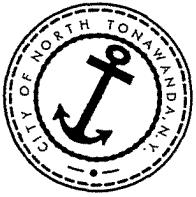




**FOURTH ANNUAL
OPERATION AND MONITORING REPORT
MAY 2004 TO APRIL 2005**

**GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

**PRINTED ON
SEP 15 2005**



City of North Tonawanda
Department of Engineering
City Hall, 216 Payne Avenue
North Tonawanda, NY 14120-5493

September 15, 2005

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Reference No. 7987

Jeffrey Konsella, P.E.
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

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OCT 7 2005

NYSDEC REG 9
FOIL
REL UNREL

Dear Mr. Konsella:

Re: Operation and Monitoring Report
May 2004 to April 2005
Gratwick-Riverside Park Site, North Tonawanda, New York

Please find attached four copies of the report entitled "Fourth Annual Operation and Monitoring Report, May 2004 to April 2005" for the Gratwick-Riverside Park Site located in North Tonawanda, New York.

This report is the fourth annual O&M Report for the remedial actions constructed at the Site. This report was prepared pursuant to Section 7.0 of the report entitled "Operation and Maintenance Manual" dated March 2002 (revised January 2004). It is noted that New York State Department of Environmental Conservation approval for the O&M Manual was received on April 20, 2005. All O&M activities have been performed in accordance with the methods and frequencies specified in the O&M Manual (modified as described in the Third Annual O&M Report dated July 2004).

This report presents the results of the first four years of monitoring. The trends in the results confirm that the reduced frequency of the groundwater and river water monitoring described in the Third Annual O&M Report is appropriate for the remaining 3 years of the 5-year period from May 2003 to April 2008. The Fourth Annual O&M Report reiterates the scope of the effluent monitoring for the above 5-year period that was recommended in the Third Annual O&M Report.

The following items identified during the monthly Site inspections are planned to be addressed over the next 3 months:

- i) Remove remaining reinforcing bars from the islets in the Niagara River.

In summary, the constructed remedy is achieving the remedial objectives of maintaining hydraulic gradients from the Niagara River to the groundwater collection system thereby ensuring that Site chemicals are not migrating to the Niagara River. Furthermore, the treatment

September 15, 2005

2

Reference No. 7987

of the Site groundwater by the City of North Tonawanda POTW did not require any modifications to the standard operation of the POTW.

Please contact me at (716) 695-8565 if you have any questions or comments.

Yours truly,

Dale Marshall

[Signature]
Dale Marshall, P.E.
City Engineer

KDS/cb/3
Encl.

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J.P. Moreau/ W. Jones



FOURTH ANNUAL OPERATION AND MONITORING REPORT MAY 2004 TO APRIL 2005

**GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

**SEPTEMBER 2005
REF. NO. 7987 (32)**
This report is printed on recycled paper.

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TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 GROUNDWATER WITHDRAWAL SYSTEM (GWS).....	2
2.1 HYDRAULIC MONITORING	2
2.2 GROUNDWATER QUALITY MONITORING	3
2.2.1 SAMPLE RESULTS.....	4
2.2.2 MONITORING FREQUENCY FOR 3-YEAR PERIOD	
MAY 2005 TO APRIL 2008	7
2.3 EFFLUENT MONITORING PROGRAM	8
2.3.1 SAMPLE RESULTS.....	8
2.3.2 MONITORING PROGRAM FOR 3-YEAR PERIOD	
MAY 2005 TO APRIL 2008	9
2.3.2.1 SAMPLING FREQUENCY	9
2.3.2.2 ANALYTICAL PARAMETERS	10
2.4 SURFACE WATER MONITORING PROGRAM.....	11
2.4.1 SAMPLE RESULTS.....	11
2.4.2 MONITORING FREQUENCY FOR 3-YEAR PERIOD	
MAY 2005 TO APRIL 2008	12
2.5 GWS OPERATIONS.....	12
2.6 GWS MAINTENANCE.....	13
3.0 SITE INSPECTIONS.....	14
4.0 CONCLUSIONS/RECOMMENDATIONS.....	15
4.1 OPERATION AND MAINTENANCE	15
4.2 MONITORING.....	15

LIST OF FIGURES
(Following Text)

- FIGURE 2.1 MONITORING NETWORK
- FIGURE 2.2 MW-6 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.3 MW-7 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.4 MW-8 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.5 MW-9 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.6 OGC-1 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.7 OGC-2 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.8 OGC-3 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.9 OGC-4 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.10 OGC-5 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.11 OGC-6 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.12 OGC-7 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.13 OGC-8 TVOC AND TSVOC CONCENTRATIONS
- FIGURE 2.14 EFFLUENT TVOCS AND TSVOCS VS. TIME
- FIGURE 2.15 EFFLUENT pH VS. TIME
- FIGURE 2.16 EFFLUENT TOTAL SUSPENDED SOLIDS VS. TIME
- FIGURE 2.17 EFFLUENT BOD VS. TIME
- FIGURE 2.18 EFFLUENT VOLUME VS. TIME

LIST OF TABLES
(Following Text)

TABLE 2.1	GROUNDWATER HYDRAULIC MONITORING LOCATIONS
TABLE 2.2	WATER LEVELS (FT AMSL)
TABLE 2.3	SUMMARY OF HORIZONTAL GRADIENTS
TABLE 2.4	SUMMARY OF VERTICAL GRADIENTS
TABLE 2.5	GROUNDWATER SAMPLING SUMMARY
TABLE 2.6	SUMMARY OF DETECTED COMPOUNDS, SITE GROUNDWATER AND RIVER WATER
TABLE 2.7	PH READINGS
TABLE 2.8	EFFLUENT SAMPLING SUMMARY
TABLE 2.9	PROPOSED EFFLUENT SAMPLING SUMMARY, NEXT 3-YEAR PERIOD
TABLE 2.10	ANALYTICAL RESULTS SUMMARY, MONTHLY SITE EFFLUENT
TABLE 2.11	GROUNDWATER VOLUMES DISCHARGED TO NORTH TONAWANDA POTW
TABLE 2.12	SURFACE WATER SAMPLING SUMMARY

LIST OF APPENDICES

APPENDIX A	MONTHLY INSPECTION LOGS (NOVEMBER 2004 TO APRIL 2005)
APPENDIX B	QA/QC REVIEWS

1.0 INTRODUCTION

This report is the fourth annual Operation and Monitoring Report (O&M Report) for the remedial actions constructed at the Gratwick-Riverside Park Site (Site) located in North Tonawanda, New York. This report covers the period from May 2004 to April 2005 and was prepared pursuant to Section 7.0 of the report entitled "Operation and Maintenance Manual" (O&M Manual) dated March 2002 (revised January 2004). It is noted that New York State Department of Environmental Conservation (NYSDEC) approval for the O&M Manual was given on April 20, 2005. All O&M activities have been performed in accordance with the methods and frequencies specified in the O&M Manual.

The frequency of sample collection and analyses has been modified pursuant to the frequency described in the previous annual report ("Third Annual Operation and Monitoring Report, May 2003 to April 2004"), except for the groundwater discharge sampling for which no response from the NYSDEC has been received. The sampling frequency and parameters for the groundwater discharge remain as presented in the O&M Manual.

