event for each of the degradation suites are provided in cross

Table 5-1

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
OFF-SITE VOC CONSTITUENT PERCENTAGES IN GROUNDWATER

	MW-1								MW-2							
	Oct-02		Feb-03		May-03		Jul-03		Oct-02		Feb-03		May-03		Jul-03	
Constituent	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC
Ethene Suite																
PCE	13	8.9	10	10.1	5.8	9.5	7.6	14.3	50	5.8	39	9.4	38	6.1	45	6.1
TCE	79	54.1	51	51.5	34	55.8	27	50.8	360	41.4	210	50.4	320	51.6	350	47.2
c-DCE	5	3.4	5	5.1	2.1	3.4	1.6	3.0	39	4.5	38	9.1	32	5.2	36	4.9
t-DCE	--		--		--		--		--		--		--		0.7	0.1
1,1-DCE	49	33.6	33	33.3	19	31.2	17	32.0	420	48.3	130	31.2	230	37.1	310	41.8
VC	--		--		--		--		--		--		--		--	
TOTAL	146	100	99	100	60.9	35	53.2	100	869	100	417	100	620	100	741.7	100
Ethane Suite																
TCA	15	71.4	16	69.6	7.8	69.0	5.9	70.2	140	58.8	82	55.0	100	53.6	110	60.2
1,1-DCA	6	28.6	7	30.4	3.5	31.0	2.5	29.8	95	39.9	63	42.3	83	44.5	70	38.3
1,2-DCA	--		--		--		--		2	0.8	2	1.3	2	1.1	1.6	0.9
1,1,2-TCA	--		--		--		--		1	0.4	2	1.3	1.4	0.8	1.2	0.7
TOTAL	21	100	23	100	11.3	100	8.4	100	238	100	149	100	186.4	100	182.8	100

	MW-3								MW-4							
	Oct-02		Feb-03		May-03		Jul-03		Oct-02		Jan-03		May-03		Jul-03	
Constituent	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC
Ethene Suite																
PCE	22	3.4	27	3.9	55	4.7	73	4.0	130	6.5	120	7.4	99	6.8	110	7.1
TCE	322	50.3	440	63.7	700	60.0	1000	54.4	895	44.8	760	46.7	750	51.5	680	43.7
c-DCE	21	3.3	34	4.9	32	2.7	34	1.8	64	3.2	57	3.5	57	3.9	43	2.8
t-DCE	--		--		--		1	0.05	--		--		0.5	0.03	1.5	0.1
1,1-DCE	275	43.0	190	27.5	380	32.6	730	39.7	911	45.6	690	42.4	550	37.8	720	46.3
VC	--		--		--		--		--		--		--		--	
TOTAL	640	100	691	100	1167	100	1838	100	2000	100	1627	100	1456.5	100	1554.5	100
Ethane Suite																
TCA	107	59.5	120	50.6	180	55.3	270	63.4	320	49.9	270	51.0	190	42.4	210	50.1
1,1-DCA	70	38.9	110	46.4	140	43.0	150	35.2	310	48.4	250	47.3	250	55.7	200	47.7
1,2-DCA	2	1.1	5	2.1	3.4	1.0	4.1	1.0	7	1.1	6	1.1	5.6	1.2	6.4	1.5
1,1,2-TCA	0.8	0.4	2	0.8	2	0.6	1.7	0.4	4	0.6	3	0.6	3	0.7	2.7	0.6
TOTAL	179.8	100	237	100	325.4	100	425.8	100	641	100	529	100	448.6	100	419.1	100

NOTES
1. Units are in ug/l
2. Total VOC concentrations are for chlorinated VOCs listed
--: Not detected

ABBREVIATIONS
PCE: Tetrachloroethene
TCE: Trichloroethene
c-DCE: cis 1,2-Trichloroethene
t-DCE: trans 1,2-Trichloroethene
1,1-DCE: 1,1-Trichloroethene
VC: Vinyl Chloride
TCA: 1,1,1-Trichloroethane
1,1-DCA: 1,1-Dichloroethane
1,2-DCA: 1,2-Dichloroethane
1,1,2-TCA: 1,1,2-Trichloroethane

Table 5-1

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
OFF-SITE VOC CONSTITUENT PERCENTAGES IN GROUNDWATER

	MW-5								MW-6							
	Oct-02		Jan-03		May 2003*		Jul-03		Oct-02		Jan-03		May 2003*		Jul-03	
Constituent	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC
Ethene Suite																
PCE	9	25.0	18	15.8	64	19.0	11	35.9	60	21.8	58	18.6	15	18.6	56	18.8
TCE	7	19.4	35	30.7	84	24.9	2.6	8.5	59	21.5	89	28.5	27	33.5	45	15.1
c-DCE	12	33.3	6	5.3	9.4	2.8	--		21	7.6	15	4.8	2.5	3.1	7.4	2.5
t-DCE	--		--		--		--		--		--		--		--	
1,1-DCE	8	22.2	55	48.2	180	53.3	17	55.6	135	49.1	150	48.1	36	44.7	190	63.7
VC	--		--		--		--		--		--		--		--	
TOTAL	36.0	100	114.0	100	337.4	100	30.6	100	275.0	100	312.0	100	80.5	100	298.4	100
Ethane Suite																
TCA	7	77.8	39	75.0	190	78.9	35	84.5	122	79.7	170	78.3	23	73.2	270	79.9
1,1-DCA	2	22.2	13	25.0	50	20.8	6.4	15.5	31	20.3	47	21.7	8.4	26.8	68	20.1
1,2-DCA	--		--		0.9	0.4	--		--		--		--		--	
1,1,2-TCA	--		--		--		--		--		--		--		--	
TOTAL	9	100	52	100	240.9	100	41.4	100	153	100	217	100	31.4	100	338	100

	MW-7								MW-8							
	Oct-02		Jan-03		May-03		Jul-03		Oct-02		Jan-03		May-03		Jul-03	
Constituent	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC
Ethene Suite																
PCE	--		7	18.1	5.3	22.5	7.8	22.5	2	22.2	3	30.0	1.5	17.0	2.9	22.1
TCE	4	15.1	4	10.4	2.6	11.0	6	17.3	2	22.2	2	20.0	2.3	26.1	3.6	27.5
c-DCE	22	83.0	27	69.9	15	63.6	19	54.9	4	44.4	4	40.0	3.5	39.8	4.3	32.8
t-DCE	--		--		--		--		--		--		--		--	
1,1-DCE	0.5	1.9	0.6	1.6	0.7	3.0	1.8	5.2	1	11.1	1	10.0	1.5	17.0	2.3	17.6
VC	--		--		--		--		--		--		--		--	
TOTAL	26.5	100	38.6	100	23.6	100	34.6	100	9	100	10	100	8.8	100	13.1	100
Ethane Suite																
TCA	0.5	33.3	0.7	33.3	0.7	33.3	1.1	37.9	1	25.0	1	25.0	1.3	32.5	1.4	29.2
1,1-DCA	1	66.7	1.4	66.7	1.4	66.7	1.8	62.1	3	75.0	3	75.0	2.7	67.5	3.4	70.8
1,2-DCA	--		--		--		--		--		--		--		--	
1,1,2-TCA	--		--		--		--		--		--		--		--	
TOTAL	1.5	100	2.1	100	2.1	100	2.9	100	4	100	4	100	4	100	4.8	100

NOTES

1. Units are in ug/l
2. Total VOC concentrations are for chlorinated VOCs listed

--: Not detected

* Based upon review of historical results and the July 2003 results it appears that samples MW-5 and MW-6 were inadvertantly switched during the May 2003 sampling event.

ABBREVIATIONS

PCE: Tetrachloroethene
TCE: Trichloroethene
c-DCE: cis 1,2-Trichloroethene
t-DCE: trans 1,2-Trichloroethene
1,1-DCE: 1,1-Trichloroethene
VC: Vinyl Chloride
TCA: 1,1,1-Trichloroethane
1,1-DCA: 1,1-Dichloroethane
1,2-DCA: 1,2-Dichloroethane
1,1,2-TCA: 1,1,2-Trichloroethane

Table 5-1

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
OFF-SITE VOC CONSTITUENT PERCENTAGES IN GROUNDWATER

	MW-9								EW-1B							
	Oct-02		Feb-03		May-03		Aug-03		Oct-02		Jan-03		May-03		Jul-03	
Constituent	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC
Ethene Suite																
PCE	1	4.0	2	7.4	0.7	4.2	1.1	6.9	830	80.4	470	76.0	670	81.5	420	79.6
TCE	21	84.0	22	81.5	13.0	82.4	13	81.3	87	8.4	64	10.3	71	8.6	40	7.6
c-DCE	1	4.0	1	3.7	0.8	5.1	0.6	3.8	68	6.6	53	8.6	50	6.1	39	7.4
t-DCE	--		--		--		--		--		0.7	0.1	0.5	0.1	0.5	0.1
1,1-DCE	2	8.0	2	7.4	1.3	8.2	1.3	8.1	47	4.6	31	5.0	31	3.8	28	5.3
VC	--		--		--		--		--		--		--		--	
TOTAL	25	100.0	27	3000.0	15.8	100.0	16	100	1032	100	618.7	100	822.5	100	527.5	100
Ethane Suite																
TCA	2	100	--		1.6	100	1.5	100.0	59	88.1	34	85.0	40	89.9	31	90.9
1,1-DCA	--		--		--		--		8	11.9	6	15.0	4.5	10.1	3.1	9.1
1,2-DCA	--		--		--		--		--		--		--		--	
1,1,2-TCA	--		--		--		--		--		--		--		--	
TOTAL	2	100			1.6	100	1.5	100	67	100	40	100	44.5	100	34.1	100

	EW-1C								EW-2B							
	Oct-02		Jan-03		May-03		Jul-03		Oct-02		Jan-03		May-03		Jul-03	
Constituent	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC	Concentration	% of TVOC
Ethene Suite																
PCE	2	10.0	--		--		0.7	3.4	17	9.8	16	9.0	18	11.1	16	9.3
TCE	18	90.0	21	100.0	13	100.0	20	96.6	98	56.6	110	61.8	93	57.2	95	55.3
c-DCE	--		--		--		--		19	11.0	19	10.7	17	10.5	18	10.5
t-DCE	--		--		--		--		--		--		--		--	
1,1-DCE	--		--		--		--		7	4.0	5	2.8	5.5	3.4	5.9	3.4
VC	--		--		--		--		32	18.5	28	15.7	29	17.8	37	21.5
TOTAL	20	100	21	100	13	100	20.7	100	173	100	178	100	162.5	100	171.9	100
Ethane Suite																
TCA	--		--		--		--		4	46.5	3	44.8	3.1	44.3	3.6	43.4
1,1-DCA	--		--		--		--		4	46.5	3	44.8	3.3	47.1	4.7	56.6
1,2-DCA	--		--		--		--		0.6	7.0	0.7	10.4	0.6	8.6	--	
1,1,2-TCA	--		--		--		--		--		--		--		--	
TOTAL	--		--		--		--		8.6	100	6.7	100	7	100	8.3	100

NOTES
1. Units are in ug/l
2. Total VOC concentrations are for chlorinated VOCs listed
--: Not detected

ABBREVIATIONS
PCE: Tetrachloroethene
TCE: Trichloroethene
c-DCE: cis 1,2-Trichloroethene
t-DCE: trans 1,2-Trichloroethene
1,1-DCE: 1,1-Trichloroethene
VC: Vinyl Chloride
TCA: 1,1,1-Trichloroethane
1,1-DCA: 1,1-Dichloroethane
1,2-DCA: 1,2-Dichloroethane
1,1,2-TCA: 1,1,2-Trichloroethane

Table 5-1

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
OFF-SITE VOC CONSTITUENT PERCENTAGES IN GROUNDWATER

	EW-2C								BGE-1							
	Oct-02		Jan-03		May-03		Jul-03		Oct-02		Jan-03		May-03		Jun-03	
Constituent	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC
Ethene Suite																
PCE	--		0.8	100.0	1.8	72.0	--		26	26.5	13	26.0	31	30.1	34	27.9
TCE	--		--		0.7	28.0	--		65	66.3	28	56.0	65	63.1	79	64.8
c-DCE	--		--		--		--		1	1.0	2	4.0	1	1.0	2	1.6
t-DCE	--		--		--		--		--		--		--		--	
1,1-DCE	--		--		--		--		6	6.1	7	14.0	6	5.8	7	5.7
VC	--		--		--		--		--		--		--		--	
TOTAL	--		0.8	100.0	2.5	100.0			98	100	50	100	103	100	122	100
Ethane Suite																
TCA	--		--		--		--		5	62.5	7	58.3	4	57.1	6	66.7
1,1-DCA	--		--		--		--		2	25.0	4	33.3	2	28.6	2	22.2
1,2-DCA	--		--		--		--		1	12.5	1	8.3	1	14.3	1	11.1
1,1,2-TCA	--		--		--		--		--		--		--		--	
TOTAL	--		--		--		--		8	100	12	100	7	100	9	100

	BGE-2							
	Oct-02		Jan-03		May-03		Jun-03	
Constituent	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC
Ethene Suite								
PCE	9	13.4	16	21.1	11	19.0	10	18.9
TCE	55	82.1	56	73.7	43	74.1	39	73.6
c-DCE	1	1.5	1	1.3	2	3.4	1	1.9
t-DCE	--		--		--		--	
1,1-DCE	2	3.0	3	3.9	2	3.4	3	5.7
VC	--		--		--		--	
TOTAL	67	100	76	100	58	100	53	100
Ethane Suite								
TCA	2	100.0	3	100.0	3	100.0	2	100.0
1,1-DCA	--		--		--		--	
1,2-DCA	--		--		--		--	
1,1,2-TCA	--		--		--		--	
TOTAL	2	100	3	100	3	100	2	100

NOTES
1. Units are in ug/l
2. Total VOC concentrations are for chlorinated VOCs listed in the table
--: Not detected

ABBREVIATIONS
PCE: Tetrachloroethene
TCE: Trichloroethene
c-DCE: cis 1,2-Trichloroethene
t-DCE: trans 1,2-Trichloroethene
1,1-DCE: 1,1-Trichloroethene
VC: Vinyl Chloride
TCA: 1,1,1-Trichloroethane
1,1-DCA: 1,1-Dichloroethane
1,2-DCA: 1,2-Dichloroethane
1,1,2-TCA: 1,1,2-Trichloroethane

section on Figures 5-1 and 5-2, respectively. The cross sections also include the TVOC concentration contours for the July/August 2003 sampling event.

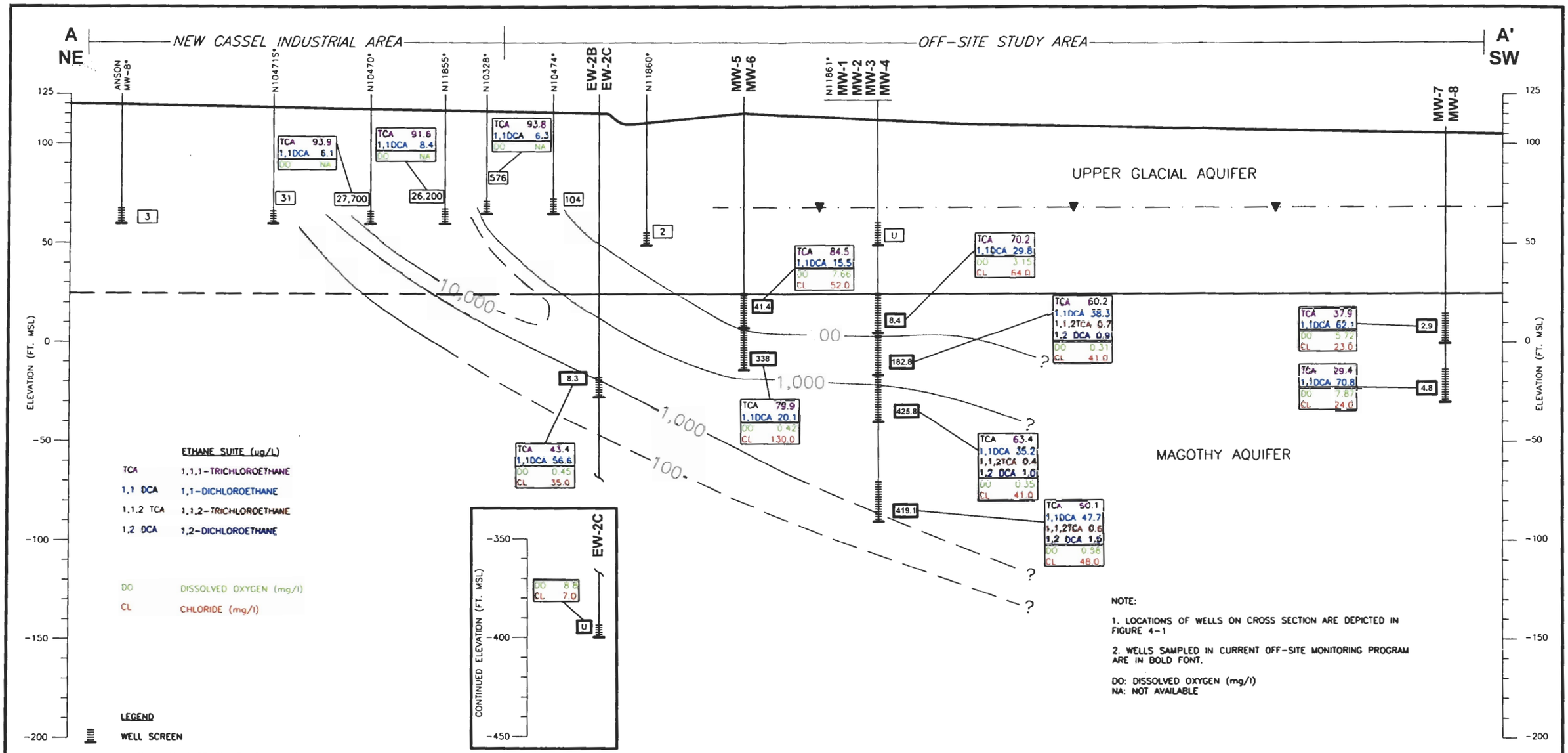
To provide data on the VOCs detected in groundwater upgradient of the study area, groundwater quality results from the eight most-impacted monitoring wells within the NCIA, as reported in the September 2000 NCIA RI/FS Report, were evaluated. These data are the most recent results included in the 2000 RI/FS Report (RI groundwater sampling was conducted in April 1999, August 1999 and January 2000). The data for three of these wells are presented on the cross sections on Figures 5-1 and 5-2, and summarized in Table 5-2. The locations of the RI/FS wells within the NCIA are shown on Figure 5-3. On-site groundwater quality data were summarized on figures from the RI/FS Report, which are included in Appendix F.

Ethane Compound Suite

The occurrence and distribution of ethane compounds in the VOC plume suggest that degradation is or was occurring. The parent compound TCA is the primary ethane species constituent detected in on-site wells, accounting for between 91.6 percent and 98.5 percent of the total ethane concentrations in the three wells with highest TVOC concentrations (N11855, N10328 and N10470), as shown on Table 5-2 and Figure 5-1. Breakdown daughter product 1,1-DCA accounted for between approximately 1.5 percent and 8.4 percent of the total ethane concentrations in these wells within the NCIA. In off-site groundwater, the relative percentage of TCA decreased relative to the on-site wells and the relative percentage of 1,1-DCA increased relative to the on-site wells, indicating the degradation of TCA to 1,1-DCA. This is shown on Figure 5-1 which presents the results from the July 2003 sampling event for the off-site wells.

Ethene Compound Suite

The predominant ethene compounds detected in on-site wells are breakdown products 1,1-DCE and 1,2-DCE at relative concentrations up to 98.6 percent to 94 percent, respectively (see Table 5-2 and Figure 5-2). Parent products PCE and TCE were present at maximum percentages of 15.3 percent and 9.1 percent, respectively.