2.0 GROUNDWATER WITHDRAWAL SYSTEM (GWS)

Full-time operation of the Groundwater Withdrawal System (GWS) at the Site started on May 4, 2001. The objectives of the GWS are to:

- i) achieve and maintain an inward gradient from the Niagara River toward the GWS; and
- ii) achieve and maintain an upward gradient from the fill alluvium layer beneath the GWS.

In order to determine whether the objectives are being met, hydraulic and chemical monitoring programs have been developed. These programs include: Site groundwater; GWS effluent; and River surface water. The wells, manholes, wet wells, and storm sewer outfalls that comprise the monitoring network are shown on Figure 2.1. The monitoring programs are described in the following subsections.

2.1 HYDRAULIC MONITORING

Hydraulic monitoring consists of the collection of water levels in monitoring wells and manholes, and River water levels at the storm sewer outfalls. These data are then used to determine the vertical and horizontal gradients for the groundwater.

The water levels in four GWS manholes and in the River were monitored to confirm that an inward gradient exists. The water levels in five GWS manholes and in four monitoring wells installed near the GWS alignment in the materials directly overlying the confining unit were monitored to confirm that an upward gradient exists. The specific manholes and monitoring wells used to determine the horizontal and vertical gradients are listed in Table 2.1.

Groundwater elevations were measured on a monthly basis. The measured water levels from the beginning of the O&M period are presented in Table 2.2. Summaries of the horizontal and vertical gradients are provided in Tables 2.3 and 2.4, respectively.

The results for the horizontal gradient evaluation show that:

- i) inward horizontal gradients were achieved by May 11, 2001, within one week of the start of pumping the GWS;

- ii) the inward gradients were maintained for the remainder of the first year except for four short-time periods around August 20, October 22, and November 27, 2001 and February 11, 2002 in the vicinity of the River North/MH6 location;
- iii) the inward gradients were maintained for the second year except in the vicinity of the River North/MH6 location from June to November 2002; and
- iv) the inward gradients were maintained for the entire third and fourth years (May 2003 to April 2005).

The short periods of outward gradient did not adversely affect the effectiveness of the remedy because:

- i) the gradients were outward for only short periods of time;
- ii) the outward gradients occurred over only a portion of the barrier wall;
- iii) the 36-inch barrier wall is six inches thicker than the design thickness thereby providing extra protection; and
- iv) any outward migration of Site groundwater into the barrier wall during the short periods of outward gradient are more than offset by the inward migration of river water into the barrier wall during the long periods of inward gradient.

It is observed that for the time period from September 2003 to April 2005, the river level was often too low to measure a river water level at the River North monitoring location. Comparison of available River North with River South water levels shows that the River North levels are generally approximately 0.25 feet lower than the River South levels. Subtracting 0.25 feet from the River South water levels and comparing this calculated level with the measured water levels at MH2 and MH6, shows an inward gradient.

The results for the vertical gradient evaluation showed that the vertical gradients were continually upward for all four monitoring pairs for the time period of May 2004 to April 2005.

2.2 GROUNDWATER QUALITY MONITORING

Groundwater quality monitoring consists of the collection of water samples from on-Site overburden monitoring wells (OGC-1 through OGC-8 and MW-6 through MW-9) and the analysis of these samples to determine the concentrations of chemicals in the groundwater. The purpose of the groundwater quality monitoring program is to monitor the anticipated improvement in the quality of the overburden groundwater:

- i) between the barrier wall and the River (OGC-1 through OGC-4); and
- ii) in the fill/alluvium beneath the GWS (MW-6 through MW-9).

Groundwater quality monitoring locations are presented on Figure 2.1 and the analytical parameters and frequency are listed in Table 2.5.

The sampling frequency for the initial 2-year period after GWS startup was quarterly. Based on the 2-year results, the frequency for most wells was modified to semi-annual for the third year (May and November 2003). The exceptions to this are for SVOCs in OGC-4 and VOCs in OGC-6, which remained at quarterly for the third year. Sampling for years 4 through 7 is to be annual.

2.2.1 SAMPLE RESULTS

A summary of compounds detected in the groundwater samples is presented in Table 2.6 and pH levels are presented in Table 2.7.

To evaluate the trends in the groundwater chemistry and evaluate the appropriate frequency of future sampling, the VOCs and SVOCs were summed and plotted on Figures 2.2 through 2.13 for each of the 12 monitoring wells included in the program. It is believed that the sum of the VOCs (i.e., TVOCs) and SVOCs (i.e., TSVOCs) best represent the trends in the groundwater chemistry and, as such, were used to confirm the monitoring frequency selected in the Third Annual Report for the 4-year period from May 2004 to April 2008.

Review of the TVOC and TSVOC concentrations with time show the following trends since May 2003:

- i) TVOCs:
 - decreasing concentrations in 6 of the 12 wells (MW-7, MW-8, OGC-1, OGC-3, OGC-5, and OGC-8), compared to 2 of 12 wells in the Third Annual O&M Report;
 - relatively constant concentrations with random fluctuations in 5 of the 12 wells (MW-6, MW-9, OGC-2, OGC-4, and OGC-7), compared to 7 of 12 wells in the Third Annual O&M Report; and
 - increasing concentrations in 1 of the 12 wells (OGC-6), compared to 3 of 12 wells in the Third Annual O&M Report.

ii) TSVOCs:

- decreasing concentrations in 6 of 12 wells (MW-6, MW-7, MW-8, OGC-1, OGC-5, and OGC-8), compared to 2 of 12 wells in the Third Annual Report;
- relatively constant concentrations with random fluctuations in 5 of the 12 wells (MW-9, OGC-2, OGC-3, OGC-4, and OGC-7), compared to 6 of 12 wells in the Third Annual Report; and
- increasing concentrations in 1 of the 12 wells (OGC-6), compared to 4 of 12 wells in the Third Annual Report.

Many of the wells with constant but fluctuating concentrations have only low level concentrations (i.e., <40 µg/L for TVOCs and TSVOCs). These are MW-6, MW-9, OGC-2, OGC-4, and OGC-7 for TVOCs and OGC-2 and OGC-7 for TSVOCs.

In summary, the increase in the number of wells with decreasing concentrations, shows that the groundwater is being remediated.

Additional description of the TVOC and TSVOC concentrations is provided in the following paragraphs.

The TVOC concentrations for MW-6 shown on Figure 2.2 fluctuated randomly between 2 and 9 µg/L from August 2001 to February 2003, increased to 64 µg/L in May 2003, and then decreased to a range of 16 to 30 µg/L for the time period from November 2003 to May 2005. The TSVOC concentrations, after the initial rapid decrease from 107 to 13 µg/L between May and November 2001, fluctuated randomly between non-detect (ND) and 25 µg/L until May 2003, then increased to 350 µg/L in November 2003 before decreasing to ND in May 2004. The TSVOC concentration remained low level (i.e., 5 µg/L) in the May 2005 sample. No reason for these large variations is apparent.

The TVOC and TSVOC concentrations for MW-7 on Figure 2.3 show that both TVOC and TSVOC peaked in May 2002 (18 and 41 µg/L, respectively) and then decreased to non-detect for both TVOC and TSVOC in May 2004. In the May 2005 sample, the TVOC and TSVOC concentrations remained low level at 7 and 1 µg/L, respectively.