NOTE:

1. LOCATIONS OF WELLS ON CROSS SECTION ARE DEPICTED IN FIGURE 4-1

2. WELLS SAMPLED IN CURRENT OFF-SITE MONITORING PROGRAM ARE IN BOLD FONT.

DO: DISSOLVED OXYGEN (mg/l)
NA: NOT AVAILABLE

HORIZONTAL SCALE: 1"=400'
VERTICAL SCALE: 1"=50'

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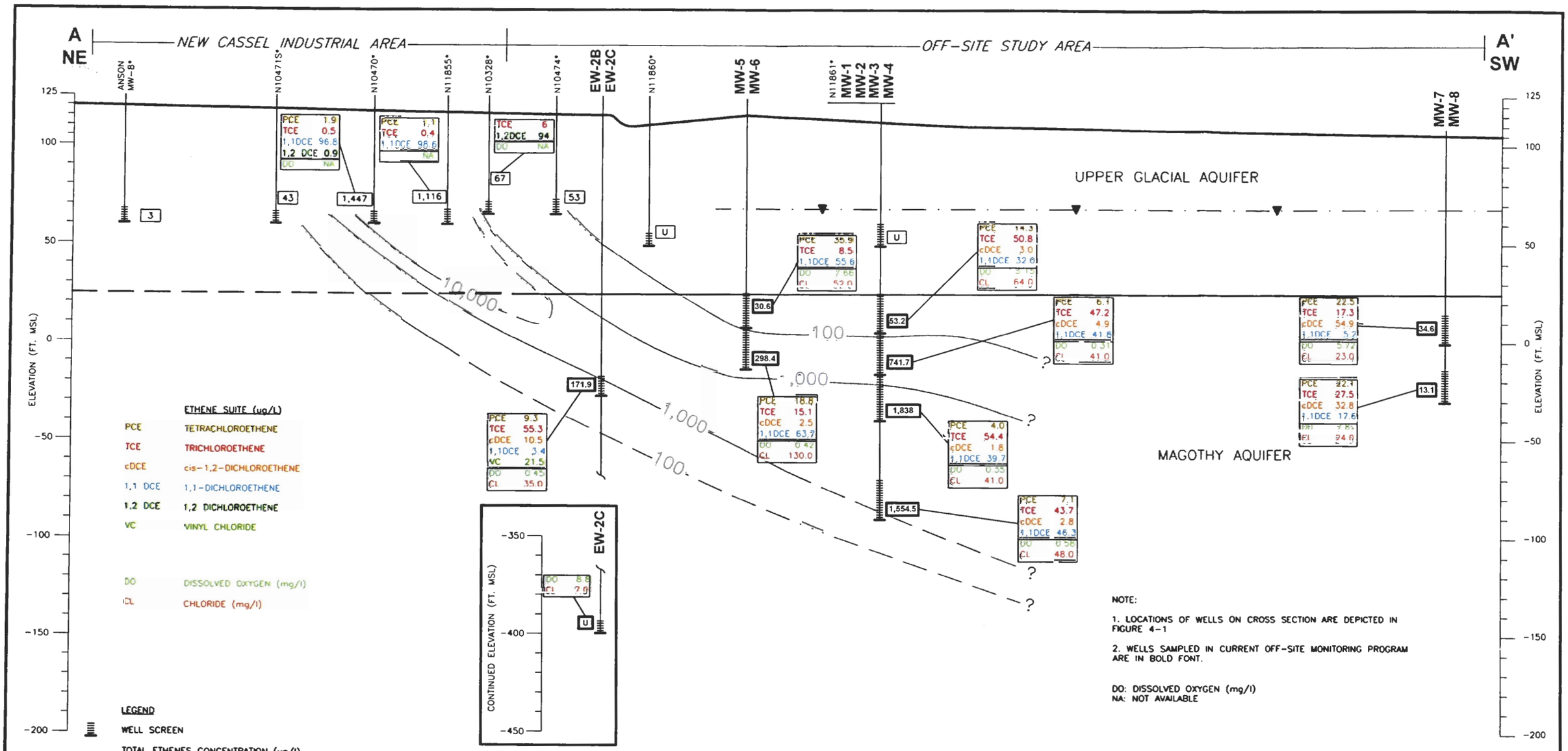
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

PERCENTAGES OF ETHANE CONSTITUENTS IN GROUNDWATER

FIGURE 5-1



NOTE:

1. LOCATIONS OF WELLS ON CROSS SECTION ARE DEPICTED IN FIGURE 4-1
2. WELLS SAMPLED IN CURRENT OFF-SITE MONITORING PROGRAM ARE IN BOLD FONT.

DO: DISSOLVED OXYGEN (mg/l)
NA: NOT AVAILABLE

HORIZONTAL SCALE: 1"=400'
VERTICAL SCALE: 1"=50'

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NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

PERCENTAGES OF ETHENE CONSTITUENTS IN GROUNDWATER

FIGURE 5-2

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Table 5-2

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
ON-SITE VOC CONSTITUENT PERCENTAGES IN GROUNDWATER

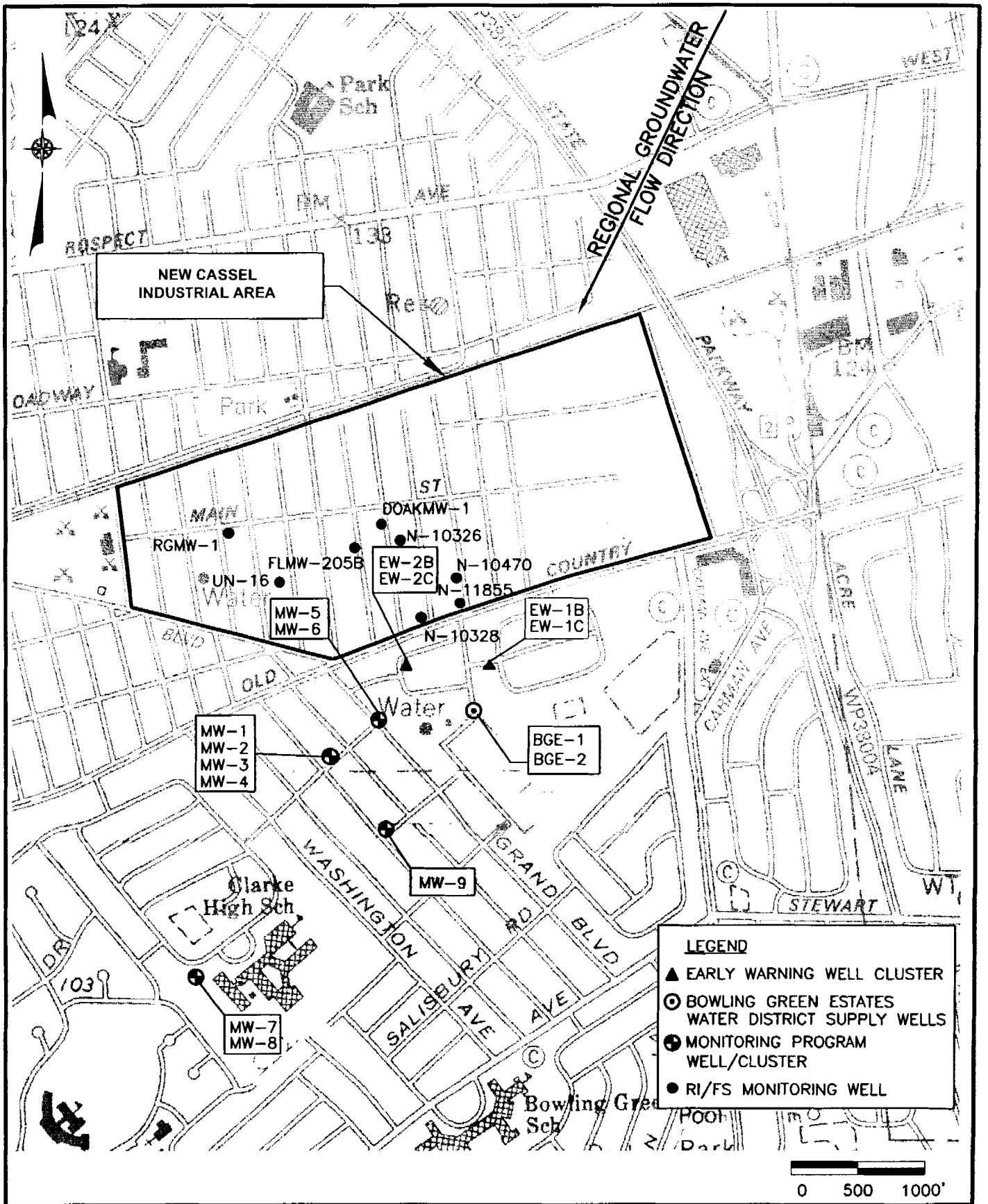
Constituent	N-10328						N-10470						N-11855					
	Apr. 99		Aug. 99		Jan. 00		Apr. 99		Aug. 99		Jan. 00		Apr. 99		Aug. 99		Jan. 00	
	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC	Concen-tration	% of TVOC
Ethene Suite																		
PCE	--		2	3.2	--		51	10.3	27	1.9	29	15.3	--		--		12	1.1
TCE	4	6.0	2	3.2	2	3.2	8	1.6	7	0.5	10	5.3	--		2	9.1	4	0.4
1,1-DCE	--		58	93.5	60	96.8	420	84.5	1,400	96.8	150	79.4	13	100.0	20	90.9	1,100	98.6
1,2-DCE	63	94.0	--		--		18	3.6	13	0.9	--		--		--		--	
VC	--		--		--		--		--		--		--		--		--	
TOTAL	67	100	62	100	62	100	497	100	1,447	100	189	100	13	100	22	100	1,116	100
Ethane Suite																		
TCA	540	93.8	320	92.0	290	92.0	9,600	95.4	26,000	93.9	1,500	94.1	190	97.9	320	98.5	24,000	91.6
1,1-DCA	36	6.3	28	8.0	27	8.0	460	4.6	1,700	6.1	97	5.9	4	2.1	5	1.5	2,200	8.4
TOTAL	576	100	348	100	317	100	10,060	100	27,700	100	1,594	100	194	100	325	100	26,200	100

NOTES

1: Units are in ug/l.
2: Total VOC concentrations are for chlorinated VOCs listed.
--: Not detected.

ABBREVIATIONS

PCE: Tetrachloroethene
TCE: Trichloroethene
1,1-DCE: 1,1-Dichloroethene
1,2-DCE: 1,2-Dichloroethene (comprised of cis and trans isomers)
VC: Vinyl Chloride



NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM

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LOCATIONS OF ON-SITE GROUNDWATER MONITORING WELLS

FIGURE 5-3

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In the off-site downgradient wells (Table 5-1), PCE and TCE are the predominant ethene compounds detected with relative percentages up to 81.5 percent and 100 percent, respectively. Relative to the on-site wells, percentages of 1,1-DCE are lower in the off-site downgradient wells varying between 1.6 percent and 63.7 percent.

An indication of the degradation of ethene suite compounds is the presence of breakdown products cis-1,2-DCE and VC. Breakdown product cis-1,2-DCE is present in the downgradient off-site wells at percentages ranging from 1.8 percent to 83 percent. Breakdown product VC is present only in early warning monitoring well EW-2B at percentages between 15.7 and 21.5 percent of the total ethene concentration.

The varying occurrence and distribution of the parent and breakdown ethene compounds between the NCIA and the downgradient wells may be the result of the many contaminant sources in the NCIA, different periods and amounts of contaminant releases and/or overlapping plumes.

5.2 Natural Attenuation Parameters

A recommended list of parameters to be monitored to evaluate natural attenuation (NA) was presented in the RI/FS Report. These parameters were analyzed during the 2002/2003 monitoring program and included laboratory analysis of iron, total organic carbon (TOC), alkalinity, chloride, nitrate, sulfate, carbon dioxide and methane, and field measurements of pH, dissolved oxygen and oxidation/reduction potential (Eh).

Due to the limited historic data available for the natural attenuation parameters in the on-site wells, the relative variation for these parameters was evaluated for the off-site monitoring wells only. Table 5-3 presents the values of the NA monitoring parameters for the July/August 2003 sampling event for the early warning wells and off-site monitoring wells. This table also includes the TVOC concentrations detected in the wells for the same sampling period.

Table 5-3

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
NATURAL ATTENUATION PARAMETER MONITORING RESULTS - JULY/AUGUST 2003

Sample Identification Sample Depth, ft. Date of Collection	EW-1B 154-164 07/30/03	EW-1C 506-516 07/30/03	EW-2B 132-142 07/28/03	EW-2C 504-514 07/29/03	Average Concentration from all Sampled Wells during Reporting Period
Laboratory Results					
Total Iron	U	0.513	U	0.552	0.8
Total Organic Carbon	U	U	U	U	0.6
Alkalinity	17	12	12	10	14
Chloride	32.2	14.8	34.9	7.3	38
Nitrate	5.7	6.3	2.5	1.9	4.8
Sulfate	20.6	1.6	11.2	U	19
Carbon Dioxide	65	16	67.6	12	42
Methane	0.001	U	0.032	U	0.01
pH	5.26	5.57	5.05	5.59	
Dissolved Oxygen	0.26	8.70	0.45	8.80	
Eh	206	268	299	284	
TVOC	563.13	21.27	181.54	1.4	

Sample Identification Sample Depth, ft. Date of Collection	MW-1 90-110 07/30/03	MW-2 110-130 07/30/03	MW-3 130-150 07/30/03	MW-4 180-200 07/30/03	MW-5 90-110 07/29/03	MW-6 110-130 07/28/03	MW-7 90-110 07/30/03	MW-8 120-140 07/30/03	MW-9 305-315 08/01/03	Average Concentration from all Sampled Wells during Reporting Period
Laboratory Results										
Total Iron	U	0.204	**1.68**	U	U	U	0.138	**2.54**	U	0.8
Total Organic Carbon	U	U	U	U	U	U	U	U	U	0.6
Alkalinity	U	26	U	**19**	14	23	U	14	15	**14**
Chloride	64.3	41.2	41.3	47.8	52.5	**130**	22.8	24.2	12.8	38
Nitrate	4	5.9	5.6	8	5.4	4.7	5.9	5	1.8	4.8
Sulfate	30.4	19.5	23.9	5	31.5	23.6	29.5	30.7	16.9	19
Carbon Dioxide	U	72	U	87	57	68	U	49	16.5	42
Methane	0.002	**0.15**	0.064	0.003	U	0.001	0.001	0.003	U	0.01
Field Measurements										
pH	4.95	5.37	4.86	5.22	5.25	5.53	4.89	5.57	5.83	
Dissolved Oxygen	3.15	0.31	0.35	0.58	7.66	0.42	5.72	4.10	8.55	
Eh	318	232	177	201	340	434	340	192	390	
TVOC	65	930.57	2,271.08	1,981.15	72.55	639.2	41.2	17.9	18.3	

NOTES:
Units are mg/l for laboratory results and dissolved oxygen, millivolts for Eh and ug/l for TVOC.

U: Compound analyzed for but not detected.
TVOC: Total volatile organic compounds.
130: Value varies by at least one order-of-magnitude from average value of all well sample results.

According to the United States Environmental Protection Agency (USEPA) 1998 document entitled, "Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water," biodegradation of chlorinated VOCs would be indicated by:

- Low dissolved oxygen concentrations/anaerobic conditions;
- Negative Eh readings, and low nitrate and sulfate concentrations indicating reducing conditions;
- Elevated concentrations of alkalinity, carbon dioxide and chloride, which are produced as byproducts of biodegradation; and
- Total organic carbon concentrations greater than 20 mg/l to provide an energy source for microbes capable of biodegradation of chlorinated VOCs.

Since an unimpacted upgradient monitoring well is not available to serve as baseline, well MW-7 was selected as the reference for the evaluation of the NA parameters. MW-7 is the farthest downgradient well and contained low levels of VOCs.

For each quarter, nitrate and sulfate concentrations in early warning well EW-2B were lower than those detected in well MW-7 (see Appendix D). Well EW-1B also contained sulfate at levels slightly lower than MW-7.

In comparison to MW-7, slightly elevated concentrations of alkalinity and carbon dioxide were detected in monitoring wells MW-1, MW-2, MW-4, MW-5 and MW-6. In addition, the chloride concentrations in wells MW-5 and MW-6 were two to three times higher than those in MW-7.

Although the above results indicate that conditions appropriate for biodegradation of chlorinated VOCs could exist locally, a negative Eh value was not detected in any well during any of the 2002/2003 sampling events, and dissolved oxygen concentrations were greater than 1.0 mg/l for all wells except in wells EW-1B (July 2003), EW-2B (July 2003), MW-2 (July 2003), MW-3 (February and July 2003), MW-4 (July 2003) and MW-6 (July 2003), when dissolved oxygen concentrations ranging from 0.26 mg/l to 0.58 mg/l were measured. These

results indicate groundwater in the off-site study is, in general, aerobic. In addition, no TOC concentrations greater than 4.4 mg/l were detected in any well during the 2002/2003 sampling events.

Based on these factors, it appears unlikely that significant biodegradation of the off-site VOC plume is occurring. However, the presence of daughter product (1,2-DCE, VC and 1,2-DCA) suggests that a zone of biodegradation is or was present upgradient of the wells sampled during this program, possibly within the NCIA source areas.

Section 6

6.0 CONCLUSIONS

The conclusions resulting from the October 2002 through August 2003 Off-site Groundwater Monitoring and Assessment Program for the New Cassel Industrial Area (NCIA) are provided below.

Groundwater Quality

- Groundwater south of the NCIA continues to be impacted by VOCs, primarily chlorinated VOCs migrating from the NCIA.
- Plume depth increases with distance from the NCIA due to downward flow gradients and influences of pumping of the Bowling Green Estates Water District supply wells, as well as the densities of the VOCs of concern, which are greater than water.
- The most highly contaminated portion of the plume (depth of 110 to 200 feet below ground surface and approximately 700 feet downgradient of the NCIA) is showing a slight improvement in groundwater quality relative to previous sampling events, possibly due to downgradient migration of the plume.
- The downgradient extent of the plume has not been delineated.
- The Bowling Green Estates Water District supply wells have historically been and continue to be impacted by VOCs from the NCIA. Both supply wells show generally increasing trends in TVOCs.
- The TVOC concentrations currently detected in the Bowling Green Estates Water District supply wells (less than 150 ug/l in each well) are significantly less than the maximum influent concentration for the treatment system of 1,200 ug/l.

Degradation of the VOC Plume

- Several plumes with multiple sources complicate the evaluation of natural attenuation.
- It appears unlikely that significant biodegradation of the off-site VOC plume is occurring. However, the presence of daughter product (1,2-DCE, VC and 1,2-DCA) suggests that a zone of biodegradation is or was present upgradient of the wells sampled during this program, possibly within the NCIA source areas.

Section 7

7.0 RECOMMENDATIONS

Based on an assessment of the groundwater sampling results from the four early warning wells and the nine off-site monitoring wells for the period of October 2002 through August 2003, the following recommendations are made for future monitoring and evaluation of groundwater quality downgradient of the New Cassel Industrial Area (NCIA).

- The existing four early warning wells (EW-1B, EW-1C, EW-2B and EW-2C) and the existing off-site monitoring wells (MW-1 through MW-9) should continue to be sampled on a quarterly basis to provide monitoring of VOC contamination upgradient of the Bowling Green Estates Water District supply wells and provide groundwater quality and assessment of VOC contamination downgradient of the NCIA. The wells should continue to be analyzed for VOCs as defined in the current Off-site Groundwater Monitoring and Assessment Program.