The TVOC concentrations for MW-8 on Figure 2.4 show that the trend in the TVOC concentrations is a continual increase with some fluctuations until November 2003 when the concentrations peaked at 1,000 µg/L. Thereafter, the concentrations continually decreased with a TVOC concentration of 356 µg/L in the May 2005 sample. The TSVOC concentrations after August 2001 ranged between 200 and 300 µg/L until

November 2003 and since then have continually decreased with a TSVOC concentration of 40 µg/L in the May 2005 sample.

The TVOC concentrations for MW-9 on Figure 2.5 show that the TVOC concentrations ranged between 10 and 21 µg/L. The TSVOC concentrations, not considering the May 2002 non-detect results which appear to be anomalous, fluctuated randomly between 140 to 280 µg/L from May 2001 to May 2003, increased to 380 µg/L in November 2003, and then fluctuated between 270 and 350 µg/L in the May 2004 and May 2005 samples.

All MWs are located on the inside of the barrier wall and an inward gradient has always been maintained in the vicinity of these wells. Thus, the TVOCs and TSVOCs are not migrating to the Niagara River.

The TVOC concentrations for OGC-1 on Figure 2.6 show that the concentrations since February 2002 ranged between 0.5 and 13 µg/L. The TSVOC concentrations after November 2001, have fluctuated between non-detect and 59 µg/L with non-detect concentrations for the last two annual sampling events.

The TVOC concentrations for OGC-2 on Figure 2.7 have fluctuated randomly between non-detect and 4.5 µg/L since February 2002. The TSVOC concentrations were all non-detect.

The TVOC concentrations for OGC-3 on Figure 2.8 ranged from 21 to 57 µg/L with the peak in November 2001 and ranging between 17 and 27 µg/L in the May 2004 and May 2005 samples, respectively. The TSVOC concentrations fluctuated randomly from 207 to 411 µg/L.

The TVOC concentrations for OGC-4 on Figure 2.9 fluctuated randomly between non-detect and 14 µg/L. The TSVOC concentrations showed a continual increase from 383 µg/L in May 2001 to 2426 µg/L in February 2003, decreased to 64 µg/L in March 2004, and then increased to 2400 µg/L in May 2004. Since then, the TSVOC concentrations have continually decreased, with a concentration of 864 µg/L in the May 2005 sample. The single compound responsible for this peak was phenol which increased from 310 µg/L in May 2001 to 2400 µg/L in May 2004 and then decreased to 850 µg/L in May 2005. Phenol was non-detect in the March 2004 sample.

The TVOC concentrations for OGC-5 on Figure 2.10, after February 2002, ranged from non-detect to 11 µg/L whereas the TSVOC concentrations ranged from non-detect to 11 µg/L with non-detect concentrations for TSVOC since February 2003.

The TVOC concentrations for OGC-6 on Figure 2.11 have increased continually from 3 µg/L in May 2001 to 1,200 µg/L in May 2005. The primary compounds detected are PCE and TCE. The TSVOC concentrations increased continually from non-detect in May 2001 to 26 µg/L in May 2002 and then held relatively constant between 11 and 30 µg/L from May 2002 to November 2003 before increasing to 74 and 95 µg/L in the May 2004 and May 2005 samples, respectively. OGC-6 is located a short distance upstream of the northerly river monitoring station and is between MH6 and MH8. Review of the water levels for MH6, OGC-6, MH8, and the middle river station show that the water levels in MH6 and MH8 are typically 8 and 4 feet lower, respectively, than the river north level, resulting in a strong inward gradient which has continually existed in this area since pumping began. Thus, there will be no migration of chemicals from the Site through the barrier wall to the Niagara River. The source for these VOCs is uncertain but is expected to reside outside of the barrier wall.

The TVOC concentrations for OGC-7 on Figure 2.12, since August 2001, ranged between 59 and 156 µg/L and the TSVOC concentrations ranged between non-detect and 2 µg/L with non-detect concentrations for TSVOC since August 2002.

The TVOC concentrations for OGC-8 on Figure 2.13 have decreased from 165 µg/L in August 2002 to 29 µg/L for both the May 2004 and May 2005 samples and the TSVOC concentrations have decreased from 54 µg/L in August 2002 to 8 µg/L in the May 2005 samples.

The QA/QC review of the May 2005 groundwater results is included in Appendix B.

2.2.2 MONITORING FREQUENCY FOR 3-YEAR PERIOD MAY 2005 TO APRIL 2008

The previous discussion shows that, in general, the ranges of concentration fluctuations are small and in most cases the concentrations themselves are low. Consequently, it was recommended in the Third Annual O&M Report that the frequency of the groundwater sampling and analysis be annually for the period from May 2004 to April 2008. The May 2005 results support this sampling frequency.

2.3 EFFLUENT MONITORING PROGRAM

Groundwater from the GWS is discharged to the POTW without the need for pretreatment. The monitoring performed during the construction phase of the remedy clearly showed that the minimal chemical presence in the groundwater collected in the GWS is easily treated at the POTW and therefore no on-Site pretreatment is necessary. The effluent samples are collected at the monitoring station (meter building), which is located at the south end of the Site as shown on Figure 2.1. The analytical parameters are listed in Table 2.8.

Based on the results available for the period ending May 2003, the Second Annual O&M Report recommended revising the monitoring frequency to semi-annual and reducing the analytical parameter test (see Table 2.9). These same recommendations were made in the Third Annual O&M Report based on the results available for the period ending May 2004. To date, NYSDEC has not responded to this recommendation. The May 2005 results support the recommendations made in the Second Annual O&M Report. This proposed modification will be implemented in September 2005, unless NYSDEC advises that this modification is not acceptable.

2.3.1 SAMPLE RESULTS

Effluent samples were collected monthly as specified in the City of North Tonawanda Industrial Wastewater Discharge Permit (see O&M Manual Appendix B - Wastewater Discharge Permit). Each month, a 24-hour composite sample was collected for SVOCs, metals, and wet chemistry parameters. Three grab samples were also collected for VOCs at 8-hour intervals and the measured concentrations were averaged to give a 24-hour concentration.

The monthly effluent sample results are presented in Table 2.10 and the TVOC and TSVOC results are plotted on Figure 2.14. As shown on Figure 2.14, the TVOCs peak in the spring and then decline reaching a trough in the fall and are slowly decreasing with time. This pattern may be attributable to additional flushing during the spring snow melt. The effluent TSVOC results on Figure 2.14 show no apparent seasonal pattern and are also slowly decreasing with time.

QA/QC reviews of the monthly discharge results to November 2004 have already been submitted to the NYSDEC in the monthly progress reports. Thus, these reviews are not being resubmitted with this O&M Report. The QA/QC reviews of the monthly

discharge results from December 2004 to April 2005, inclusive, are provided in Appendix B.

2.3.2 MONITORING PROGRAM FOR 3-YEAR PERIOD MAY 2005 TO APRIL 2008

2.3.2.1 SAMPLING FREQUENCY

To assist in evaluating the sampling frequency for the effluent discharge from the GWS, the measured concentrations for the following parameters were plotted: TVOCs, TSVOCs, pH, total suspended solids (TSS), and biochemical oxygen demand (BOD) (see Figures 2.14 through 2.17). It is believed that these parameters are representative of the trends in the chemistry of the water discharged to the POTW and, as such, can be used to determine an appropriate monitoring frequency for the effluent.