- Construction and sampling of vertical profile temporary and/or permanent wells should be considered to delineate the horizontal and vertical downgradient extent of VOC contamination that has consistently been detected in the deeper wells of the central off-site well cluster (MW-1 through MW-4).

Appendix A

APPENDIX A

SUMMARY OF SAMPLE FIELD PARAMETER VALUES

APPENDIX A

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
SUMMARY OF SAMPLE FIELD PARAMETER VALUES

Well Number	Dates	pH (standard units)	Temperature C°	Specific Conductance (ms/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mv)
EW-1B	10/02	6.23	15.4	0.240	40	2.92	190
	1/03	5.45	14.4	0.199	0.3	1.42	290
	5/03	5.46	15.1	0.189	5.7	2.53	344
	7/03	5.26	15.6	0.190	8.0	0.26	206
EW-1C	10/02	6.56	12.9	0.130	42	7.78	124
	1/03	5.90	12.0	0.097	3.5	11.51	273
	5/03	6.03	12.0	0.120	9.2	9.10	266
	7/03	5.57	12.3	0.105	20.1	8.70	268
EW-2B	10/02	6.00	16.0	0.201	32.4	1.59	273
	1/03	5.33	14.4	0.146	0.7	1.53	273
	5/03	5.32	15.1	0.149	5.8	2.00	315
	7/03	5.05	15.6	0.147	0.9	0.45	299
EW-2C	10/02	6.59	12.5	0.063	5.7	8.15	109
	1/03	6.12	11.4	0.047	0	8.37	219
	5/03	5.98	12.2	0.049	6.2	9.04	298
	7/03	5.59	12.8	0.048	20.1	8.80	284
MW-1	10/02	5.46	17.2	0.316	1.5	2.74	252
	2/03	5.10	14.9	0.245	1.1	2.02	379
	5/03	4.92	15.4	0.282	0.9	3.88	390
	7/03	4.95	16.2	0.270	4.9	3.15	318
MW-2	10/02	5.89	16.8	0.277	18.3	1.20	135
	2/03	5.67	15.1	0.225	0.4	1.15	228
	5/03	5.38	15.3	0.216	1.5	3.43	342
	7/03	5.37	16.3	0.224	7.1	0.31	232
MW-3	10/02	4.72	16.9	0.145	27	2.28	93
	2/03	4.90	15.5	0.168	0.1	0.85	165
	5/03	4.64	15.7	0.184	8.9	2.50	273
	7/03	4.86	16.7	0.206	11.9	0.35	177
MW-4	10/02	5.69	16.7	0.295	6.7	2.21	206
	2/03	5.32	10.1	0.221	0.9	1.63	339
	5/03	5.22	15.5	0.224	0	2.95	323
	7/03	5.22	16.4	0.221	0.5	0.58	201

NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
SUMMARY OF SAMPLE FIELD PARAMETER VALUES

Well Number	Dates	pH (standard units)	Temperature C°	Specific Conductance (ms/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/l)	Eh (mv)
MW-5	10/02	5.86	16.2	0.338	7.4	9.05	222
	1/03	5.63	14.7	0.237	0.6	8.76	354
	5/03	5.64	16.4	0.281	5.8	7.69	309
	7/03	5.25	16.1	0.247	5.6	7.66	340
MW-6	10/02	5.94	16.3	0.455	6.2	2.51	208
	1/03	5.66	14.6	0.309	13.9	1.07	286
	5/03	5.70	16.1	0.377	4.3	2.37	266
	7/03	5.53	16.1	0.432	7.9	0.42	434
MW-7	10/02	5.24	14.4	0.216	6.6	5.70	273
	1/03	5.02	12.9	0.161	1.0	4.72	307
	5/03	5.14	15.0	0.163	2.5	6.14	316
	7/03	4.89	14.4	0.159	24.7	5.72	340
MW-8	10/02	6.15	14.2	0.246	17	4.08	2
	1/03	5.79	12.9	0.176	29.9	3.45	126
	5/03	5.66	14.8	0.185	3.5	5.06	178
	7/03	5.57	14.4	0.172	20.1	4.10	192
MW-9	10/02	7.08	13.8	0.170	5.6	7.87	176
	2/03	6.97	12.5	0.117	1.2	8.26	283
	5/03	6.21	14.5	0.105	2.7	9.59	339
	8/03	5.83	13.9	0.100	6.8	8.55	390

Notes:

C° - Celsius
ms/cm - millisiemens/centimeter
NTU - Nephelometric Turbidity Unit
mv - millivolt
mg/l - milligrams per liter

Appendix B

APPENDIX B

EARLY WARNING WELL AND OFF-SITE MONITORING WELL VOLATILE ORGANIC COMPOUND RESULTS

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B	Contract	NYSDEC Class GA
Sample Depth, ft	154-164	154-164	154-164	154-164	154-164	154-164	154-164	154-164	Required	Groundwater
Date of Collection	09/25/01	01/28/02	04/25/02	07/18/02	10/16/02	01/29/03	05/08/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	50.0	1.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	39	45	39	38	47 D	31	31	28	0.5	5 ST
Methylene Chloride	U	26	U	U	U	U	U	U	0.5	5 ST
trans-1,2-Dichloroethene	0.6	U	U	0.8	U	0.7	0.51	0.52	0.5	5 ST
1,1-Dichloroethane	3.8	U	10	7	8	6	4.5	3.1	0.5	5 ST
2,2-Dichloropropane	--	U	U	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	58 **D	87	64 D	44 D	68 D	53 D	50 D	39	0.5	5 ST
Chloroform	U	U	0.3 J	U	9	U	U	U	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	40	59	52 D	41 D	59 D	34 D	40 D	31	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	U	0.5	0.6 ST
Trichloroethene	66 D	120	91 D	67 D	87 D	64 D	71 D	40 D	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	630 D	1000	780 D	640 D	830 D	470 D	670 D	420 D	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	1.1	U	U	2	2	2	1.7	1	0.5	3 ST
1,4-Dichlorobenzene	0.7	U	0.8	0.9	U	0.9	0.86	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	0.57	1.8	0.5	---
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	1	U	1.8		0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	2	U	0.71	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	0.8	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	839.2	1337	1037.1	840.7	1111.8	663.6	871.74	565.13		

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2 -dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
---: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C	Contract	NYSDEC Class GA
Sample Depth, ft	506-516	506-516	506-516	506-516	506-516	506-516	506-516	506-516	Required	Groundwater
Date of Collection	09/25/01	01/28/02	04/25/02	07/18/02	10/16/02	01/29/03	05/08/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
Methylene Chloride	U	U	U	U	U	U	U	U	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
2,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroform	U	U	U	U	U	U	U	U	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	0.5	0.6	U	0.49 J	0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	U	0.5	0.6 ST
Trichloroethene	12	13	15	13	18	21	13	20	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	U	0.6	5	U	2	U	U	0.78	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	---
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	12	13.6	20	13	20.5	21.6	13	21.27		---

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*:Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
---: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B	Contract	NYSDEC Class GA
Sample Depth, ft	132-142	132-142	132-142	132-142	132-142	132-142	132-142	132-142	Required	Groundwater
Date of Collection	09/25/01	01/28/02	04/25/02	07/19/02	10/16/02	01/29/03	05/08/03	07/28/03	Detection	Standard or
Dilution Factor	1.0	5.0	5.0	5.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	51 D	32	24	29	32	28	28	37	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	2.6	U	24	19	U	U	U	U	0.5	5 ST
Fluorotrichloromethane	0.6	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	43 D	10	8	U	7	5	5.5	5.9	0.5	5 ST
Methylene Chloride	1.5	3 J	U	U	U	U	U	U*	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	150 D	24	9	5	4	3	3.3	4.7	0.5	5 ST
2,2-Dichloropropane	**	U		U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	36 **	25	19	18	19	19	17	18	0.5	5 ST
Chloroform	U	U	U	U	U	0.5	0.5	0.58	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	85 D	16	8	5	4	3	3.1	3.6	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	0.5	5 ST
1,2-Dichloroethane	0.7	U	0.5	U	0.6	0.7	0.67	U	0.5	0.6 ST
Trichloroethene	140 D	130	100 D	84 D	98	110 D	93 D	95 D	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	20	21	17	21	17	16	18	16	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	1.3	U	U	U	0.9	1	1.1	0.78	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	0.5	U	U	U	U	U	0.67	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	—
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	532.2	261	209.5	181	182.5	186.2	172.04	181.54		—

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
—: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C	Contract	NYSDEC Class GA
Sample Depth, ft	504-514	504-514	504-514	504-514	504-514	504-514	504-514	504-514	Required	Groundwater
Date of Collection	09/25/01	01/28/02	04/25/02	07/19/02	10/16/02	01/29/03	05/08/03	07/29/03	Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	*(ug/l)*	*(ug/l)*	*(ug/l)*	*(ug/l)*	*(ug/l)*	*(ug/l)*	*(ug/l)*	*(ug/l)*	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chlonde	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
Methylene Chloride	U	U	U	U	U	U	U	U*	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
2,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroform	U	U	U	U	U	U	U	U	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	U	0.5	0.6 ST
Trichloroethene	U	U	U	U	U	U	0.7	U	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	U	U	U	1	U	0.8	1.8	U	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	—
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	1.4	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	0	0	0	1	0	0.8	2.5	1.4		—

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2 -dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
U*: Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
----: Not established
Indicates value exceeds NYSDEC Clase GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	Contract	NYSDEC Class GA
Sample Depth, ft	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110	Required	Groundwater
Date of Collection	11/02/01	01/24/02	04/25/02	07/16/02	10/17/02	02/03/03	05/06/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	16	8	26	24	49	33	19	17	0.5	5 ST
Methylene Chloride	U	U	U	U	U	U	U	U	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	2.8	2	5	4	6	7	3.5	2.5	0.5	5 ST
2,2-Dichloropropane	--	U		U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	1.1 **	1	3	3	5	5	2.1	1.6	0.5	5 ST
Chloroform	0.5	U	U	1	2	2	1.3	U	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	7.8	4	10 J	10	15	18	7.8	5.9	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	U	0.5	0.6 ST
Trichloroethene	21	16	52 DJ	55 E	79	51 D	34	27	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	4.1	3	9	8	13	10	5.8	7.6	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	3.4	0.5	----
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U*	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	53.3	34	105	106	169	124	73.5	65		

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*:Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
---: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	Contract	NYSDEC Class GA
Sample Depth, ft	110-130	110-130	110-130	110-130	110-130	110-130	110-130	110-130	Required	Groundwater
Date of Collection	11/02/01	01/24/02	04/24/02	07/16/02	10/18/02	02/03/03	05/06/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	1	2	U	0.8	0.9	0.7	0.85	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	540 D	440 D	480 D	190 E	420	130 D	230 D	310 D	0.5	5 ST
Methylene Chloride	1.9	U	U	U	0.9	U	U*	0.74	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	0.77	0.5	5 ST
1,1-Dichloroethane	140 D	140 D	140 D	52 E	95	63 D	83 D	70 D	0.5	5 ST
2,2-Dichloropropane	**	U		U	U		U	U	0.5	5 ST
cis-1,2-Dichloroethene	48 **E	35	42 D	17	39	38	32	36	0.5	5 ST
Chloroform	5.2	2	4	2 B	4	4	4.9	4.4	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	230 D	220 D	210 D	75 E	140	82 D	100 D	110 D	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	0.8	U	0.5	5 ST
1,2-Dichloroethane	2.2	U	2	U	2	2	2	1.6	0.5	0.6 ST
Trichloroethene	580 D	500 D	450 D	190 E	360	210 D	320 D	350 D	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	1.5 *	2	U	U	1	2	1.4	1.2	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	49 JD	53 D	52 D	26	50	39	38 D	45 D	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	---
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U*	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	1597.8	1393	1382	552	1112.7	570.9	812.8	930.57		---

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2 -dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
U*:Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
---: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	Contract	NYSDEC Class GA
Sample Depth, ft	130-150	130-150	130-150	130-150	130-150	130-150	130-150	130-150	Required	Groundwater
Date of Collection	11/02/01	01/24/02	04/24/02	07/16/02	10/16/02	02/03/03	05/06/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	1.0	50.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	0.7	1	U	1	U	1	0.7	0.98	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	900 D	770 D	390 D	670 E	275 D	190 D	380 D	730 D	0.5	5 ST
Methylene Chloride	7.1	U	50 D	3	0.9	3	U*	2.2	0.5	5 ST
trans-1,2-Dichloroethene	0.5	U	U	U	U	U	U	1	0.5	5 ST
1,1-Dichloroethane	230 D	250 D	130 D	210 E	70 D	110 D	140 D	150 D	0.5	5 ST
2,2-Dichloropropane	**	U	**	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	54 **E	40	25 **D	40 E	21	34	32	34 D	0.5	5 ST
Chloroform	5.7	3	U	U	2	4	4.1	4.1	0.5	7 ST
Bromochloromethane	U	U	U	4 B	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	350 D	350 D	160 D	270 E	107 D	120 D	180 D	270 D	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	0.93	U	0.5	5 ST
1,2-Dichloroethane	5.1	U	U	U	2	5	3.4	4.1	0.5	0.6 ST
Trichloroethene	1200 D	1000 D	490 D	920 E	322 D	440 D	700 D	1000 D	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	2.1	2	U	2	0.8	2	2	1.7	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	67 E	74 D	28 D	70 E	22	27 D	55 D	73 D	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	----
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U*	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	2822.2	2490	1273	2190	822.7	936	1498.13	2271.08		----

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
*: Sample result highly estimated, based on validation criteria
U*:Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
----: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	Contract	NYSDEC Class GA
Sample Depth, ft	180-200	180-200	180-200	180-200	180-200	180-200	180-200	180-200	Required	Groundwater
Date of Collection	11/02/01	01/24/02	04/24/02	07/16/02	10/17/02	02/03/03	05/06/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	1.0	50.0	1.0	10.0	10.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	0.7	1	U	U	U	1	1.1	0.95	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	1100 D	750 D	530 D	520 D	911 D	690 D	550 D	720 D	0.5	5 ST
Methylene Chloride	8.9	U	55 D	U	7	3	U*	3.6	0.5	5 ST
trans-1,2-Dichloroethene	0.8	U	U	U	U	U	0.54	1.5	0.5	5 ST
1,1-Dichloroethane	310 D	280 D	180 D	170 D	310	250 D	250 D	200 D	0.5	5 ST
2,2-Dichloropropane	**	U	**	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	82 **E	64 D	43 **D	38 D	64	57 D	57 D	43 D	0.5	5 ST
Chloroform	2.4	3	U	37 BD	4 J	3	3.2	3	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	350 D	280 D	180 D	170 D	320	270 D	190 D	210 D	0.5	5 ST
1,1-Dichloropropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	1.2	U	0.5	5 ST
1,2-Dichloroethane	7	U	U	U	7	6	5.6	6.4	0.5	0.6 ST
Trichloroethene	1000 D	790 D	550 D	480 D	895 D	760 D	750 D	680 D	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	3.6	3	U	4	4 J	3	3	2.7	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	150 D	130 D	38 D*	77 D	130	120 D	99 D	110 D	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	---
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	3015.4	2301	1578	1496	2652	2163	1910.64	1981.15		---

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*:Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
---: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5***	MW-5	Contract	NYSDEC Class GA
Sample Depth, ft	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110	Required	Groundwater
Date of Collection	11/05/01	01/24/02	04/25/02	07/17/02	10/18/02	01/30/03	05/07/03	07/29/03	Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	5.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	0.68	U	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U		U	U	0.5	5 ST
1,1-Dichloroethene	11	10	3	2	8	55 D	180 D	17	0.5	5 ST
Methylene Chloride	U	U	U	U	U	U	U*	U*	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	1.5	2	0.8	U	2	13	50 D	6.4	0.5	5 ST
2,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	U	0.5	1	6	12	6	9.4	U	0.5	5 ST
Chloroform	U	U	0.3 J	U	U	U	1.2	0.55	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	15	15	4	3	7	39	190 D	35	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	0.74	U	0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	0.99	U	0.5	0.6 ST
Trichloroethene	2.5	2	2	1	7	35	84 D	2.6	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	3.7	16	25	19	9	18	64 D	11	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	0.72	U	0.5	—
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	33.7	45.5	36.1	31	45	166	581.73	72.55		—

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
---: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

***: Based upon review of historical results and the 8th quarter results it appears that samples MW-5 and MW-6 were inadvertantly switched during the May 2003 sampling event.

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6***	MW-6	Contract	NYSDEC Class GA
Sample Depth, ft	110-130	110-130	110-130	110-130	110-130	110-130	110-130	110-130	Required	Groundwater
Date of Collection	11/05/01	01/25/02	04/25/02	07/17/02	10/18/02	01/30/03	05/07/03	07/28/03	Detection	Standard or
Dilution Factor	1.0	1.0	10.0	1.0	5.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	U	1.4	0.5	5 ST
Fluorotrichloromethane	U	U	1 J	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	270 D	72 D	100 D	99 D	135	150 D	36	190 D	0.5	5 ST
Methylene Chloride	1.3	U	U	5 D	U	12	U	U*	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	52 D	36	33	29	31	47 D	8.4	68 D	0.5	5 ST
2,2-Dichloropropane	**	U	**	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	22 **	13	9 **	9	21	15	2.6	7.4	0.5	5 ST
Chloroform	1.1	U	1	U	U	1	U	1.4	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	240 D	89 D	96 D	90 D	122	170 D	23	270 D	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	0.5	5 ST
1,2-Dichloroethane	0.8	U	U	U	U	U	U	U	0.5	0.6 ST
Trichloroethene	93 D	54 D	43	51 D	59	89 D	27	45 D	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	80 D	37 D	68 E	47 D	60	58 D	15	56 D	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	1 B	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	—
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	781.2	301	351	330	428	542	111.9	639.2		—

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
—: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

***: Based upon review of historical results and the 8th quarter results it appears that samples MW-5 and MW-6 were inadvertantly switched during the May 2003 sampling event.

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-7	MW-7	MW-7	MW-7	MW-7	MW-7	MW-7	MW-7	Contract	NYSDEC Class GA
Sample Depth, ft	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110	Required	Groundwater
Date of Collection	11/05/01	01/25/02	04/24/02	07/16/02	10/18/02	01/29/03	05/07/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	U	0.5	0.7	2	0.5	0.6	0.74	1.8	0.5	5 ST
Methylene Chloride	U	U	U	U	U	U	U	U	0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	0.7	1	1	2	1	2	1.4	1.8	0.5	5 ST
2,2-Dichloropropane	**	U	**	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	23 **	18	15 **	18	22	27	15	19	0.5	5 ST
Chloroform	U	U	U	U	U	U	U	U	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	U	0.5	0.6	2	0.5	0.7	0.7	1.1	0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	U	0.5	0.6 ST
Trichloroethene	2	3	3	8	4	4	2.8	6	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	5.2	6	4	6	U	7	5.3	7.8	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	2	U	2	1.6	3.7	0.5	—
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	30.9	29	24.3	40	28	43.3	27.34	41.2		—

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
—: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-8	MW-8	MW-8	MW-8	MW-8	MW-8	MW-8	MW-8	Contract	NYSDEC Class GA
Sample Depth, ft	120-140	120-140	120-140	120-140	120-140	120-140	120-140	120-140	Required	Groundwater
Date of Collection	11/05/01	01/25/02	04/24/02	07/17/02	10/18/02	01/29/03	05/07/03	07/30/03	Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
Vinyl Chloride	U	U	U	U	U	U	U	U	0.5	2 ST
Bromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
Chloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethene	U	0.8	U	0.5	1	1	1.5	2.3	0.5	5 ST
Methylene Chloride	U	0.6	U	U	U	U	U	U	0.5	5 ST
trans-1,2-Dichloroethene	U	U	0.9	U	U	U	U	U	0.5	5 ST
1,1-Dichloroethane	1.3	2	2	1	3	3	2.7	3.4	0.5	5 ST
2,2-Dichloropropane	**	U	**	U	U	U	U	U	0.5	5 ST
cis-1,2-Dichloroethene	1.7 **	2	2 **	2	4	4	3.5	4.3	0.5	5 ST
Chloroform	U	U	U	U	U	U	0.57	U	0.5	7 ST
Bromochloromethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1-Trichloroethane	0.7	0.7	0.8	U	1	1	1.3	1.4	0.5	5 ST
1,1-Dichloropropene	U	U	U	U	U	U	U	U	0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U	U	U	U	0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U	U	U	U	0.5	0.6 ST
Trichloroethene	1.1	2	U*	0.8	2	2	2.3	3.6	0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U	U	U	U	0.5	1 ST
Bromodichloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Dibromomethane	U	U	U	U	U	U	U	U	0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U	U	U	U	0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U	U	U	U	0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U	U	U	U	0.5	5 ST
Tetrachloroethene	1.1	1	1	0.8	2	3	1.5	2.9	0.5	5 ST
Dibromochloromethane	U	U	U	U	U	U	U	U	0.5	50GV
Chlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
Bromoform	U	U	U	U	U	U	U	U	0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U	U	U	U	0.5	0.04 ST
Bromobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U	U	U	U	0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U	U	U	U	0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Methyl-tert-butyl ether	U	U	U	U	U	U	U	U	0.5	—
Benzene	U	U	U	U	U	U	U	U	0.5	1 ST
Toluene	U	U	U	U	U	U	U	U	0.5	5 ST
Ethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
m-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
o-Xylene	U	U	U	U	U	U	U	U	0.5	5 ST
Styrene	U	U	U	U	U	U	U	U	0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Propylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
2-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
4-Chlorotoluene	U	U	U	U	U	U	U	U	0.5	5 ST
tert-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
sec-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U	U	U	U	0.5	5 ST
n-Butylbenzene	U	U	U	U	U	U	U	U	0.5	5 ST
Total VOCs	5.9	9.1	6.7	5.1	13	14	13.37	17.9		—

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: Result reportad as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene
E: Compound concentration exceeds instrument calibration range, value estimated
O: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
—: Not established
Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

APPENDIX B
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
VOLATILE ORGANIC COMPOUNDS

Sample Identification	MW-9	MW-9	MW-9	MW-9	MW-9			Contract	NYSDEC Class GA
Sample Depth, ft	310-315	310-315	310-315	310-315	310-315			Required	Groundwater
Date of Collection	07/17/02	10/18/02	02/03/03	05/09/03	08/01/03			Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0			Limit	Guidance Value
Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)			(ug/l)	(ug/l)
Dichlorodifluoromethane	U	U	U	U	U			0.5	5 ST
Chloromethane	U	U	U	U	U			0.5	5 ST
Vinyl Chloride	U	U	U	U	U			0.5	2 ST
Bromomethane	U	U	U	U	U			0.5	5 ST
Chloroethane	U	U	U	U	U			0.5	5 ST
Fluorotrichloromethane	U	U	U	U	U			0.5	5 ST
1,1-Dichloroethene	1	2	U*	1.3	1.3			0.5	5 ST
Methylene Chloride	U	U	0.8	U	U			0.5	5 ST
trans-1,2-Dichloroethene	U	U	U	U	U			0.5	5 ST
1,1-Dichloroethane	U	U	U*	U	U			0.5	5 ST
2,2-Dichloropropane	**	U	U	U	U			0.5	5 ST
cis-1,2-Dichloroethene	0.8 **	1	1	0.81	0.67			0.5	5 ST
Chloroform	U	U	U	U	0.72			0.5	7 ST
Bromochloromethane	U	U	U	U	U			0.5	5 ST
1,1,1-Trichloroethane	2	2	U*	1.6	1.5			0.5	5 ST
1,1-Dichlorpropene	U	U	U	U	U			0.5	5 ST
Carbon Tetrachloride	U	U	U	U	U			0.5	5 ST
1,2-Dichloroethane	U	U	U	U	U			0.5	0.6 ST
Trichloroethene	15	21	22	13	13			0.5	5 ST
1,2-Dichloropropane	U	U	U	U	U			0.5	1 ST
Bromodichloromethane	U	U	U	U	U			0.5	50GV
Dibromomethane	U	U	U	U	U			0.5	5 ST
cis-1,3-Dichloropropene	U	U	U	U	U			0.5	0.4 ST *
trans-1,3-Dichloropropene	U	U	U	U	U			0.5	0.4 ST *
1,1,2-Trichloroethane	U	U	U	U	U			0.5	1 ST
1,3-Dichloropropane	U	U	U	U	U			0.5	5 ST
Tetrachloroethene	1	1	2	0.67	1.1			0.5	5 ST
Dibromochloromethane	U	U	U	U	U			0.5	50GV
Chlorobenzene	U	U	U	U	U			0.5	5 ST
1,1,1,2-Tetrachloroethane	U	U	U	U	U			0.5	5 ST
Bromoform	U	U	U	U	U			0.5	50GV
1,1,2,2-Tetrachloroethane	U	U	U	U	U			0.5	5 ST
1,2,3-Trichloropropane	U	U	U	U	U			0.5	0.04 ST
Bromobenzene	U	U	U	U	U			0.5	5 ST
1,3-Dichlorobenzene	U	U	U	U	U			0.5	3 ST
1,4-Dichlorobenzene	U	U	U	U	U			0.5	3 ST
1,2-Dichlorobenzene	U	U	U	U	U			0.5	3 ST
1,2,4-Trichlorobenzene	U	U	U	U	U			0.5	5 ST
Hexchlorobutadiene	U	U	U	U	U			0.5	0.5 ST
1,2,3-Trichlorobenzene	U	U	U	U	U			0.5	5 ST
Methyl-tert-butyl ether	U	U	U	0.51	U			0.5	—
Benzene	U	U	U	U	U			0.5	1 ST
Toluene	U	U	U	U	U			0.5	5 ST
Ethylbenzene	U	U	U	U	U			0.5	5 ST
m-Xylene	U	U	U	U	U			0.5	5 ST
p-Xylene	U	U	U	U	U			0.5	5 ST
o-Xylene	U	U	U	U	U			0.5	5 ST
Styrene	U	U	U	U	U			0.5	5 ST
Isopropylbenzene (Cumene)	U	U	U	U	U			0.5	5 ST
n-Propylbenzene	U	U	U	U	U			0.5	5 ST
1,3,5-Trimethylbenzene	U	U	U	U	U			0.5	5 ST
2-Chlorotoluene	U	U	U	U	U			0.5	5 ST
4-Chlorotoluene	U	U	U	U	U			0.5	5 ST
tert-Butylbenzene	U	U	U	U	U			0.5	5 ST
1,2,4-Trimethylbenzene	U	U	U	U	U			0.5	5 ST
sec-Butylbenzene	U	U	U	U	U			0.5	5 ST
p-Isopropyltoluene(p-Cymene)	U	U	U	U	U			0.5	5 ST
n-Butylbenzene	U	U	U	U	U			0.5	5 ST
Total VOCs	19.8	27.0	25.8	17.9	18.3				—

QUALIFIERS:
U: Compound analyzed for but not detected
J: Compound found at a concentration below the CRDL, value estimated
**: *Result reported as a sum of 2,2- dichloropropane and cis-1,2-dichloroethene*
E: Compound concentration exceeds instrument calibration range, value estimated
D: Result taken from reanalysis at a secondary dilution
B: Compound found in the method blank as well as the sample
U*: Result qualified as non-detect based on validation criteria

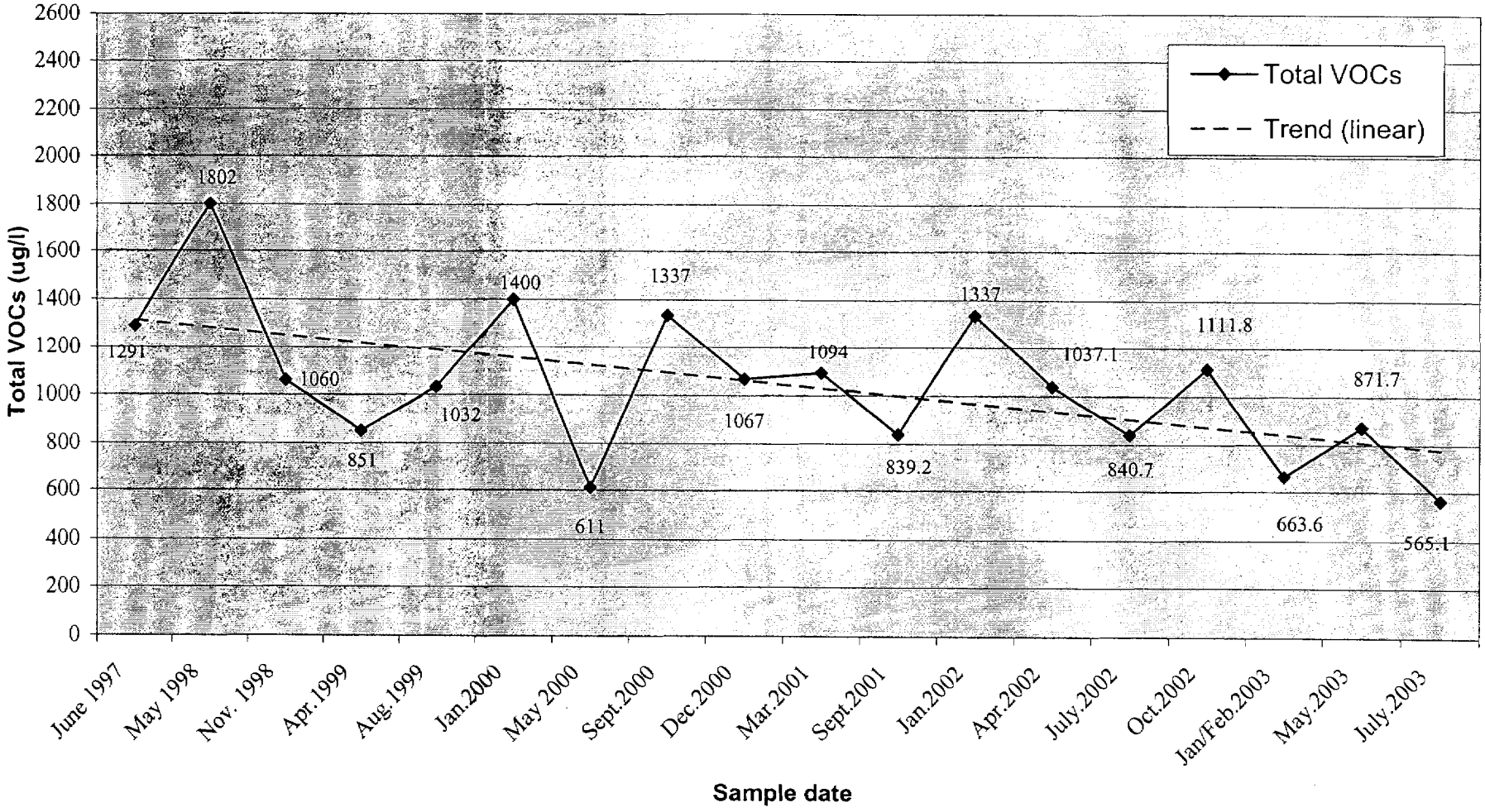
NOTES:
*: Value pertains to the sum of the isomers
ST: Standard
GV: Guidance Value
—: Not established
☐ Indicates value exceeds NYSDEC Class GA groundwater standard or guidance value

Appendix C

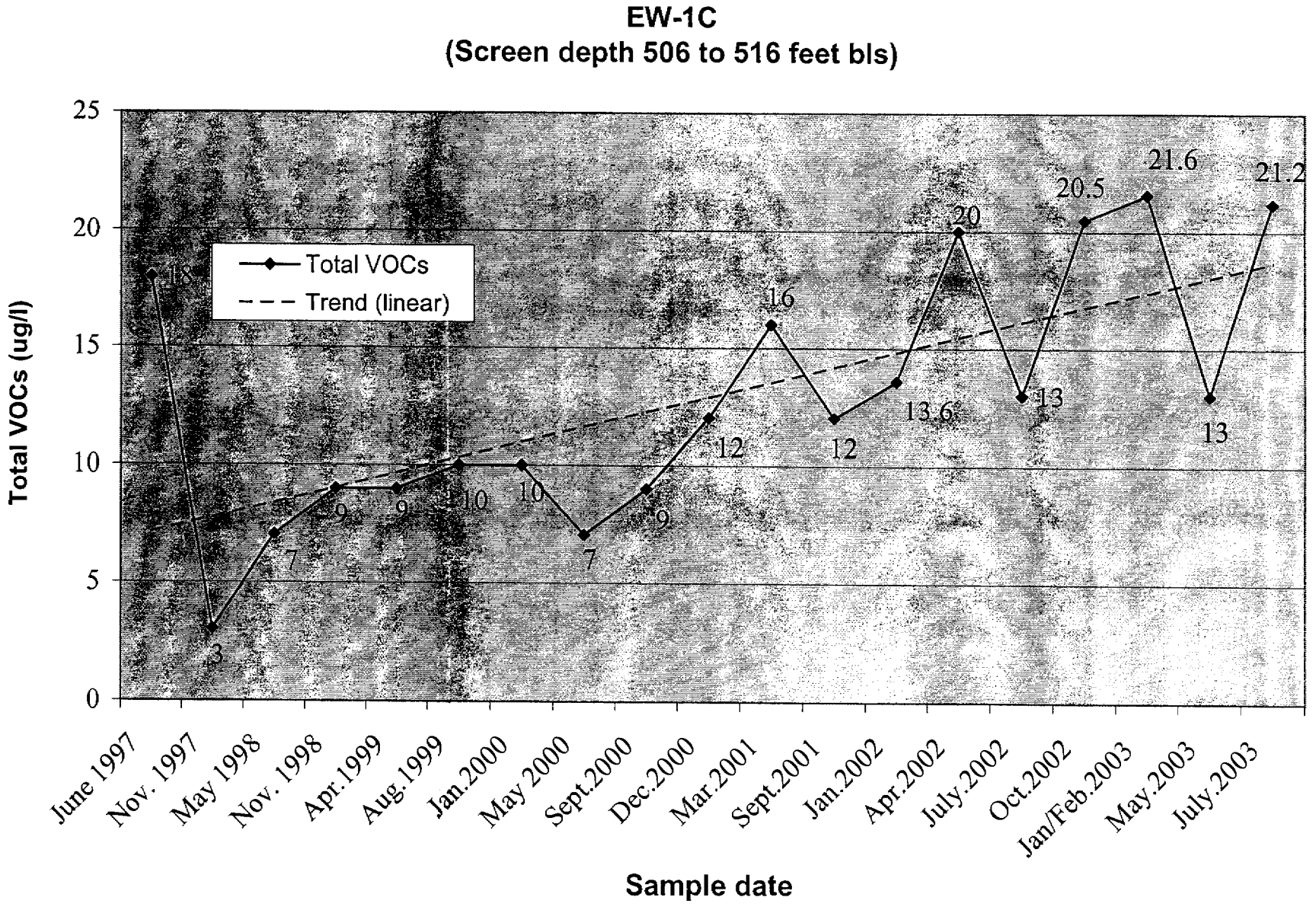
APPENDIX C

HISTORIC CONCENTRATION GRAPHS FOR EARLY WARNING WELLS AND OFF-SITE MONITORING WELLS - TOTAL VOLATILE ORGANIC COMPOUNDS

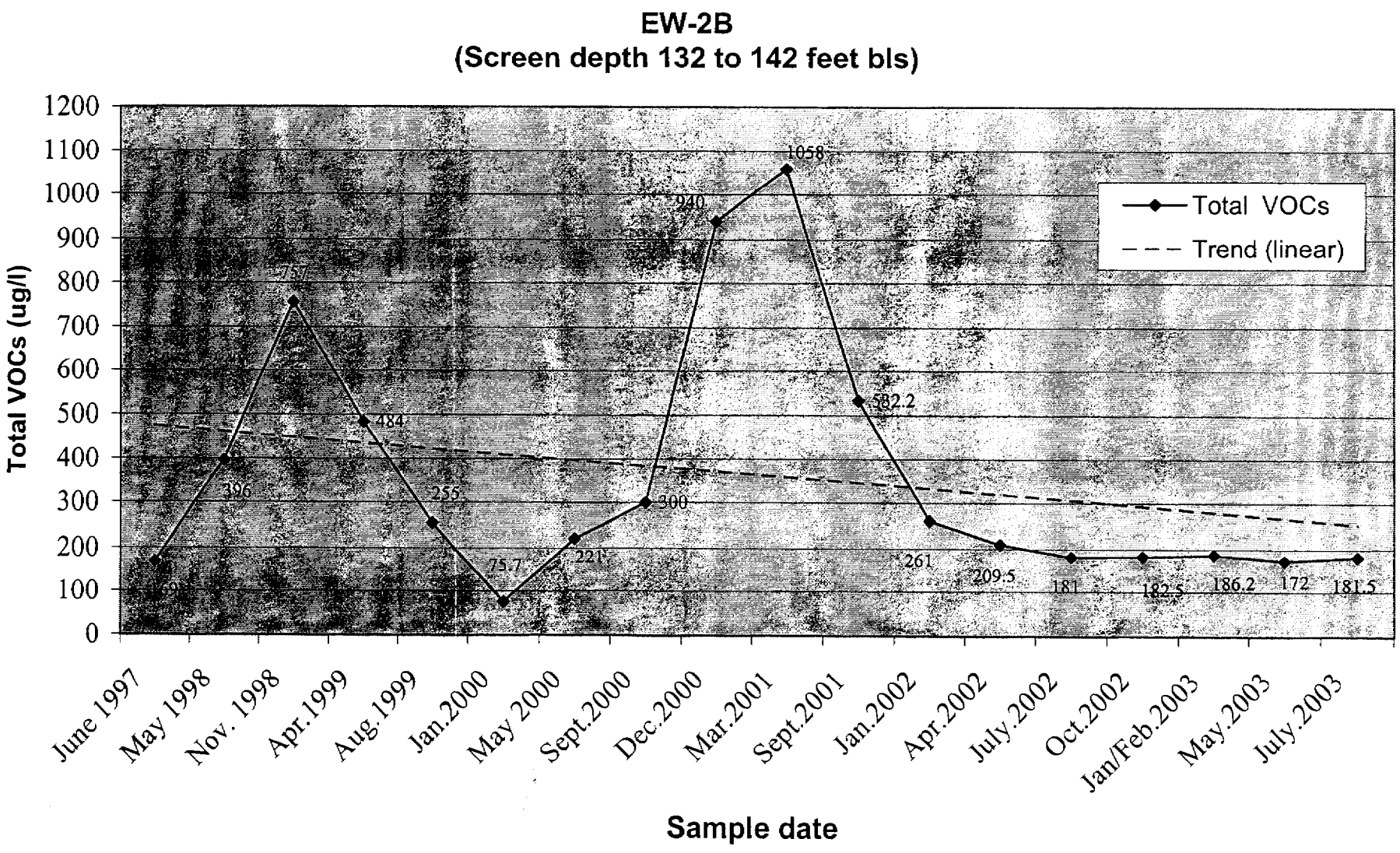
EW-1B
(Screen depth 154 to164 feet bls)