The effluent TVOC concentrations versus time are presented on Figure 2.14. As shown on Figure 2.14, the TVOCs peak in the spring and then decline reaching a trough in the fall. Furthermore, the concentrations are slowly decreasing with time. This pattern supports semi-annual monitoring (i.e., spring and fall).

The effluent TSVOC concentrations are also presented on Figure 2.14. There is no apparent seasonal pattern in the TSVOC concentrations. However, the TSVOC concentrations are also slowly decreasing with time. This supports semi-annual monitoring.

The pH levels are presented on Figure 2.15. As shown on Figure 2.15, the pH levels range between 8.4 and 11.5. An apparent trend in the pH levels is higher pH levels in the winter/spring and lower pH levels in the summer/fall. This pattern supports semi-annual monitoring.

The TSS concentrations presented on Figure 2.16 show higher concentrations occurring in the early spring and late summer/fall with elevated concentrations (maximum of 278 mg/L) in the spring of 2005. Because TSS may be related to the discharge flow rate, the monthly discharge volume (see Table 2.11) is plotted on Figure 2.18. Comparison of the results presented on these two figures shows an apparent correlation between higher flows and greater TSS concentrations except for the 2005 spring results. These trends suggest that semi-annual sampling is appropriate.

The BOD concentrations are presented on Figure 2.17. As shown on Figure 2.17, BOD concentrations ranged from 20 to 29 mg/L until April 2002 then decreased to the range of 6 to 22 mg/L since May 2002. The BOD concentrations were compared with the discharge volume but showed no apparent correlation. The relatively small range in BOD concentrations supports less frequent sampling.

In summary, the trends described above support a decrease in sampling frequency to semi-annually. It is recommended that the semi-annual sampling be performed in the spring and fall. This is the same recommendation that was presented in the Second and Third Annual O&M Reports and upon which the NYSDEC have provided no feedback.

This proposed modification will be implemented in September 2005 unless NYSDEC advises that this modification is not acceptable.

2.3.2.2 ANALYTICAL PARAMETERS

Review of the analytical results also shows that none of the detected metals exceeded the surface water standard/guidance values listed in Table 2.6. Thus, it is recommended that metals be deleted from the effluent analytical parameter list.

Furthermore, operation of the POTW does not require monitoring of the general chemistry parameters. Thus, it is recommended that the general chemistry parameters be deleted from the effluent analytical parameter list, other than those parameters which have a surface water standard/guidance level. The parameters to be retained are: chloride, ammonia, nitrate, sulfate, sulfide, phosphorus, and cyanide. Of these parameters, chloride, ammonia, sulphate, sulfide, and phosphorus have exceeded their respective surface water quality criteria (see Table 2.6). The parameters with standards/guidance levels will continue to be monitored to assist in the determination of when pumping to the POTW for treatment can be stopped and the groundwater thereafter can be allowed to discharge directly to the Niagara River. Phenol, even though it has a standard, is recommended to be deleted from the general parameter list because it is already included under the SVOC parameter list.

A summary of the proposed effluent monitoring program for the 3-year period from May 2005 to April 2008 is presented in Table 2.9. This is the same list recommended in the Second and Third Annual Reports. This proposed modification will be implemented in September 2005 unless NYSDEC advises that this modification is not acceptable.

2.4 SURFACE WATER MONITORING PROGRAM

To determine that the River sediment remediation and enhancement is working properly, surface water samples were collected upstream of, adjacent to, and at the downstream end of the Site at the locations shown on Figure 2.1. The analytical parameters are listed in Table 2.12. Surface water samples were collected and analyzed concurrent with the groundwater samples.

2.4.1 SAMPLE RESULTS

The river water analytical results are presented in Table 2.6. As shown in Table 2.6, almost all of the analytical results were non-detect. Only a few VOCs were infrequently detected at very low level concentrations and only 2 SVOCs were ever detected; once each at less than 1 µg/L. None of the above concentrations exceeded the Class A surface water criteria. The exceptions to this occurred in May 2002, November 2003, and May 2004 at the North River location. The May 2002 and May 2004 North River analytical results show elevated concentrations of primarily ethylbenzene (20 and 40 µg/L), toluene (63 and 130 µg/L), and total xylenes (80 and 210 µg/L). There were no exceedances in the May 2005 samples. Given that:

- i) the North River location is downstream of the on-site boat launch;
- ii) boats and personnel watercraft were present in the area;
- iii) the concentrations for these three compounds in the groundwater are much less than the May 2002 and May 2004 river water concentrations; and
- iv) the concentrations for these three compounds were non-detect in all other quarterly samples at this location, except for toluene (0.96J µg/L) and total xylene (0.96J µg/L) in the May 2003 sample;

the most likely explanation for these measured concentrations of BTEX compounds in the river water sample is a fuel leak or spillage from watercraft.

For the November 2003 samples, benzene was detected slightly above the Class A surface water criteria at 2 µg/L in the North River location. Considering that:

- i) benzene was not detected in the upstream river water sample at the River Middle location;
- ii) the groundwater benzene concentrations between the River Middle and River North locations were non-detect (OGC-2) and 0.87 µg/L (OGC-6); and

- iii) the dilution of the river water which would significantly reduce the groundwater concentrations,

it is unlikely that the Site was the source for the benzene detected at the North River location.

The QA/QC review of the May 2005 river water results is included in Appendix B.

2.4.2 MONITORING FREQUENCY FOR 3-YEAR PERIOD MAY 2005 TO APRIL 2008

Given the infrequent and low level concentrations of VOCs and SVOCs, the frequency for river water sampling and analyses is annual, the same as for the groundwater.

2.5 GWS OPERATIONS

The volume of water pumped on a monthly basis from the Site to the City POTW for treatment is presented in Table 2.11 and plotted on Figure 2.18. The monthly volumes show that during the time period of initial dewatering of the Site (i.e., May and June 2001) the monthly volumes ranged from 2,300,000 to 2,900,000 gallons. Thereafter, the monthly volumes ranged from 210,000 to 1,280,000 gallons, with the volumes ranging from 210,000 to 480,000 gallons for the last 12-month period. The lower monthly volumes typically occur during the drier summer/fall months.

The total volume of water discharged from the Site for the time period from May 2001 to April 2005 was 33,601,300 gallons with 4,140,600 pumped during the last 12 months.

Section 5.0 of the O&M Manual describes the procedures to be followed in case pumping of the GWS needs to be stopped to prevent the discharge of untreated water from the Site by the City POTW (i.e., wet weather shutdown). No wet weather shutdown occurred in the time period from May 2004 to April 2005. However, the pump in MH3 was shut down for a period of approximately 2 days to remove material adhering to the pump impellor as described in Section 2.6.

The treatment of the Site groundwater by the City POTW did not require any modifications to the standard operations of the City POTW and did not cause any operational upsets of the City POTW.

2.6 GWS MAINTENANCE

The following maintenance or service repairs were needed on the GWS components during the May 2004 to April 2005 time period.

The January 28, 2005 water level in MH3 was approximately 2 feet higher than previous levels. Inspection of the pump identified that the pump impellor was coated with a material reducing the efficiency of pumping the groundwater. The material resembled a phenolic resin. The material was removed and the pump restarted. The water levels decreased after the pump was restarted and the February to April 2004 water levels in MH3 are consistent with the lower historic levels.