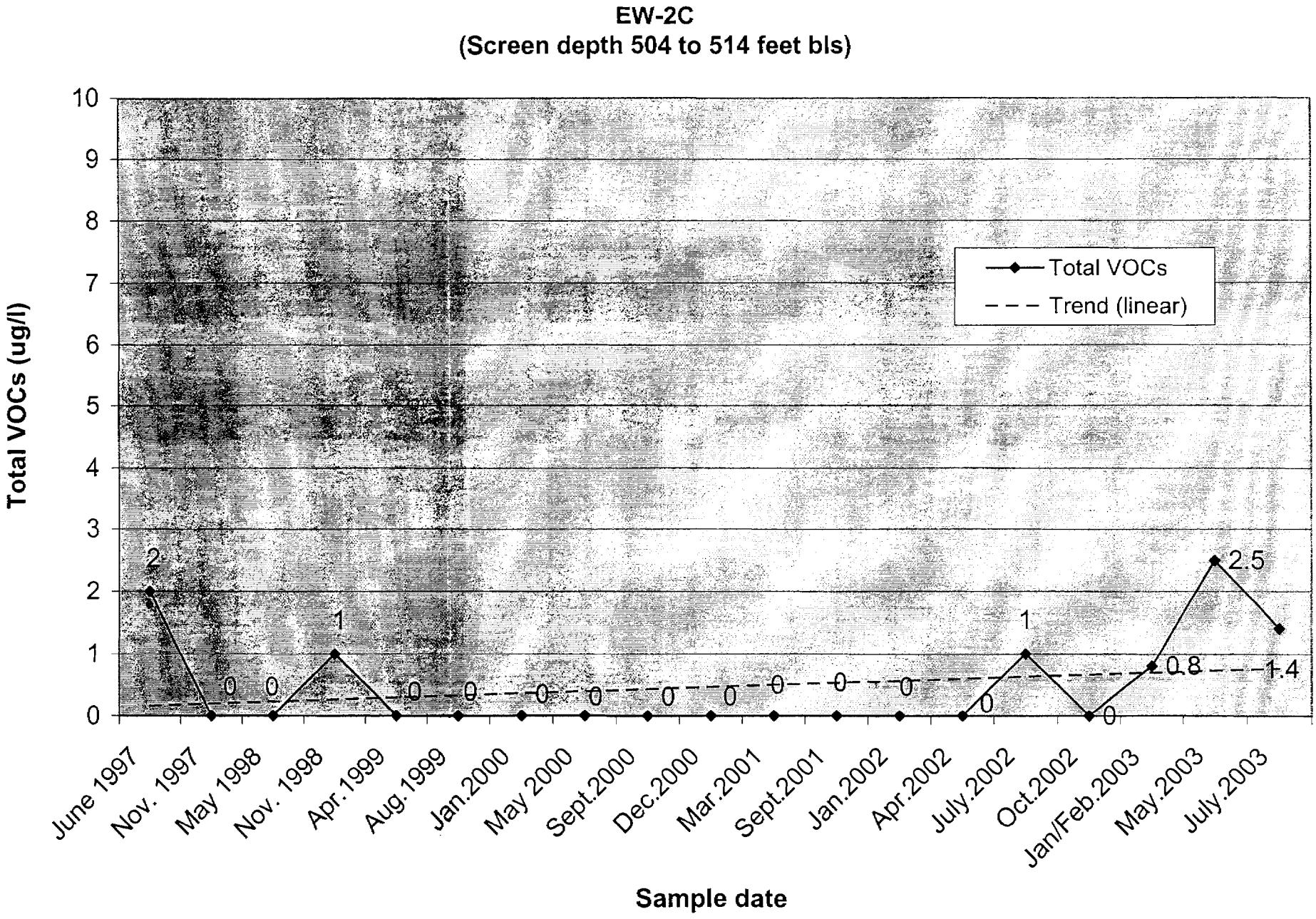
kr/1898/Total VOCs historical.xls:EW-1B



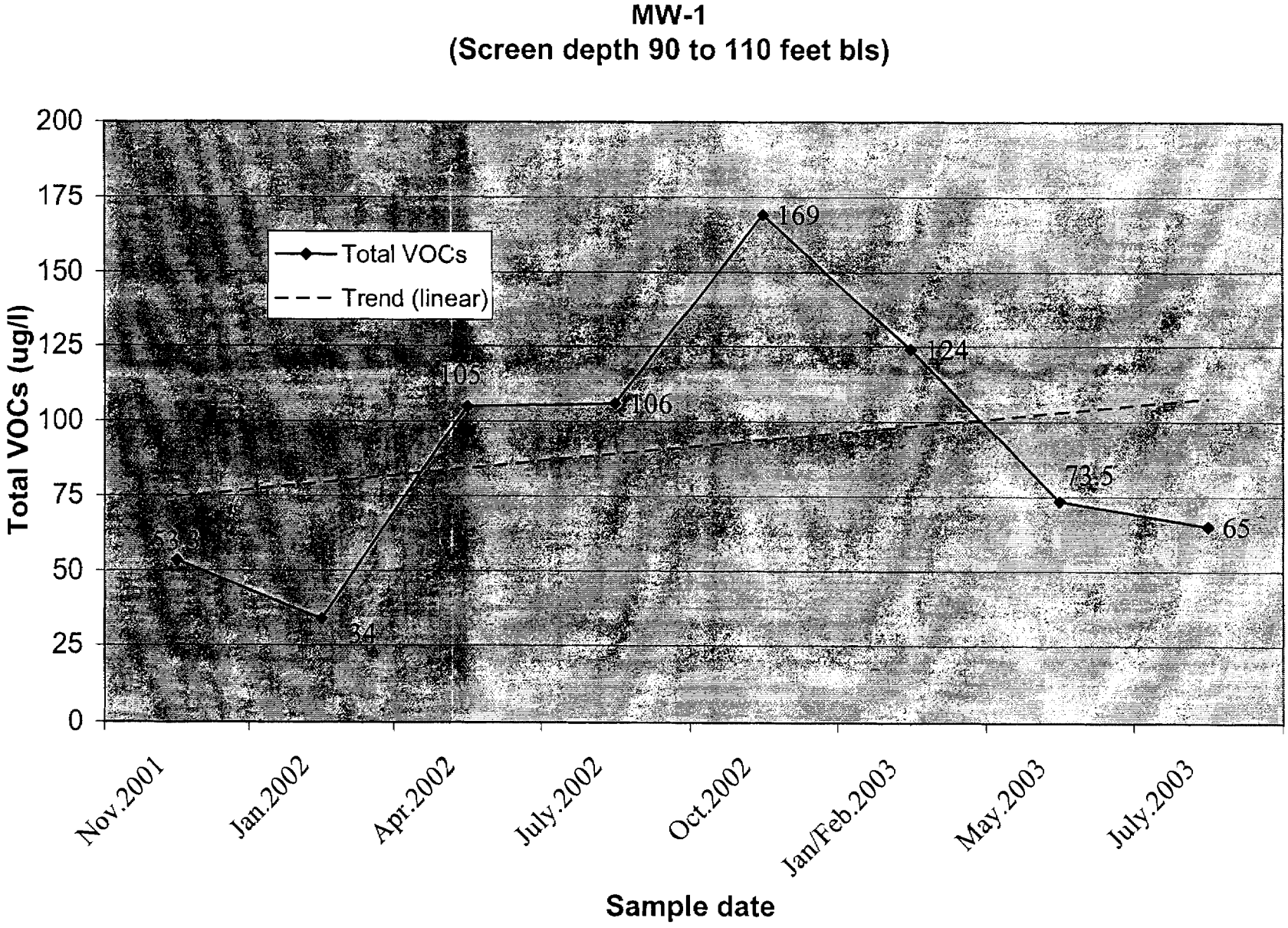
kr/1898/Total VOCs historical.xls: EW-1C



kr/1898/Total VOCs historical.xls: EW-2B

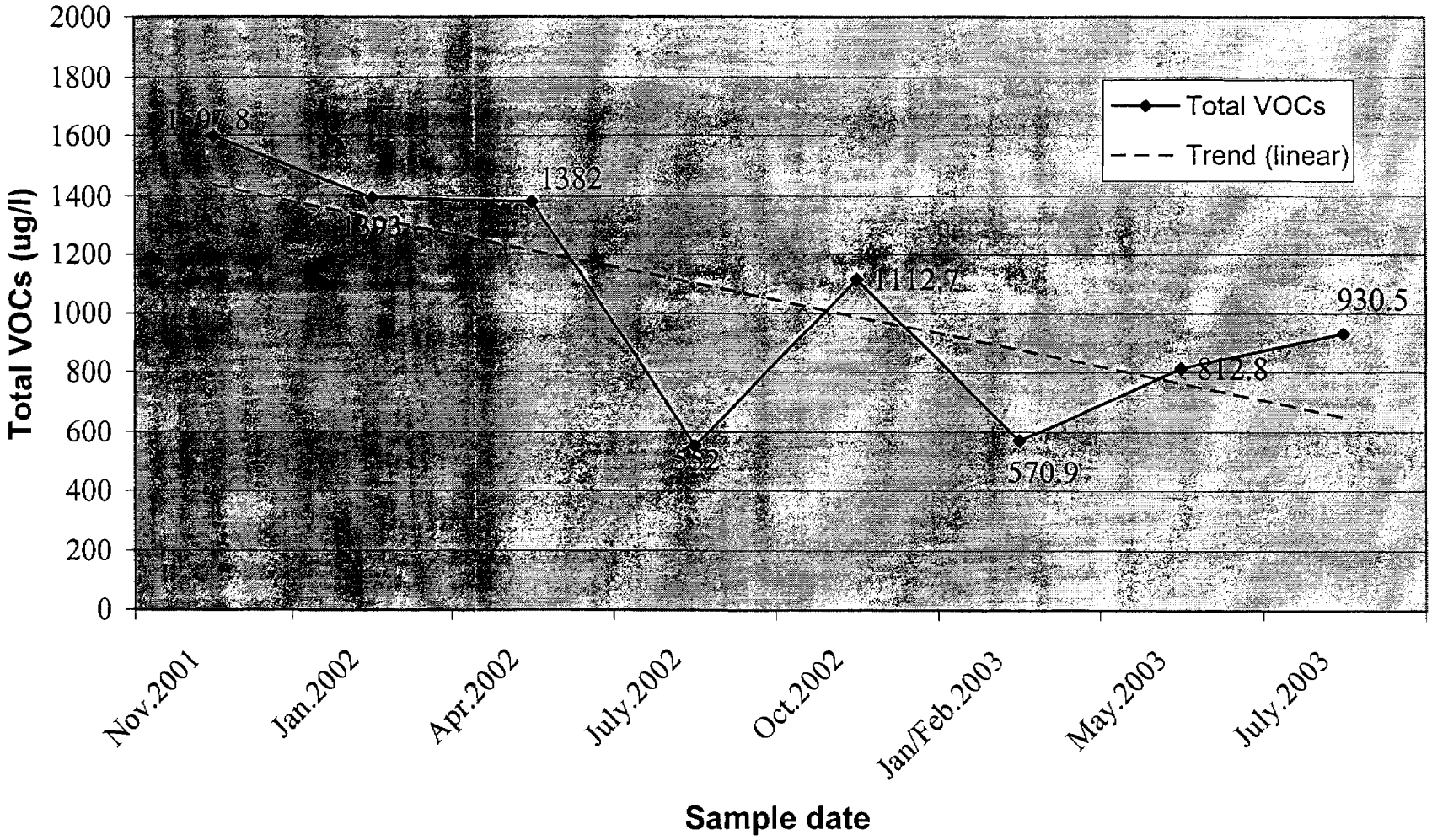


kr/1898/Total VOCs historical.xls: EW-2C

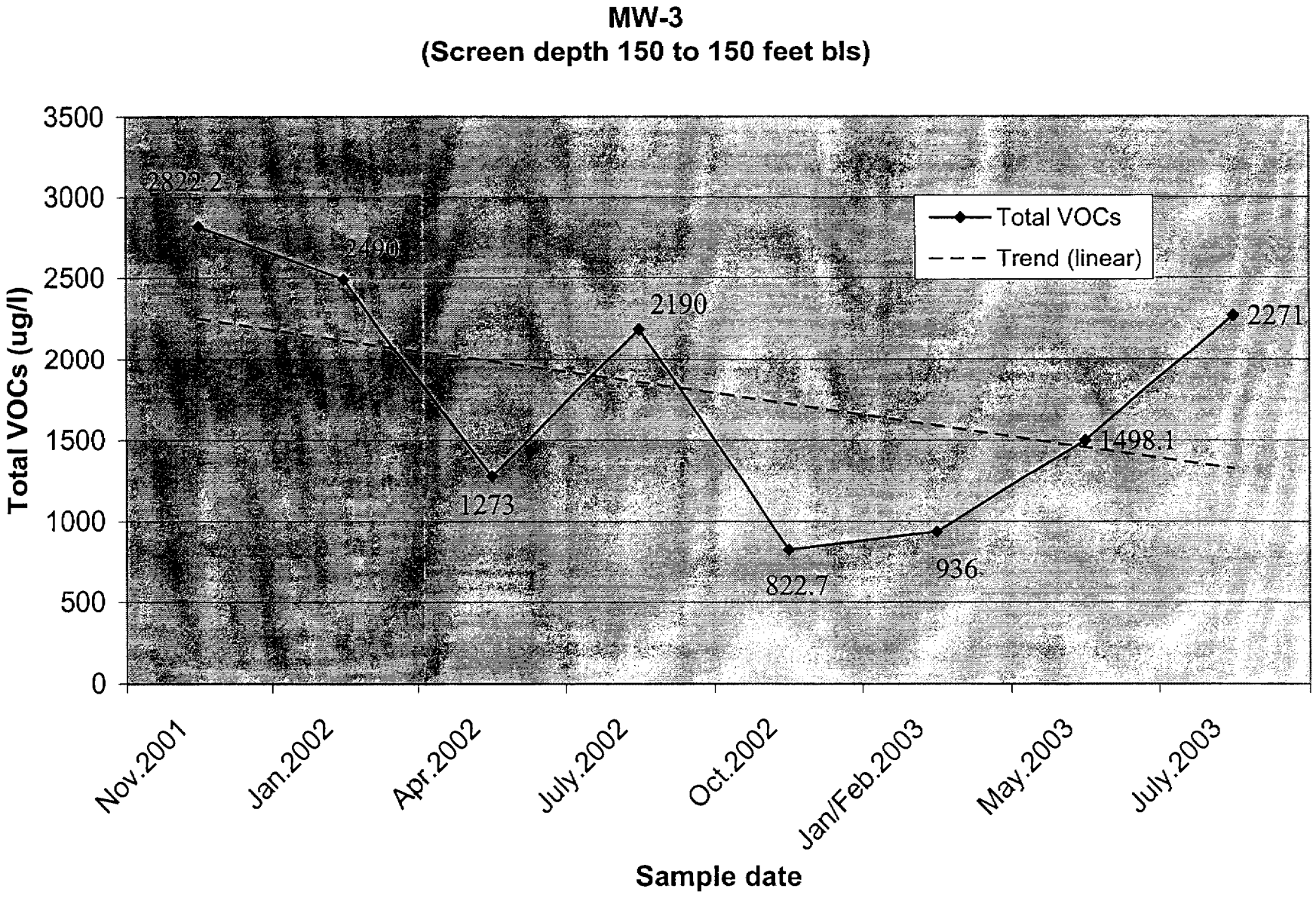


kr/1898/Total VOCs historical.xls: MW-1

MW-2
(Screen depth 110 to 130 feet bls)