3.0 SITE INSPECTIONS

Site inspections were performed on a monthly basis. Copies of the inspection logs for the time period May to October 2004 were previously submitted and thus are not being resubmitted with this O&M Report. The monthly inspection logs for November 2004 to April 2005 are included in Appendix A. In summary, the May 2004 to April 2005 inspections identified the following items that required maintenance:

- i) place additional boulders to protect wet well covers and in the entry to the Islet 1 area;
- ii) repair a small portion of the Islet 1 area where hydric soil was absent;
- iii) some erosion of the shoreline has occurred; and
- iv) removal of the remaining reinforcing bars on the islets.

The first three items were completed as described in the NYSDEC approved report entitled "Remedial Action Construction Implementation - Addendum No. 1, Repair of Shoreline Erosion" dated March 2005. The fourth item is to be performed by the City in the spring/summer of 2005 when the river water temperatures make it safe to do so.

4.0 CONCLUSIONS/RECOMMENDATIONS

4.1 OPERATION AND MAINTENANCE

The constructed remedy is achieving the remedial action objectives.

Furthermore, the following item identified during the final Site inspection of December 10, 2004 needs to be addressed as described in Section 3.0.

- i) remove remaining reinforcing bars on the rock islets.

4.2 MONITORING

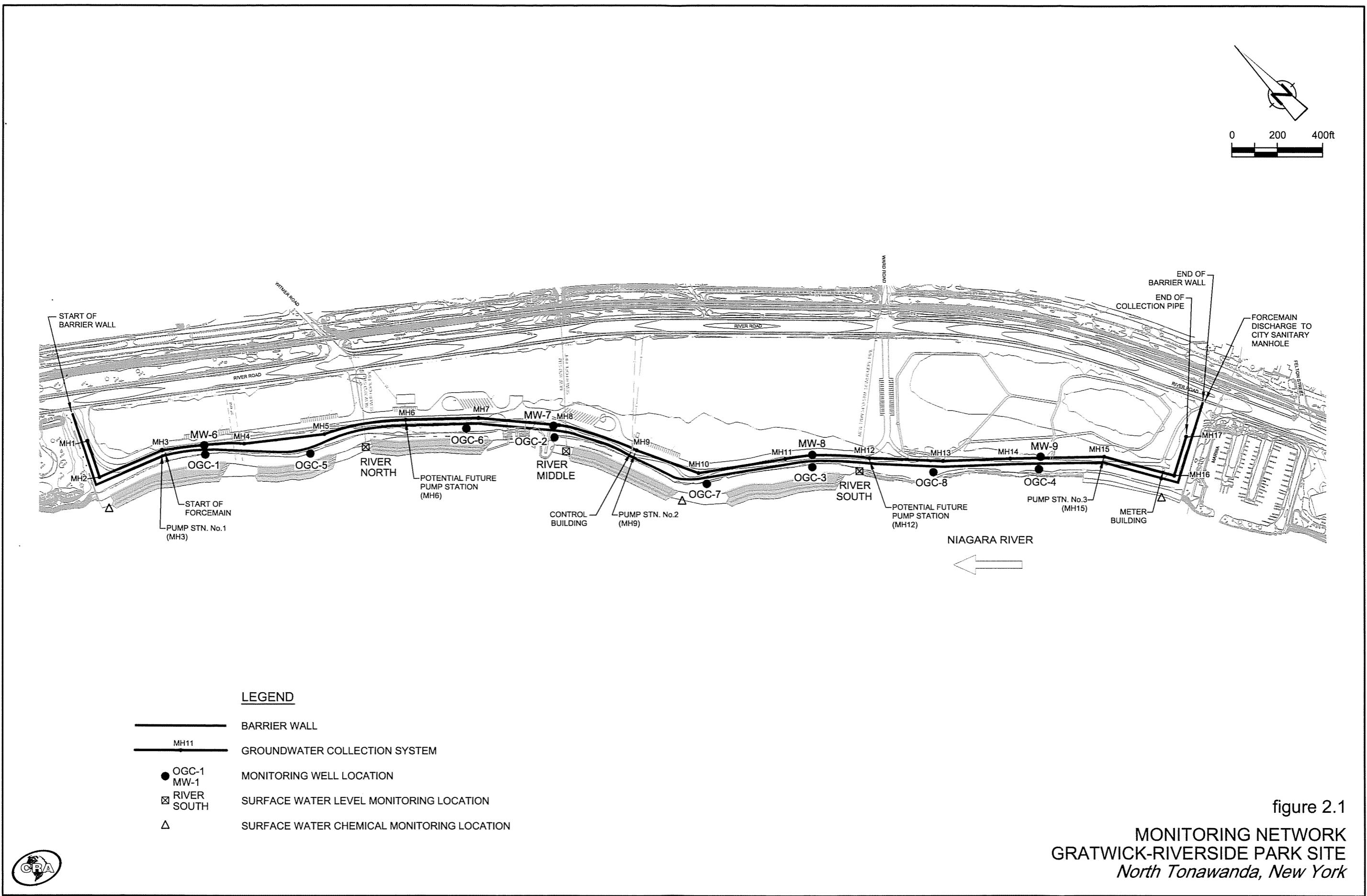
As described in Section 2.2, the trends in the groundwater analytical results are relatively consistent with time. Thus, the frequency for the groundwater monitoring is annual for the period from May 2004 to April 2008.