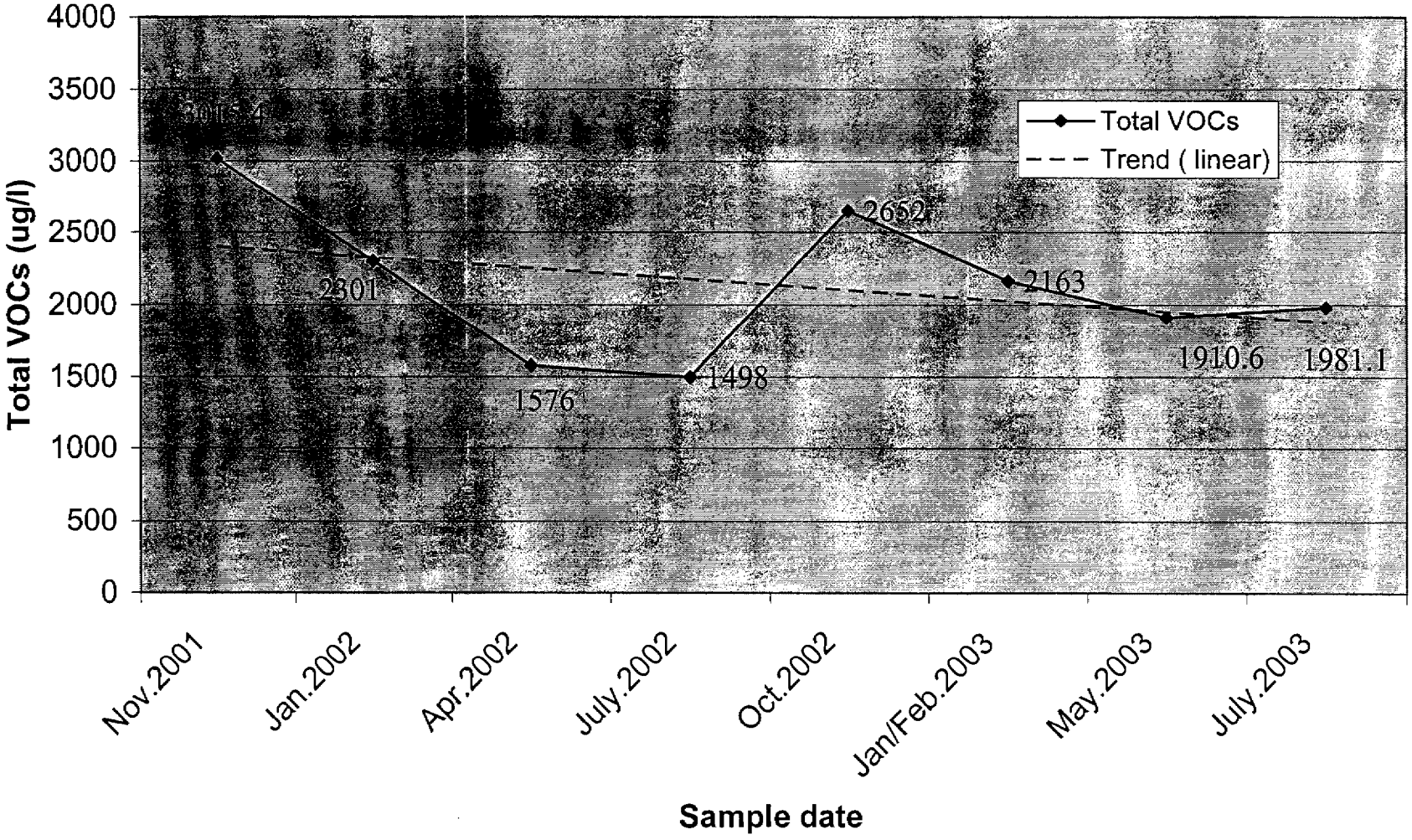


kr/1898/Total VOCs historical.xls: MW-2



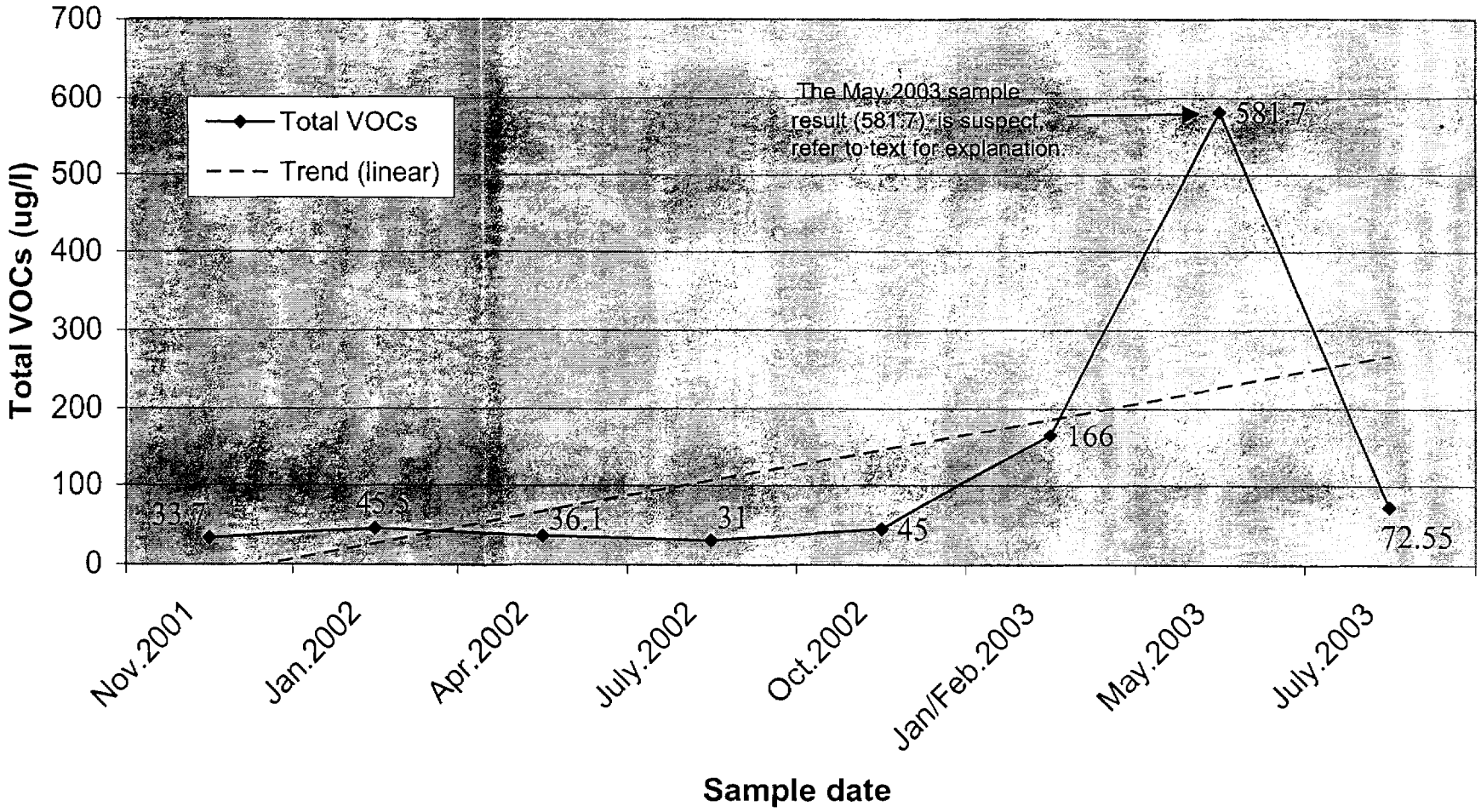
kr/1898/Total VOCs historical.xls: MW-3

MW-4
(Screen depth 180 to 200 feet bls)

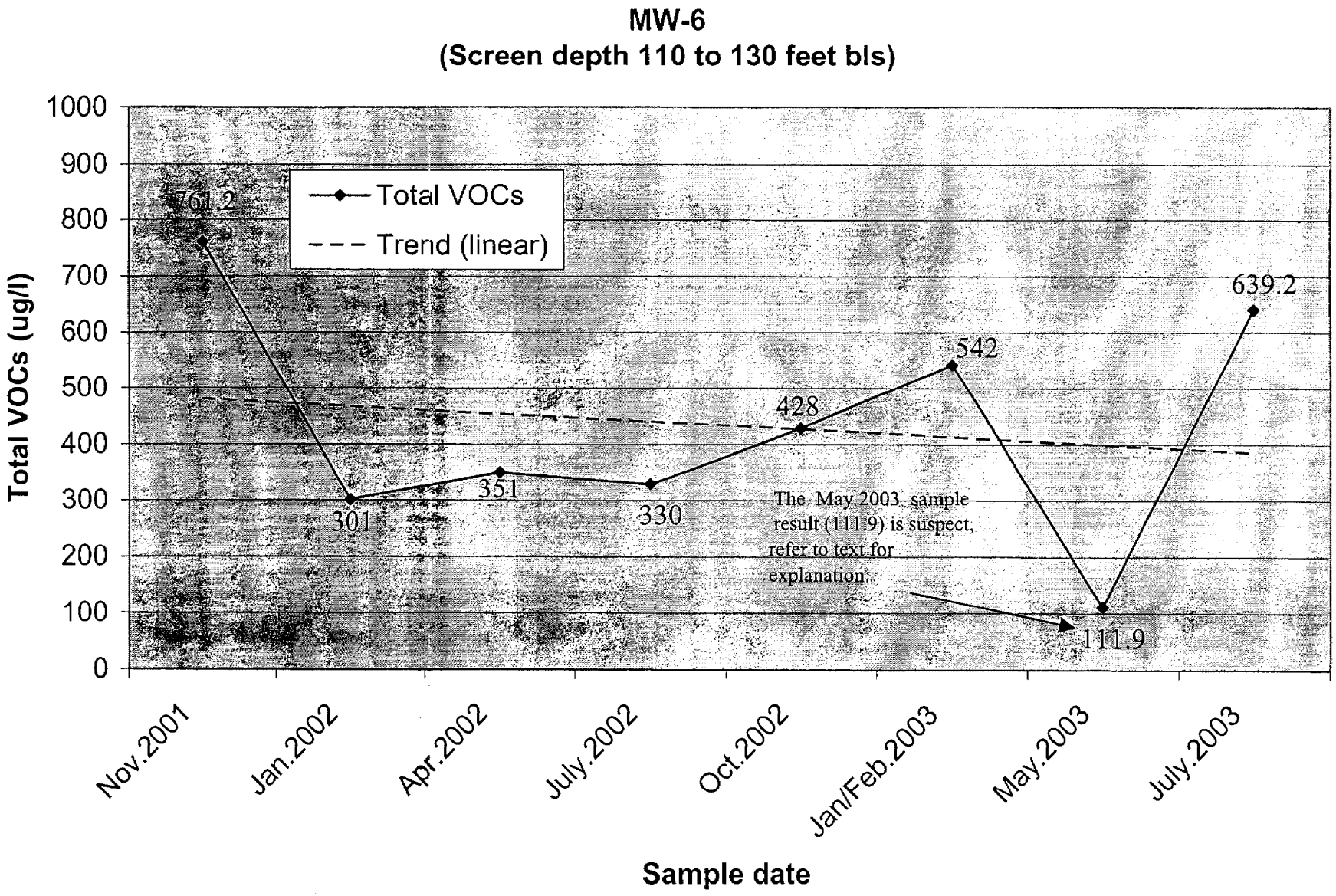


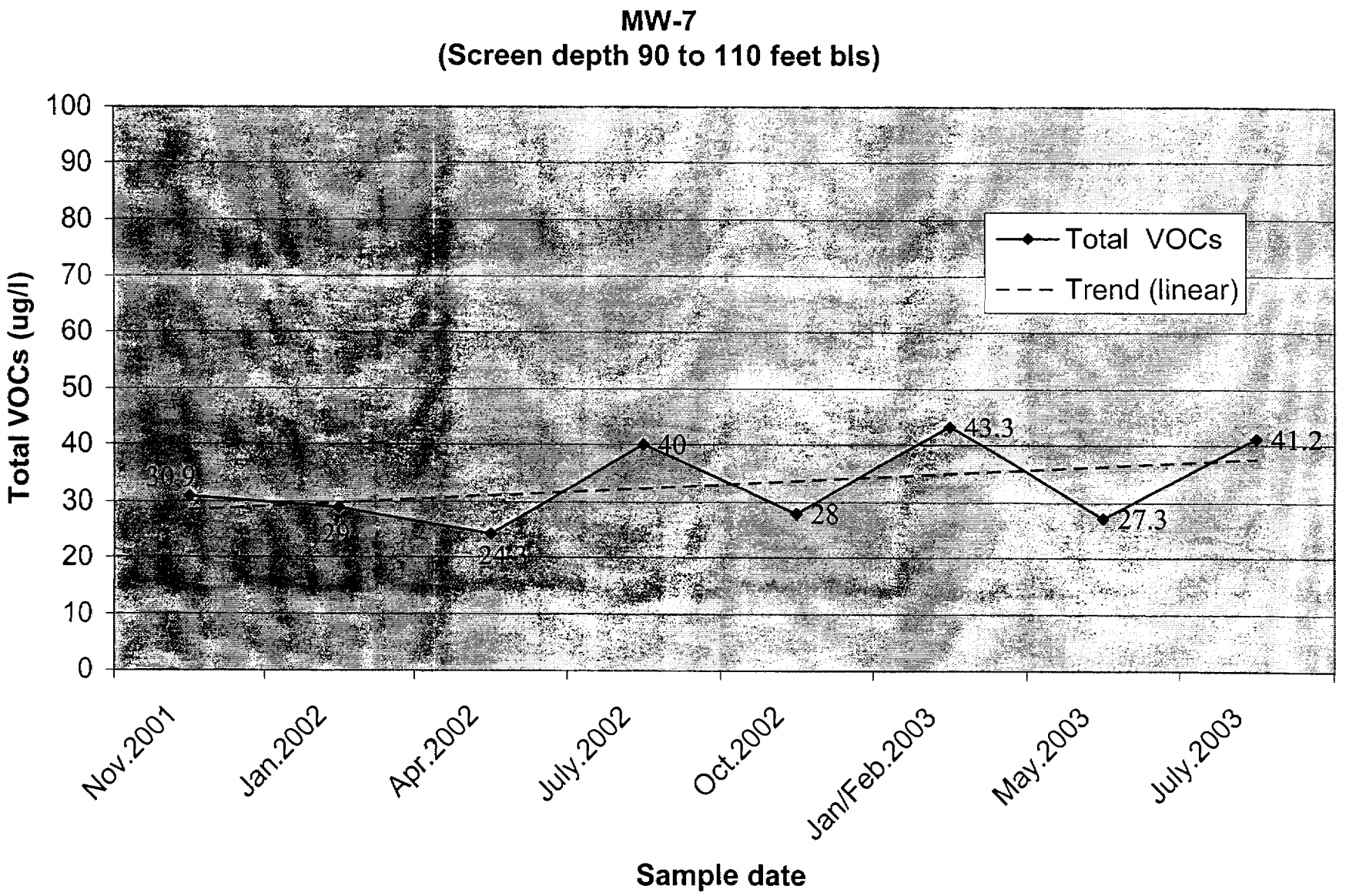
kr/1898/Total VOCs historical.xls: MW-4

MW-5
(Screen depth 90 to 110 feet bls)

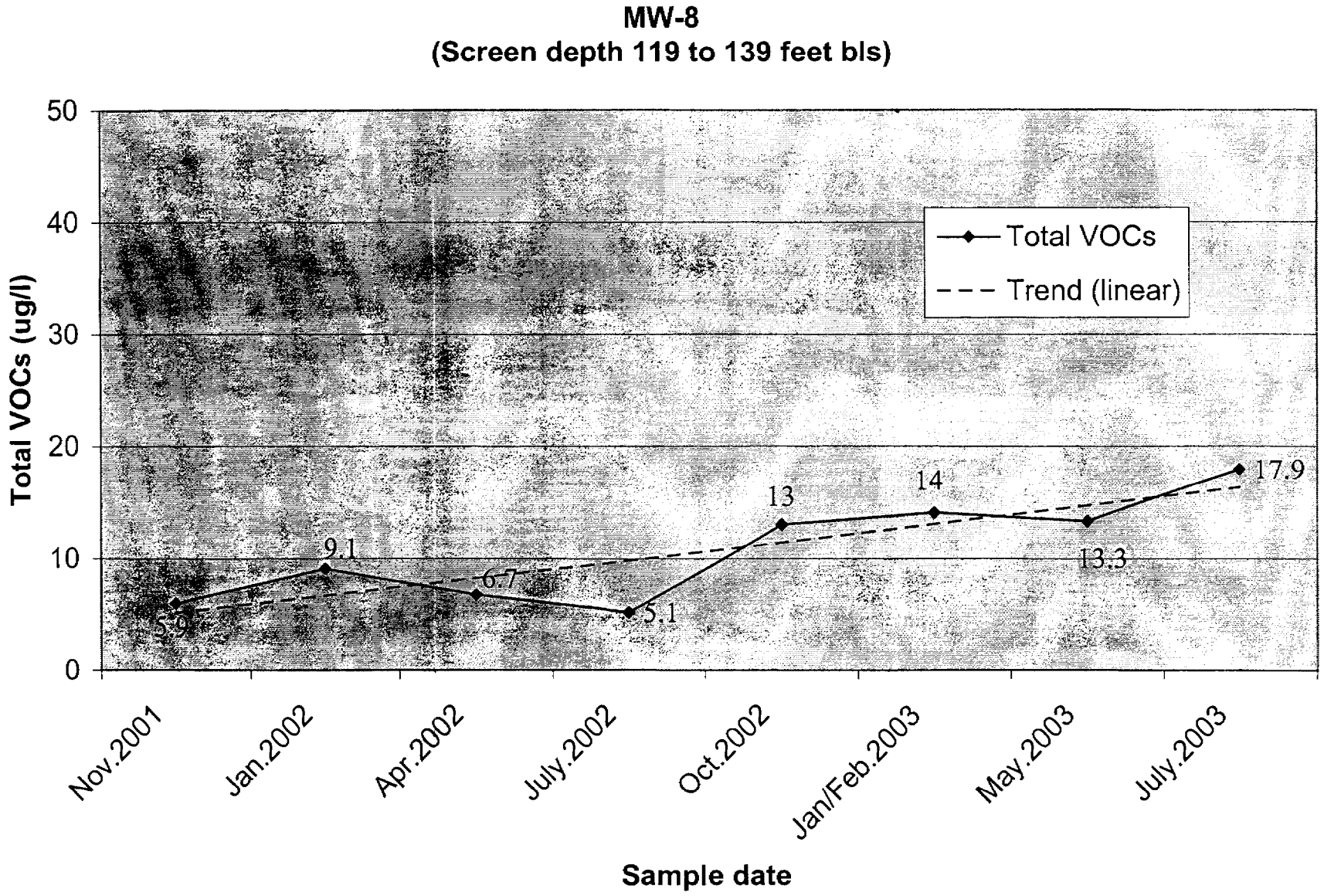


kr/1898/Total VOCs historical.xls: MW-5

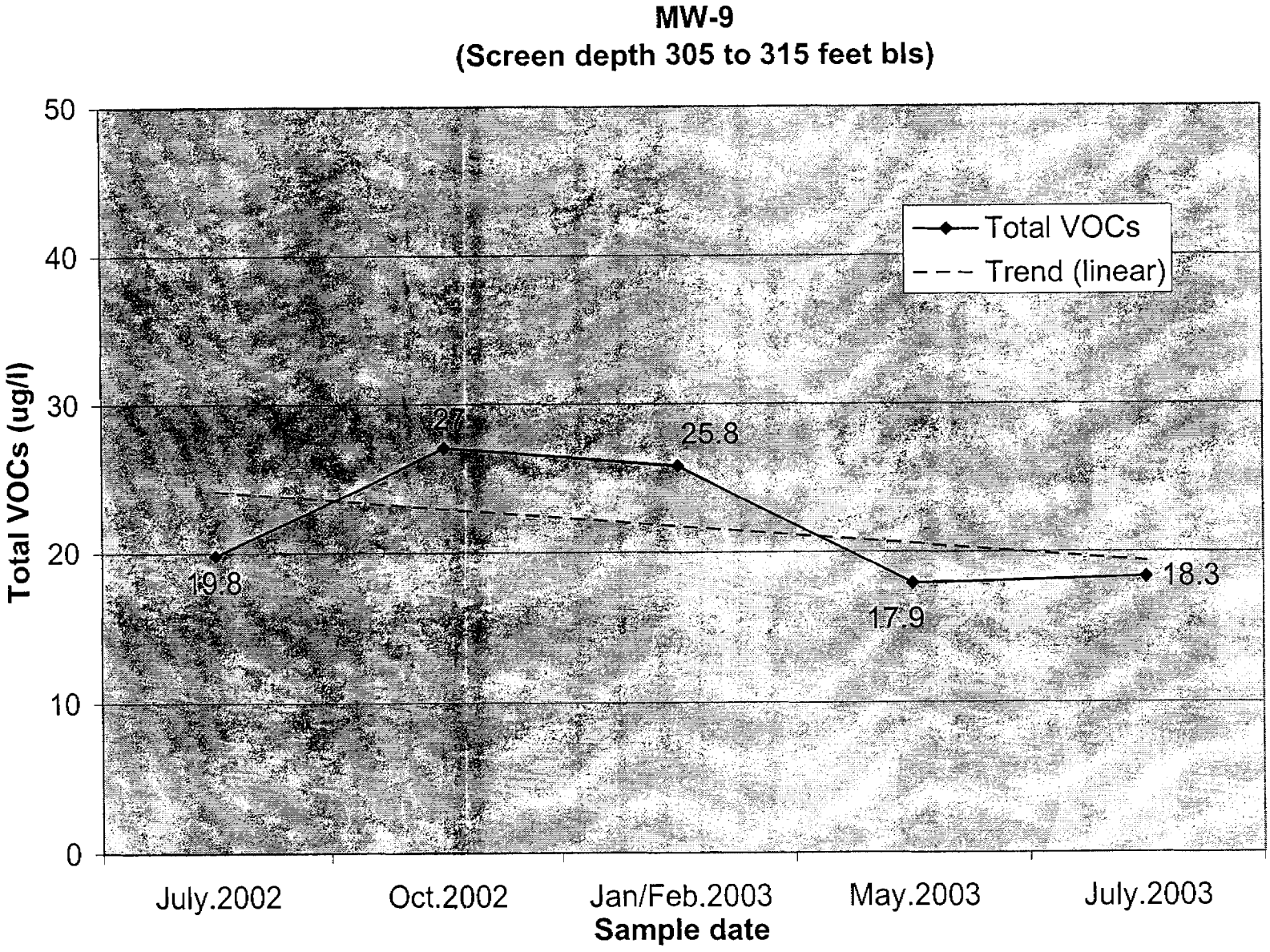

MW-6
(Screen depth 110 to 130 feet bls)
Total VOCs (ug/l)
1000
900
800
700
600
500
400
300
200
100
0
Total VOCs
Trend (linear)
761.2
301
351
330
428
542
111.9
639.2
The May 2003 sample result (111.9) is suspect, refer to text for explanation.
Nov.2001
Jan.2002
Apr.2002
July.2002
Oct.2002
Jan/Feb.2003
May.2003
July.2003
Sample date



kr/1898/Total VOCs historical.xls: MW-7



kr/1898/Total VOCs historical.xls: MW-8



kr/1898/Total VOCs historical.xls:MW-9

Appendix D

APPENDIX D

EARLY WARNING WELL AND OFF-SITE MONITORING WELL NATURAL ATTENUATION MONITORING PARAMETER RESULTS

APPENDIX D
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
NATURAL ATTENUATION MONITORING PARAMETERS

Sample Identification	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B	EW-1B		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	154-164	154-164	154-164	154-164	154-164	154-164	154-164	154-164			
Date of Collection	09/25/01	01/28/02	04/25/02	07/19/02	10/16/02	01/29/03	05/08/03	07/30/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	0.445	U	0.038 B	0.0438 B	U	U	U		0.05	0.3 ST**
Total Organic Carbon	U	1.1	2	2.7	U	U	U	U		5	---
Alkalinity	20.6	18	20	18	18	17	16	17		10	---
Chloride	26.9	31.9	33.5	31.2	30	36.6	31	32.2		3	250 ST
Nitrate	6.071	6.3	6	6.4	6.2	5.8	5.9	5.7		0.05	10 ST
Sulfate	21.9	23.5	23.1	21.9	23.7	22.9	23.8	20.6		5	250 ST
Carbon Dioxide	79.8	60	U	64	77	58	57	65		NA	---
Methane	0.005	U	U	U	U	U	0.0006 J	0.001		0.002	---

Sample Identification	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C	EW-1C		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	506-516	506-516	506-516	506-516	506-516	506-516	506-516	506-516			
Date of Collection	09/25/01	01/28/02	04/25/02	07/19/02	10/16/02	01/29/03	05/08/03	07/30/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	0.157	U	0.248	0.316	0.37	1.05	0.701	0.513		0.05	0.3 ST**
Total Organic Carbon	U	U	U	1.400	U	U	U	U		5	---
Alkalinity	10.2	10	12	11.0	11.0	11.0	10.0	12.0		10	---
Chloride	9.81	13.3	13.6	13.7	13.9	14.5	18.7	14.8		3	250 ST
Nitrate	5.591	6	6	6.3	6.3	6.1	5.9	6.3		0.05	10 ST
Sulfate	U	2.3	1.4	U	2.0	U	2.2	1.6		5	250 ST
Carbon Dioxide	72.9	13	14	17	21	18	14	16		NA	---
Methane	0.009	U	U	U	U	U	0.0006 J	U		0.002	---

QUALIFIERS:
U: Compound analyzed for but not detected
NA: Not Available
B: Concentration was above IDL but less than CRDL
J: Compound detected at a concentration below the CRDL, value estimated

NOTES:
ST: Standard
---: Not established
*: Sample analyzed for Total Iron instead of Ferrous Iron
**: Standard applies to Total Iron
[ ]: Indicates value exceeds NYSDEC Class GA Groundwater Standard or Guidance Value

APPENDIX D
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
NATURAL ATTENUATION MONITORING PARAMETERS

Sample Identification	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B	EW-2B		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	132-142	132-142	132-142	132-142	132-142	132-142	132-142	132-142			
Date of Collection	09/25/01	01/28/02	04/25/02	07/19/02	10/16/02	01/30/03	05/08/03	07/28/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	U	U	U	U	U	U	U		0.05	0.3 ST**
Total Organic Carbon	U	1	1.2	2	2.9	U	U	U		5	---
Alkalinity	15	14	14	13	13	13	13	12		10	---
Chloride	30.3	35.8	35.9	36.8	36.7	37.7	35.7	34.9		3	250 ST
Nitrate	2.194	2.2	2.1	2.3	2.3	2.4	2.4	2.5		0.05	10 ST
Sulfate	17.1	12.4	9.7	9.5	12.8	13.1	12.5	11.2		5	250 ST
Carbon Dioxide	60.6	60	56	67	72	64	60	67.6		NA	---
Methane	0.11	0.048	0.004 J	0.056	0.022	U	0.032	0.032		0.002	---

Sample Identification	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C	EW-2C		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	504-514	504-514	504-514	504-514	504-514	504-514	504-514	504-514			
Date of Collection	09/25/01	01/28/02	04/25/02	07/19/02	10/16/02	01/30/03	05/08/03	07/29/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	0.339	0.858	0.551	U	1.27	0.817	0.795	0.552		0.05	0.3 ST**
Total Organic Carbon	U	1.4	U	U	1	U	U	U		5	---
Alkalinity	10.6	10	10	10	10	10	11	10		10	---
Chloride	4.11	7	6.8	6.8	6.9	7.1	7.6	7.3		3	250 ST
Nitrate	1.773	1.9	1.9	1.9	2	1.8	2	1.9		0.05	10 ST
Sulfate	U	2.7	1.5	U	U	U	1.3	U		5	250 ST
Carbon Dioxide	17.4	13	10	14	25	13	14	12		NA	---
Methane	0.007	U	0.074	U	U	U	0.001	U		0.002	---

QUALIFIERS:
U: Compound analyzed for but not detected
NA: Not Available
B: Concentration was above IDL but less than CRDL
J: Compound detected at a concentration below the CRDL, value estimated

NOTES:
ST: Standard
---: Not established
*: Sample analyzed for Total Iron instead of Ferrous Iron
**: Standard applies to Total Iron
: Indicates value exceeds NYSDEC Class GA Groundwater Standard or Guidance Value

APPENDIX D
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
NATURAL ATTENUATION MONITORING PARAMETERS

Sample Identification	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	90-110	90-110	90-110	130-150	130-150	130-150	130-150	130-150			
Date of Collection	11/02/01	01/24/02	04/24/02	07/16/02	10/17/02	02/03/03	05/06/03	07/30/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	U	U	U	U	U	U	U		0.05	0.3 ST**
Total Organic Carbon	U	4.1	1.9	2.1	2	U	U	U		5	---
Alkalinity	10	U	11	U	10	10	U	U		10	---
Chloride	38.8	48.9	50	59.7	51.2	56	69.2	64.3		3	250 ST
Nitrate	5.553	4.1	4.5	5.3	5.2	5.2	5	4		0.05	10 ST
Sulfate	24.2	26	27.3	29.4	25.2	29.5	28.8	30.4		5	250 ST
Carbon Dioxide	66.3	78	66	U	89	69	U	U		NA	---
Methane	0.004	U	U	U	U	U	U	0.002		0.002	---

Sample Identification	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	110-130	110-130	110-130	110-130	110-130	110-130	110-130	110-130			
Date of Collection	11/02/01	01/24/02	04/24/02	07/16/02	10/18/02	02/03/03	05/06/03	07/30/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	**0.474**	0.265	0.254	0.178	0.193	0.0912 B	0.204		0.05	0.3 ST**
Total Organic Carbon	U	3.5	2.7	2.6	4.4	U	U	U		5	---
Alkalinity	22	25	27	27	29	30	26	26		10	---
Chloride	33.5	37.5	37	36.6	34.2	38	37	41.2		3	250 ST
Nitrate	6.813	6.7	7	5.1	5.6	6	6.3	5.9		0.05	10 ST
Sulfate	20.9	22.8	22.5	18.9	18	19.8	19.7	19.5		5	250 ST
Carbon Dioxide	408	62	62	83	84	70	75	72		NA	---
Methane	0.013	U	U	0.042	0.07 E	0.053 E	0.052	0.15		0.002	---

QUALIFIERS:
U: Compound analyzed for but not detected
NA: Not Available
B: Concentration was above IDL but less than CRDL
J: Compound detected at a concentration below the CRDL, value estimated
E: Concentration exceeds instrument calibration range, value estimated

NOTES:
ST: Standard
---: Not established
*: Sample analyzed for Total Iron instead of Ferrous Iron
**: Standard applies to Total Iron
0.474: Indicates Value exceeds NYSDEC Class GA Groundwater Standard or Guidance Value

APPENDIX D
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
NATURAL ATTENUATION MONITORING PARAMETERS

Sample Identification	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-3		Contract	NYSDEC Class GA
Sample Depth, ft	130-150	130-150	130-150	130-150	130-150	130-150	130-150	130-150		Required	Groundwater
Date of Collection	11/02/01	01/24/02	04/24/02	07/16/02	10/16/02	02/03/03	05/06/03	07/31/03		Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		Limit	Guidance Value
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	7.58	5.03	3.95	3.28	3.92	5.56	1.68		0.05	0.3 ST**
Total Organic Carbon	5.505	4.3	2.7	2.3	3.9	U	U	U		5	---
Alkalinity	18	27	18	15	U	U	U	U		10	---
Chloride	36	39.9	35.7	37.6	35.2	38.6	37.8	41.3		3	250 ST
Nitrate	6.505	4.4	4.9	5.1	2.5	4.5	5	5.6		0.05	10 ST
Sulfate	21.1	12.4	17.2	18.9	16.5	21.3	21.8	23.9		5	250 ST
Carbon Dioxide	369	71	72	83	U	U	U	U		NA	---
Methane	1.2	0.097	0.11	0.14	0.077 E	0.071 E	0.053	0.064		0.002	---

Sample Identification	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4		Contract	NYSDEC Class GA
Sample Depth, ft	180-200	180-200	180-200	180-200	180-200	180-200	180-200	180-200		Required	Groundwater
Date of Collection	11/02/01	01/24/02	04/24/02	07/16/02	10/17/02	02/03/03	05/06/03	07/31/03		Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		Limit	Guidance Value
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	0.5	U	U	U	U	U	U		0.05	0.3 ST**
Total Organic Carbon	6.309	2.8	2.9	2.4	4.3	U	U	U		5	---
Alkalinity	22.0	20	22	19	19	19	19	19		10	---
Chloride	45.7	47.4	46.8	46.9	41.1	46.6	45.9	47.8		3	250 ST
Nitrate	8.177	9.1	8.9	9.2	8.4	9.3	8.3	8		0.05	10 ST
Sulfate	U	2	2.3	4.4	5.6	6	5.6	5		5	250 ST
Carbon Dioxide	466	68	73	71	98	84	87	87		NA	---
Methane	0.013	U	U	0.002	0.001	0.0006 J	0.004	0.003		0.002	---

QUALIFIERS:
U: Compound analyzed for but not detected
NA: Not Available
B: Concentration was above IDL but less than CRDL
J: Compound detected at a concentration below the CRDL, value estimated
E: Concentration exceeds instrument calibration range, value estimated

NOTES:
ST: Standard
---: Not established
*: Sample analyzed for Total Iron instead of Ferrous Iron
**: Standard applies to Total Iron
[ ]: Indicates Value exceeds NYSDEC Class GA Groundwater Standard or Guidance Value

APPENDIX D
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
NATURAL ATTENUATION MONITORING PARAMETERS

Sample Identification	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5***	MW-5		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110			
Date of Collection	11/05/01	01/25/02	04/26/02	07/17/02	10/18/02	01/30/03	05/07/03	07/29/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	0.618	U	U	U	0.0419 B	0.123 B	U		0.05	0.3 ST**
Total Organic Carbon	U	4.1	1	1.8	2.5	U	U	U		5	---
Alkalinity	16	13	15	17	14	18	25	14		10	---
Chloride	43.6	53.1	62.7	66.7	50.1	48.4	95.7	52.5		3	250 ST
Nitrate	3.744	3.7	3.9	4.9	6.7	5	4.7	5.4		0.05	10 ST
Sulfate	29.2	25.7	26.6	20.5	29	36.4	26.2	31.5		5	250 ST
Carbon Dioxide	53.1	44	31	49	56	44	63	57		NA	---
Methane	0.009	U	U	U	U	U	0.001	U		0.002	---

Sample Identification	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6***	MW-6		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	110-130	110-130	110-130	110-130	110-130	110-130	110-130	110-130			
Date of Collection	11/05/01	01/25/02	04/26/02	07/17/02	10/18/02	01/30/03	05/07/03	07/29/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	U	0.0457 B	0.0609 B	U	0.33	U	U		0.05	0.3 ST**
Total Organic Carbon	U	4.4	2	1.9	3.3	U	U	U		5	---
Alkalinity	32	27	27	24	24	24	18	23		10	---
Chloride	117	102	99	101	85.8	84.3	52.9	130		3	250 ST
Nitrate	4.885	5.1	4.7	5.2	5	4.5	4.6	4.7		0.05	10 ST
Sulfate	29.1	30.9	26.4	21.3	30.8	22.9	36.8	23.6		5	250 ST
Carbon Dioxide	392	57	53	62	68	51	54	68		NA	---
Methane	0.007	U	U	U	U	U	0.001	0.0006 J		0.002	---

QUALIFIERS:
U: Compound analyzed for but not detected
NA: Not Available
B: Concentration was above IDL but less than CRDL
J: Compound detected at a concentration below the CRDL, value estimated

NOTES:
ST: Standard
---: Not established
*: Sample analyzed for Total Iron instead of Ferrous Iron
**: Standard applies to Total Iron
: Indicates Value exceeds NYSDEC Class GA Groundwater Standard or Guidance Value

***: Based upon review of historical results and the 8th quarter results it appears that samples MW-5 and MW-6 were inadvertantly switched during the May 2003 sampling event.

APPENDIX D
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
NATURAL ATTENUATION MONITORING PARAMETERS

Sample Identification	MW-7	MW-7	MW-7	MW-7	MW-7	MW-7	MW-7	MW-7		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110			
Date of Collection	11/05/01	01/25/02	04/24/02	07/16/02	10/18/02	01/29/03	05/07/03	07/30/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	0.0693 B	U	U	0.106 B	0.0375 B	U	0.138 B		0.05	0.3 ST**
Total Organic Carbon	U	3.4	1.1	1.4	2.3	U	U	U		5	---
Alkalinity	U	U	U	U	U	U	U	U		10	---
Chloride	18.8	21.8	21.5	22.7	23.7	23.2	32.5	22.8		3	250 ST
Nitrate	5.913	6	5.6	6.3	5.7	5.9	5.7	5.9		0.05	10 ST
Sulfate	31	33.8	28.4	31.1	31.1	30.1	26.8	29.5		5	250 ST
Carbon Dioxide	158	81	U	U	U	U	U	U		NA	---
Methane	0.007	U	U	U	U	U	0.0009 J	0.0008 J		0.002	---

Sample Identification	MW-8	MW-8	MW-8	MW-8	MW-8	MW-8	MW-8	MW-8		Contract Required Detection Limit	NYSDEC Class GA Groundwater Standard or Guidance Value
Sample Depth, ft	120-140	120-140	120-140	120-140	120-140	120-140	120-140	120-140			
Date of Collection	11/05/01	01/25/02	04/24/02	07/17/02	10/18/02	01/29/03	05/07/03	07/30/03			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)		(mg/l)	(mg/l)
Ferrous Iron*	U	10.7	18.2	13.2	7.5	7.09	4.9	2.54		0.05	0.3 ST**
Total Organic Carbon	12.2	6.9	4.4	2.2	3.1	U	U	U		5	---
Alkalinity	14	38	53	42	28	22	19	14		10	---
Chloride	22.9	26.1	25.9	24.7	23.4	24.6	52	24.2		3	250 ST
Nitrate	5.049	2.8	3.4	1.7	3.7	3.3	4.8	5		0.05	10 ST
Sulfate	32.7	27.9	22.8	19.6	29.1	28.8	28.6	30.7		5	250 ST
Carbon Dioxide	56.2	U	48	52	60	48	52	49		NA	---
Methane	0.007	U	0.22	0.16	U	U	0.006	0.003		0.002	---

QUALIFIERS:
U: Compound analyzed for but not detected
NA: Not Available
B: Concentration was above IDL but less than CRDL
J: Compound detected at a concentration below the CRDL, value estimated

NOTES:
ST: Standard
---: Not established
*: Sample analyzed for Total Iron instead of Ferrous Iron
**: Standard applies to Total Iron
[ ]: Indicates Value exceeds NYSDEC Class GA Groundwater Standard or Guidance Value

APPENDIX D
NEW CASSEL INDUSTRIAL AREA
OFF-SITE GROUNDWATER MONITORING AND ASSESSMENT PROGRAM
MONITORING WELL SAMPLE RESULTS
NATURAL ATTENUATION MONITORING PARAMETERS

Sample Identification	MW-9	MW-9	MW-9	MW-9	MW-9					Contract	NYSDEC Class GA
Sample Depth, ft	305-315	305-315	305-315	305-315	305-315					Required	Groundwater
Date of Collection	07/17/02	10/18/02	02/03/03	05/09/03	08/01/03					Detection	Standard or
Dilution Factor	1.0	1.0	1.0	1.0	1.0					Limit	Guidance Value
Units	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)					(mg/l)	(mg/l)
Ferrous Iron*	U	U	U	U	U					0.05	0.3 ST**
Total Organic Carbon	1.9	1.4	U	U	U					5	---
Alkalinity	24	27	22	16	15					10	---
Chloride	101	13.4	12.9	12.6	12.8					3	250 ST
Nitrate	5.2	2.2	2	1.9	1.8					0.05	10 ST
Sulfate	21.3	19	22.3	19.1	16.9					5	250 ST
Carbon Dioxide	62	17	13	16	16.5					NA	---
Methane	U	U	U	0.001	U					0.002	---

QUALIFIERS:
U: Compound analyzed for but not detected
NA: Not Available
B: Concentration was above IDL but less than CRDL
J: Compound detected at a concentration below the CRDL, value estimated

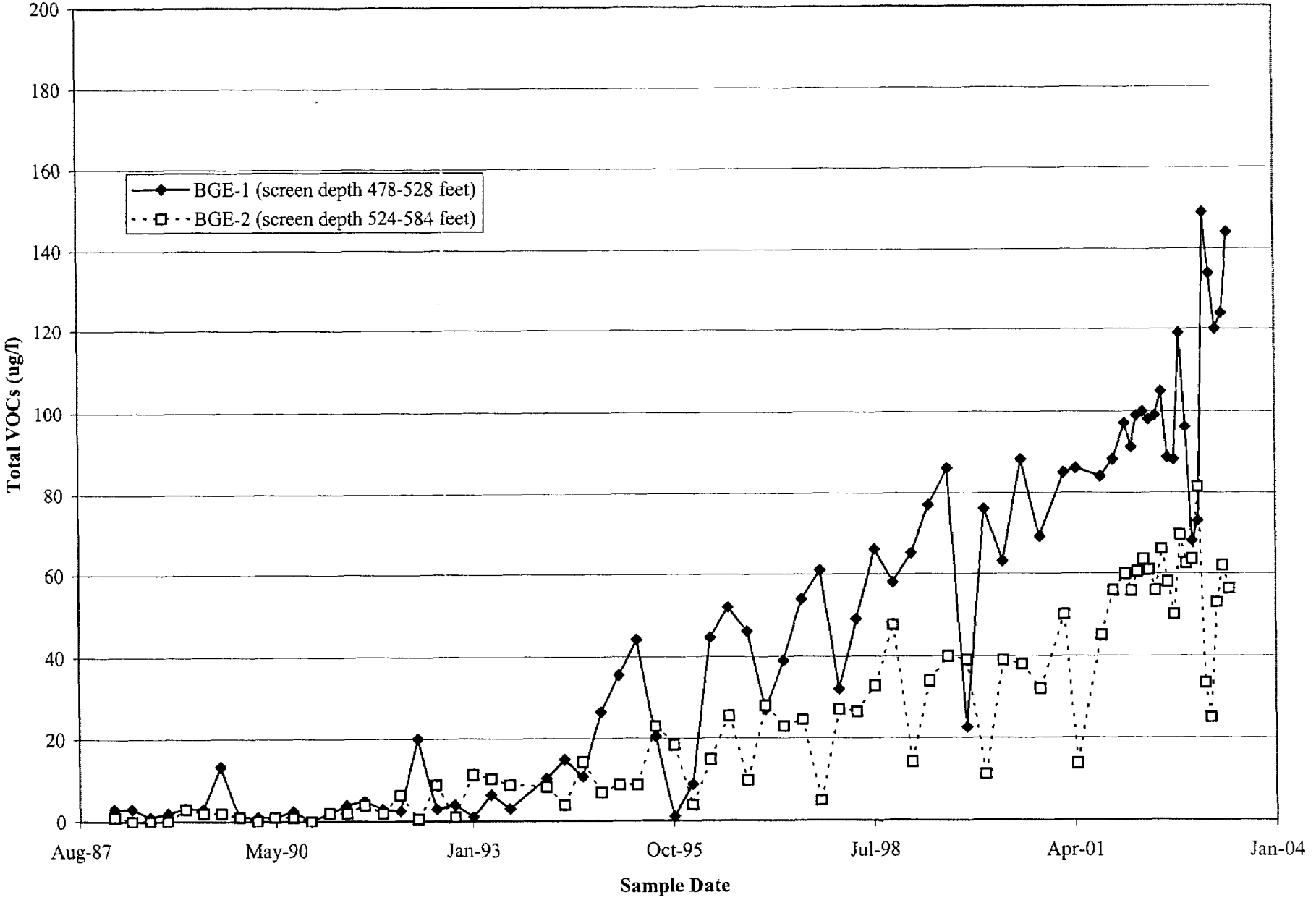
NOTES:
ST: Standard
---: Not established
*: Sample analyzed for Total Iron instead of Ferrous Iron
**: Standard applies to Total Iron
: Indicates Value exceeds NYSDEC Class GA Groundwater Standard or Guidance Value