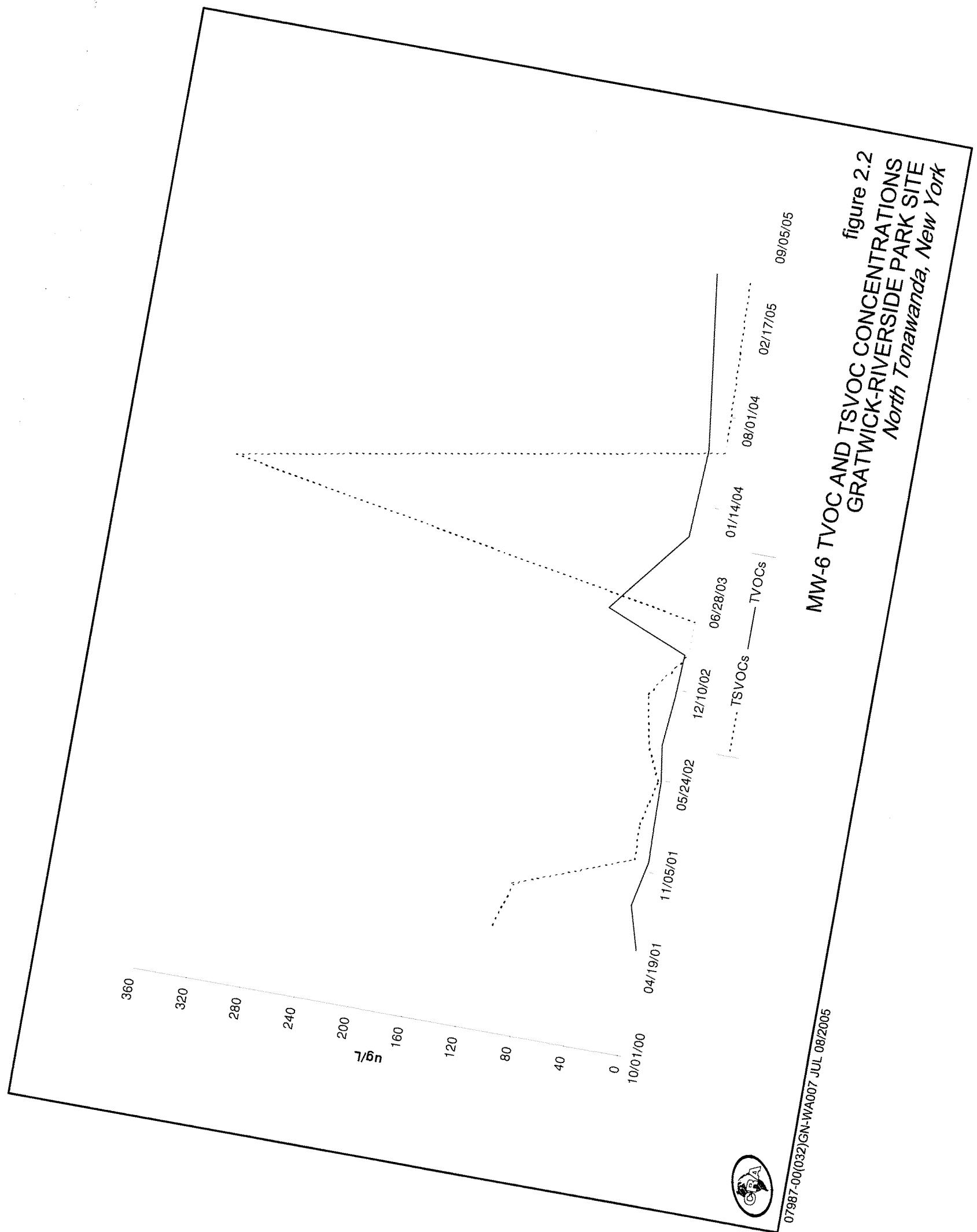
Only a few VOCs and SVOCs were infrequently detected at very low level concentrations in the river water samples. Thus, the frequency for the river water monitoring is annual for the same time period.

The trends in the effluent from the GWS to the POTW support reducing the sampling frequency from monthly to semi-annual. Flow monitoring will continue to be performed monthly as a check on the operation of the GWS.

It is recommended that metals be deleted from the effluent parameter list because none of the detected metals exceed their respective standard/guidance value. It is also recommended that all general chemistry parameters be deleted except those which have a surface water standard/guidance level. This modification will be implemented in September 2005 unless NYSDEC advises that this modification is not acceptable.