Appendix E

APPENDIX E

HISTORIC CONCENTRATION GRAPH FOR BOWLING GREEN ESTATES WATER DISTRICT SUPPLY WELLS (1988-2003) - TOTAL VOLATILE ORGANIC COMPOUNDS

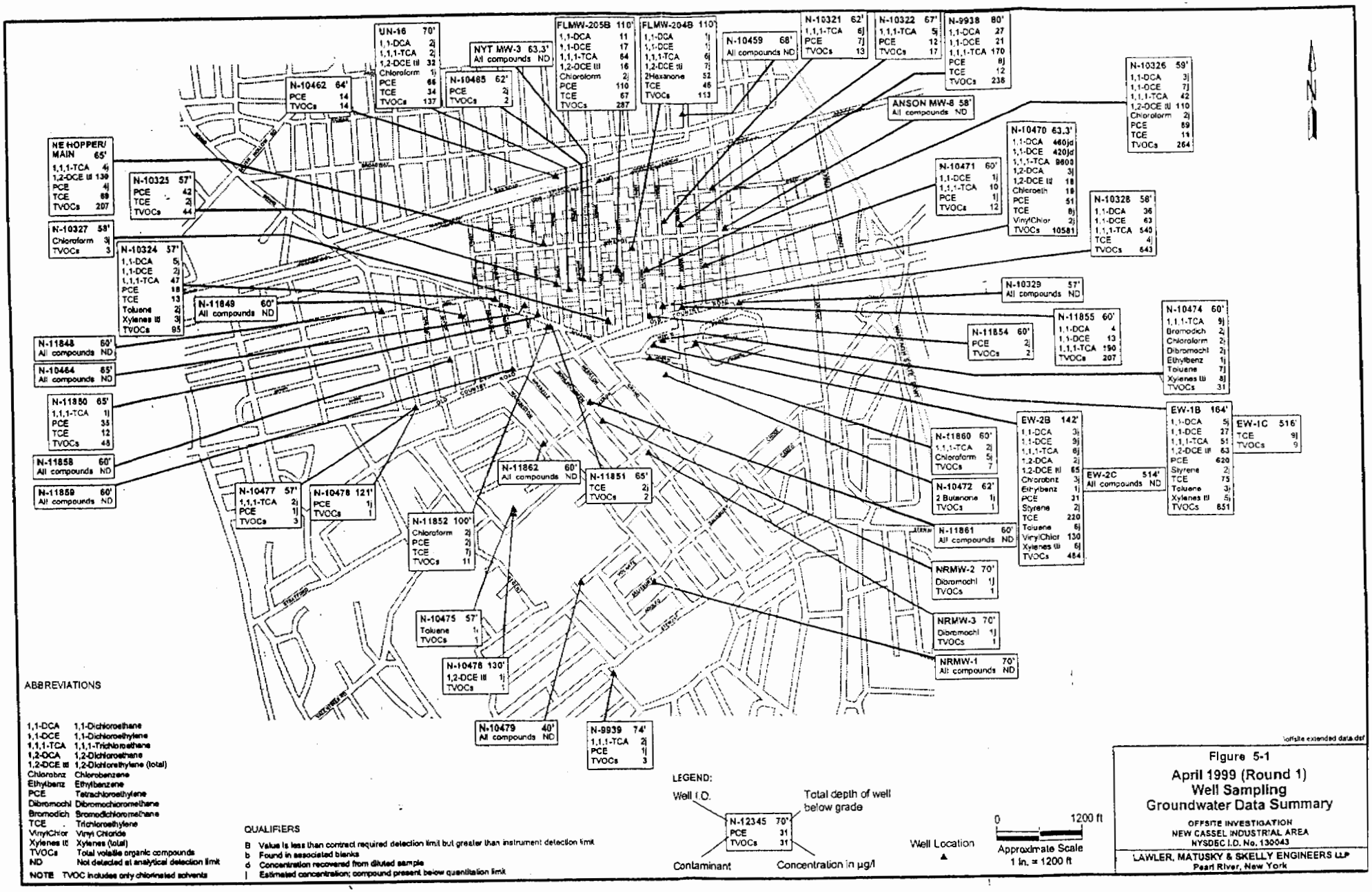
TOTAL VOCS IN BOWLING GREEN ESTATES WATER SUPPLY WELLS
(1988-2003)



Appendix F

APPENDIX F

RI/FS WELL SAMPLING GROUNDWATER DATA SUMMARY
RI/FS REPORT FIGURES (2000)



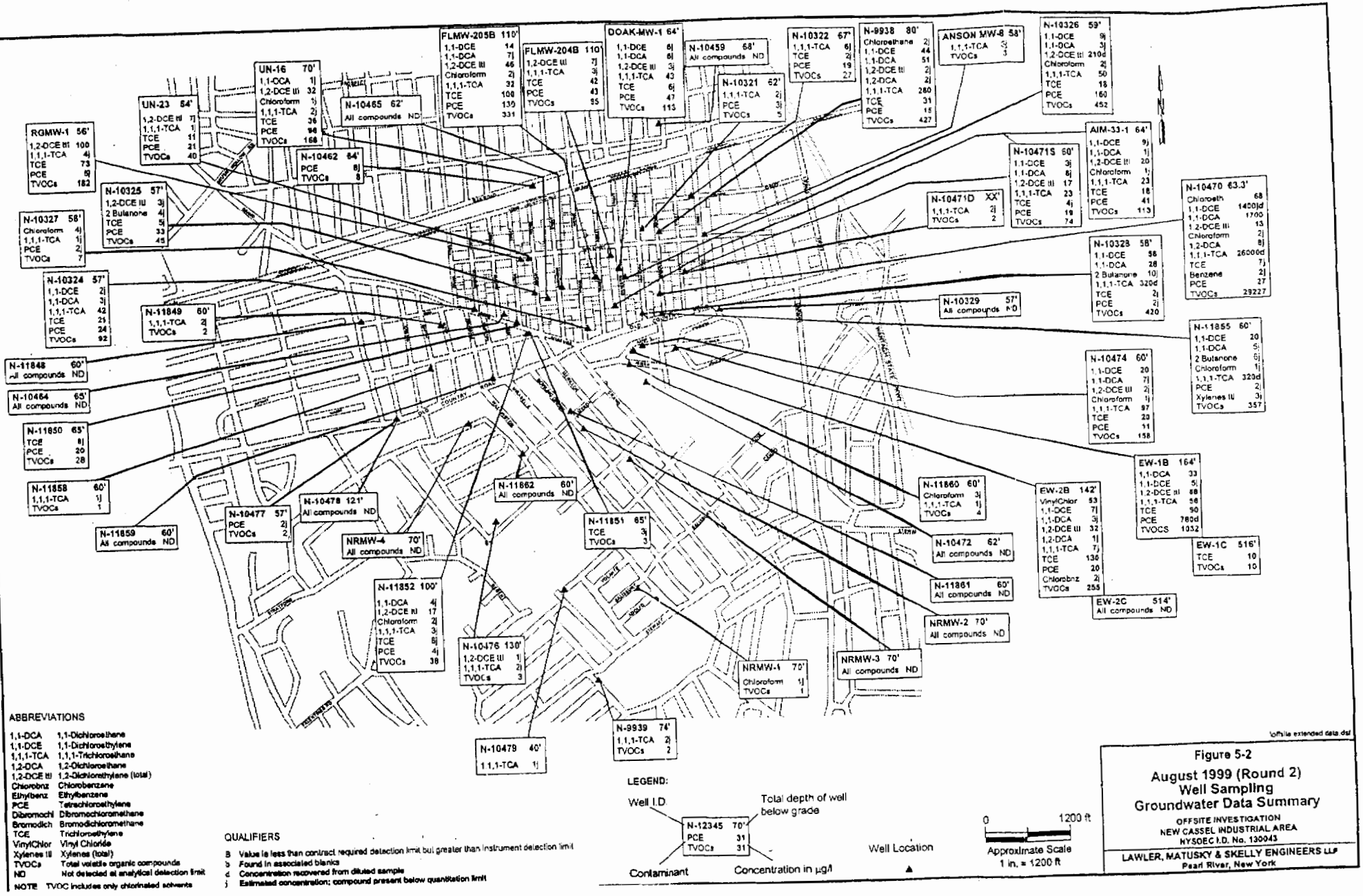
\offsite extended data.dsf

Figure 5-1

April 1999 (Round 1)
Well Sampling
Groundwater Data Summary

OFFSITE INVESTIGATION
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York


RGMW-1 56'
1,2-DCE tt 100
1,1,1-TCA 4j
TCE 73
PCE 5j
TVOCs 182
UN-23 54'
1,2-DCE tt 7j
1,1,1-TCA 1j
TCE 11
PCE 21
TVOCs 40
UN-16 70'
1,1-DCA 1j
1,2-DCE tt 32
Chloroform 1j
1,1,1-TCA 2j
TCE 36
PCE 96
TVOCs 168
N-10465 62'
All compounds ND
N-10462 64'
PCE 8j
TVOCs 8
FLMW-205B 110'
1,1-DCE 14
1,1-DCA 7j
1,2-DCE tt 46
Chloroform 2j
1,1,1-TCA 32
TCE 108
PCE 130
TVOCs 331
FLMW-204B 110'
1,2-DCE tt 7j
1,1,1-TCA 3j
TCE 42
PCE 43
TVOCs 95
DOAK-MW-1 64'
1,1-DCE 6j
1,1-DCA 6j
1,2-DCE tt 3j
1,1,1-TCA 43
TCE 6j
PCE 47
TVOCs 113
N-10459 68'
All compounds ND
N-10321 62'
1,1,1-TCA 2j
PCE 3j
TVOCs 5
N-10322 67'
1,1,1-TCA 6j
TCE 2j
PCE 19
TVOCs 27
N-9938 80'
Chloroethane 2j
1,1-DCE 44
1,1-DCA 51
1,2-DCE tt 2j
1,2-DCA 2j
1,1,1-TCA 280
TCE 31
PCE 15
TVOCs 427
ANSON MW-8 58'
1,1,1-TCA 3j
TVOCs 3
N-10326 59'
1,1-DCE 9j
1,1-DCA 3j
1,2-DCE tt 210d
Chloroform 2j
1,1,1-TCA 50
TCE 18
PCE 160
TVOCs 452
AIM-33-1 64'
1,1-DCE 9j
1,1-DCA 1j
1,2-DCE tt 20
Chloroform 1j
1,1,1-TCA 23
TCE 18
PCE 41
TVOCs 113
N-10471S 60'
1,1-DCE 3j
1,1-DCA 8j
1,2-DCE tt 17
1,1,1-TCA 23
TCE 4j
PCE 19
TVOCs 74
N-10471D XX'
1,1,1-TCA 2j
TVOCs 2
N-10325 57'
1,2-DCE tt 3j
2 Butanone 4j
TCE 5j
PCE 33
TVOCs 45
N-10327 58'
Chloroform 4j
1,1,1-TCA 1j
PCE 2j
TVOCs 7
N-10324 57'
1,1-DCE 2j
1,1-DCA 3j
1,1,1-TCA 42
TCE 23
PCE 24
TVOCs 92
N-11849 60'
1,1,1-TCA 2j
TVOCs 2
N-10328 58'
1,1-DCE 56
1,1-DCA 28
2 Butanone 10j
1,1,1-TCA 320d
TCE 2j
PCE 2j
TVOCs 420
N-10329 57'
All compounds ND
N-10470 63.3'
Chloroeth 68
1,1-DCE 1400jd
1,1-DCA 1700
1,2-DCE tt 13
Chloroform 2j
1,2-DCA 8j
1,1,1-TCA 26000d
TCE 7j
Benzene 2j
PCE 27
TVOCs 29227
N-11855 60'
1,1-DCE 20
1,1-DCA 5j
2 Butanone 6j
Chloroform 1j
1,1,1-TCA 320d
PCE 2j
Xylenes tt 3j
TVOCs 357
N-10474 60'
1,1-DCE 20
1,1-DCA 7j
1,2-DCE tt 2j
Chloroform 1j
1,1,1-TCA 97
TCE 20
PCE 11
TVOCs 158
N-11848 60'
All compounds ND
N-10464 65'
All compounds ND
N-11850 65'
TCE 8j
PCE 20
TVOCs 28
N-11858 60'
1,1,1-TCA 1j
TVOCs 1
N-11859 60'
All compounds ND
N-10477 57'
PCE 2j
TVOCs 2
N-10478 121'
All compounds ND
NRMW-4 70'
All compounds ND
N-11862 60'
All compounds ND
N-11851 65'
TCE 3j
TVOCs 3
N-11852 100'
1,1-DCA 4j
1,2-DCE tt 17
Chloroform 2j
1,1,1-TCA 3j
TCE 8j
PCE 4j
TVOCs 38
N-10476 130'
1,2-DCE tt 1j
1,1,1-TCA 2j
TVOCs 3
N-10479 40'
1,1,1-TCA 1j
N-9939 74'
1,1,1-TCA 2j
TVOCs 2
N-11860 60'
Chloroform 3j
1,1,1-TCA 1j
TVOCs 4
N-10472 62'
All compounds ND
N-11861 60'
All compounds ND
NRMW-2 70'
All compounds ND
NRMW-1 70'
Chloroform 1j
TVOCs 1
NRMW-3 70'
All compounds ND
EW-2B 142'
VinylChlor 53
1,1-DCE 7j
1,1-DCA 3j
1,2-DCE tt 32
1,2-DCA 1j
1,1,1-TCA 7j
TCE 130
PCE 20
Chlorobnz 2j
TVOCs 255
EW-2C 514'
All compounds ND
EW-1B 164'
1,1-DCA 33
1,1-DCE 5j
1,2-DCE tt 88
1,1,1-TCA 58
TCE 90
PCE 780d
TVOCS 1032
EW-1C 516'
TCE 10
TVOCs 10
ABBREVIATIONS
1,1-DCA 1,1-Dichloroethane
1,1-DCE 1,1-Dichloroethylene
1,1,1-TCA 1,1,1-Trichloroethane
1,2-DCA 1,2-Dichloroethane
1,2-DCE tt 1,2-Dichloroethylene (total)
Chlorobnz Chlorobenzene
Ethylbenz Ethylbenzene
PCE Tetrachloroethylene
Dibromochl Dibromochloromethane
Bromodich Bromodichloromethane
TCE Trichloroethylene
VinylChlor Vinyl Chloride
Xylenes tt Xylenes (total)
TVOCs Total volatile organic compounds
ND Not detected at analytical detection limit
NOTE TVOC includes only chlorinated solvents
QUALIFIERS
B Value is less than contract required detection limit but greater than instrument detection limit
b Found in associated blanks
d Concentration recovered from diluted sample
j Estimated concentration; compound present below quantitation limit
LEGEND:
Well I.D.
Total depth of well below grade
N-12345 70'
PCE 31
TVOCs 31
Contaminant
Concentration in µg/l
Well Location
0
1200 ft
Approximate Scale
1 in. = 1200 ft
\offsite extended data.dsf
Figure 5-2
August 1999 (Round 2)
Well Sampling
Groundwater Data Summary
OFFSITE INVESTIGATION
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

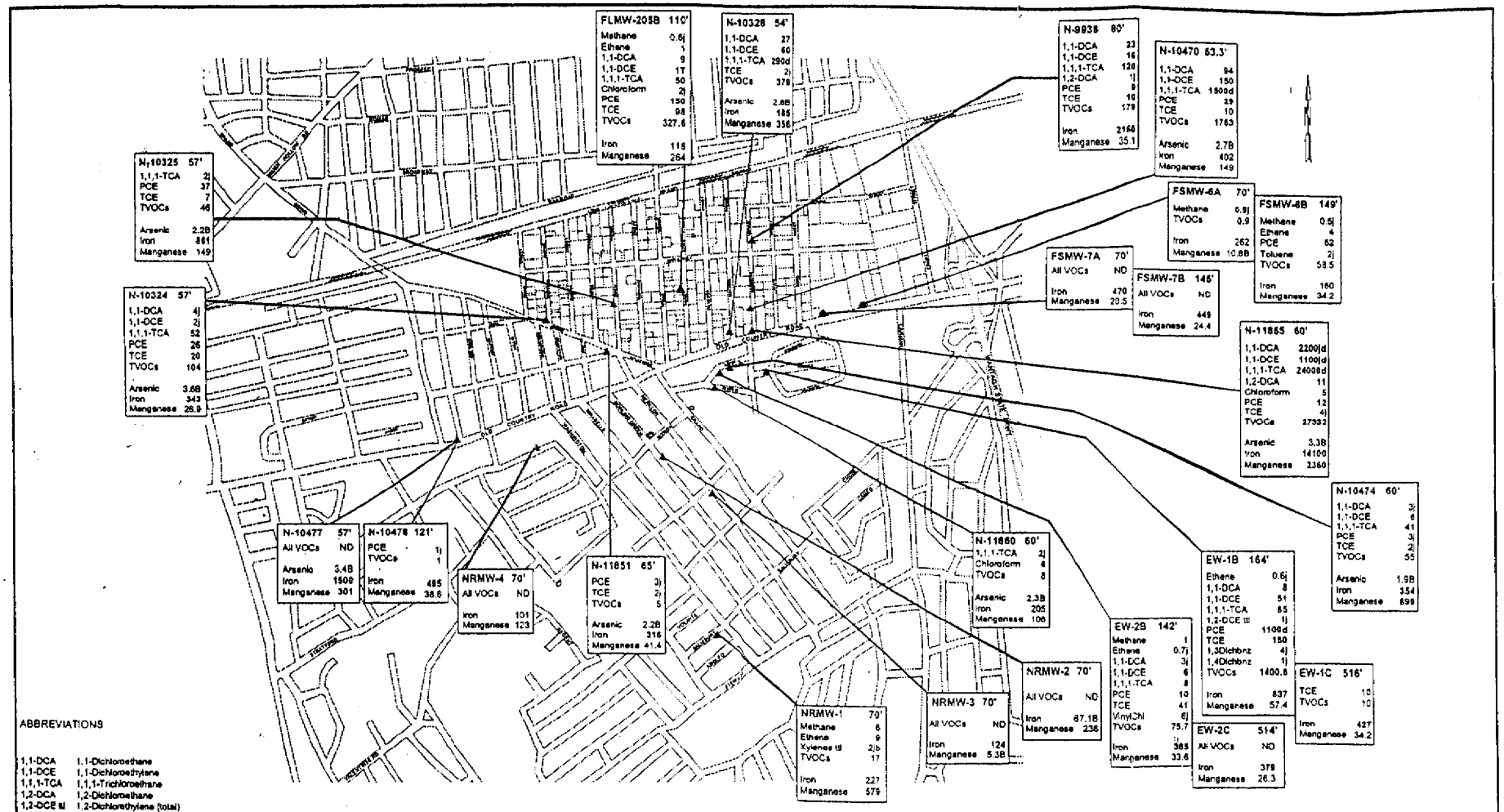


Figure 5-3

January 2000 (Round 3)
Well Sampling
Groundwater Data Summary

OFFSITE INVESTIGATION
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York