FIGURES





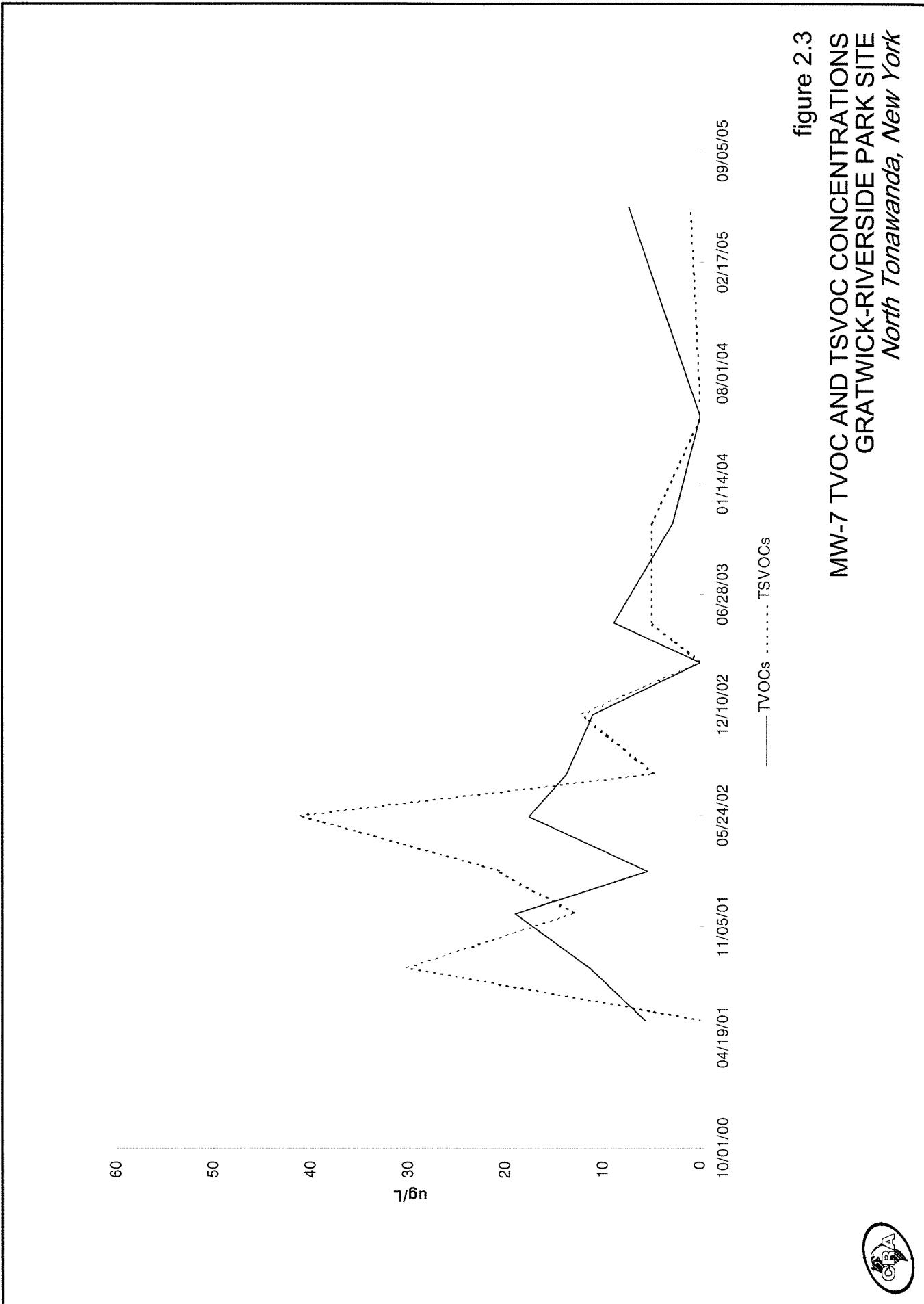


figure 2.3
MW-7 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



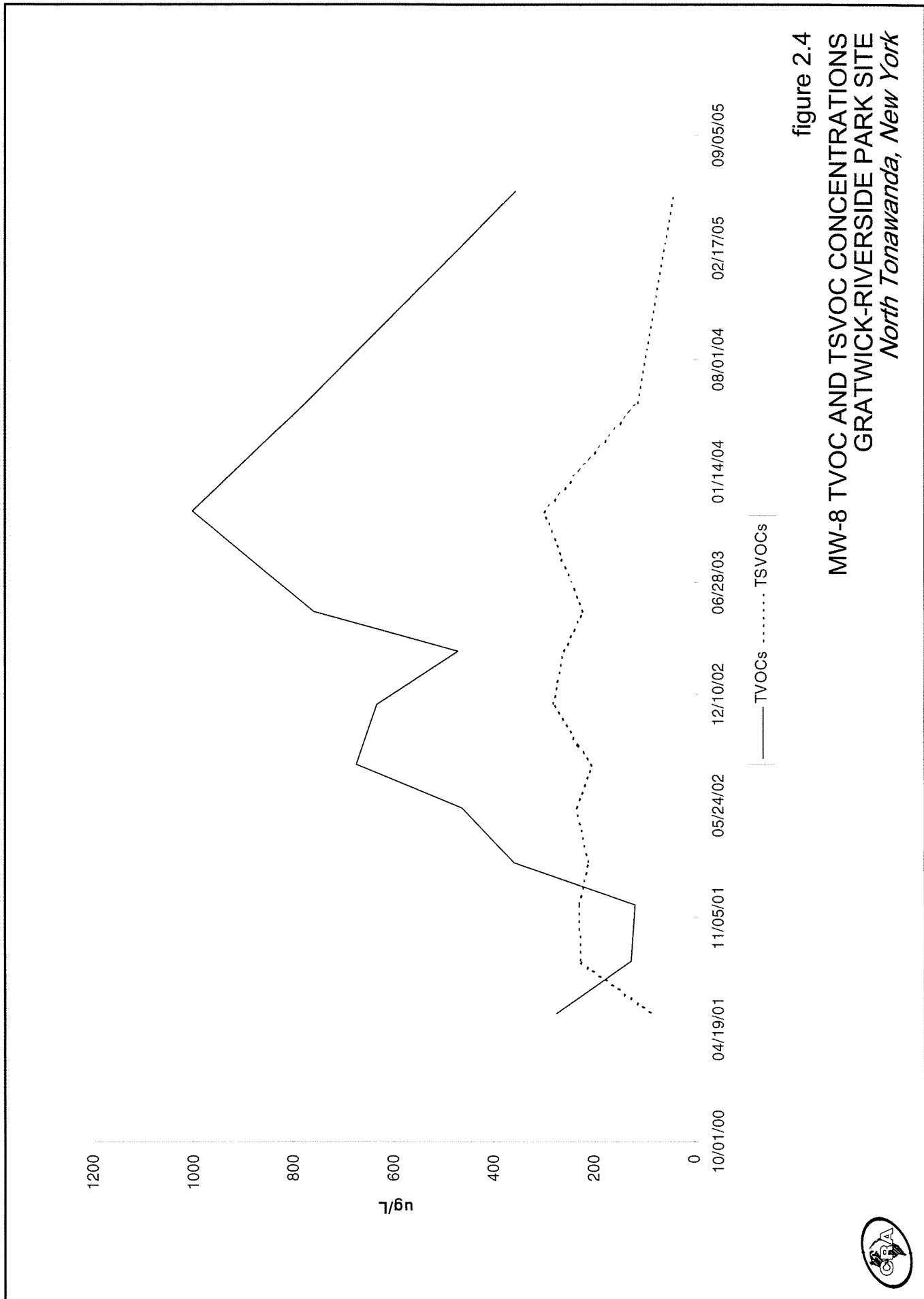
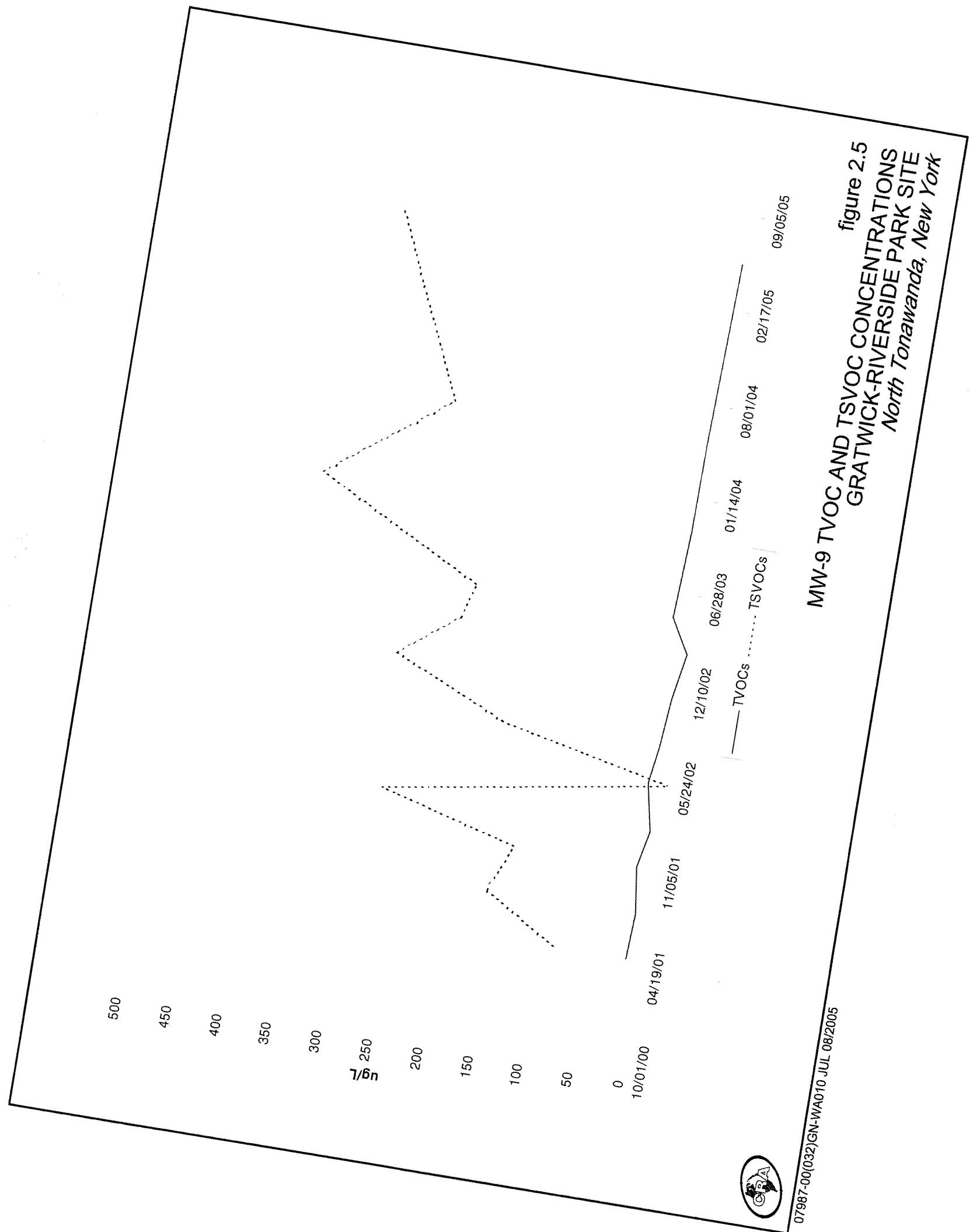


figure 2.4
MW-8 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York





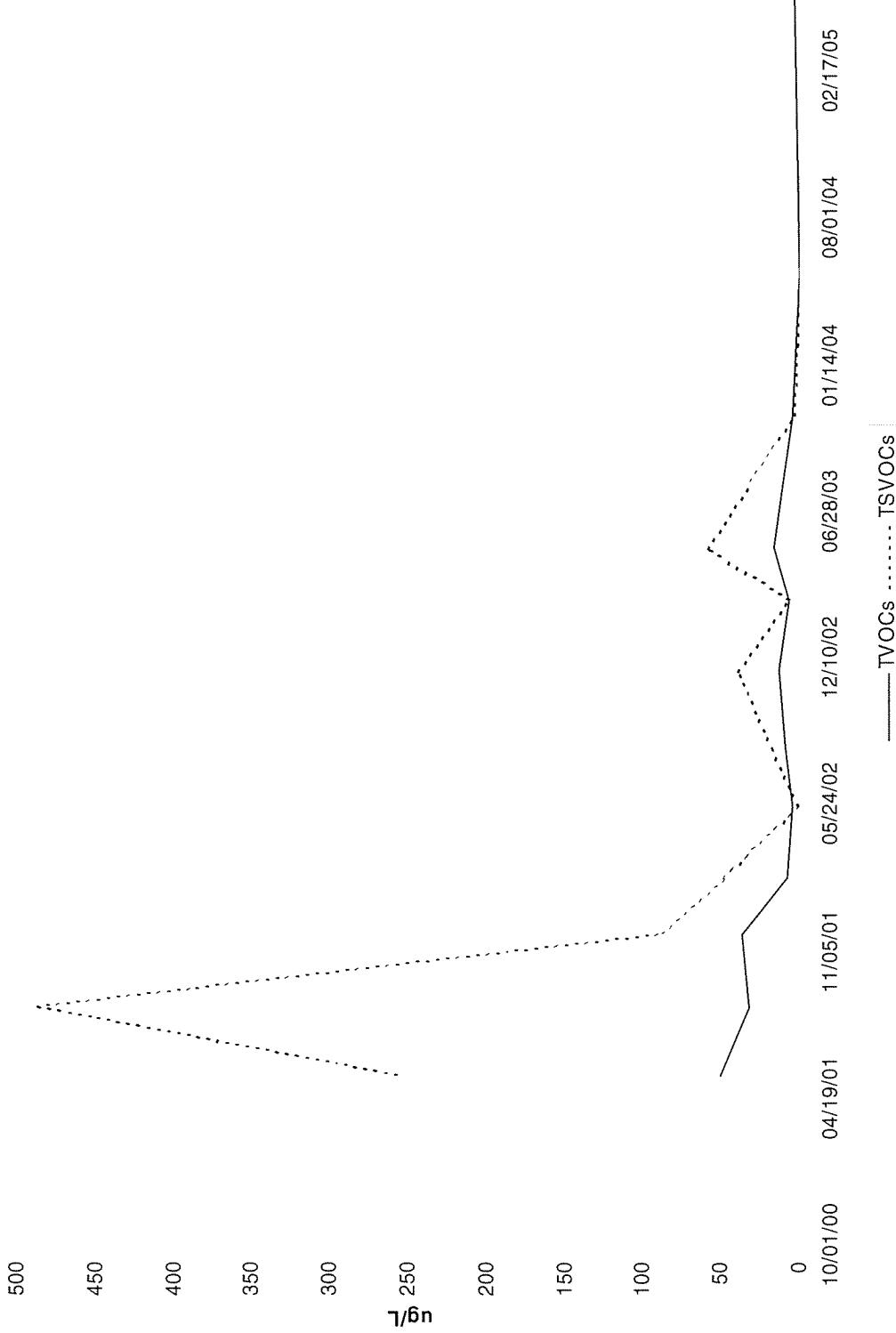


figure 2.6
OGC-1 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



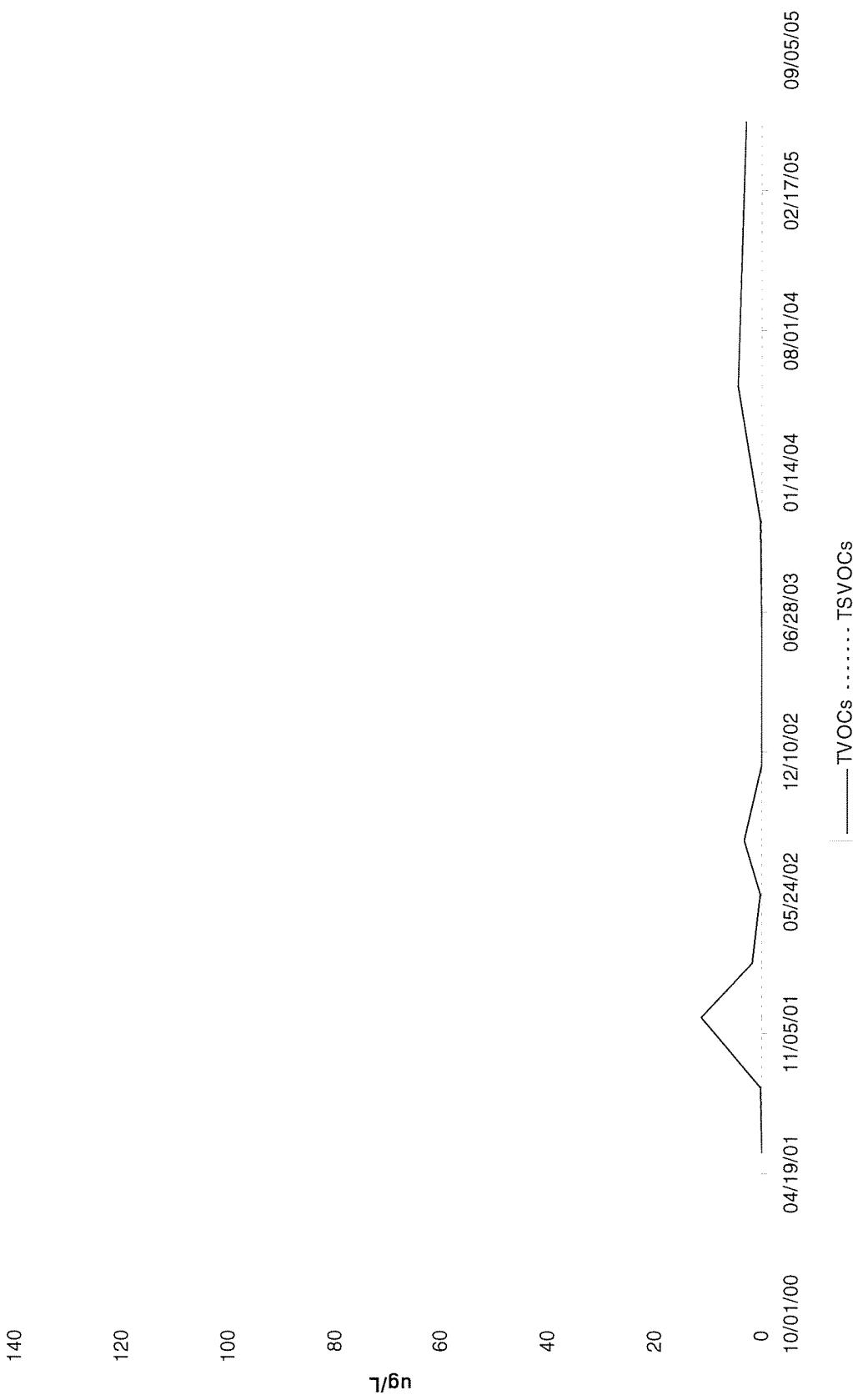


figure 2.7
OGC-2 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



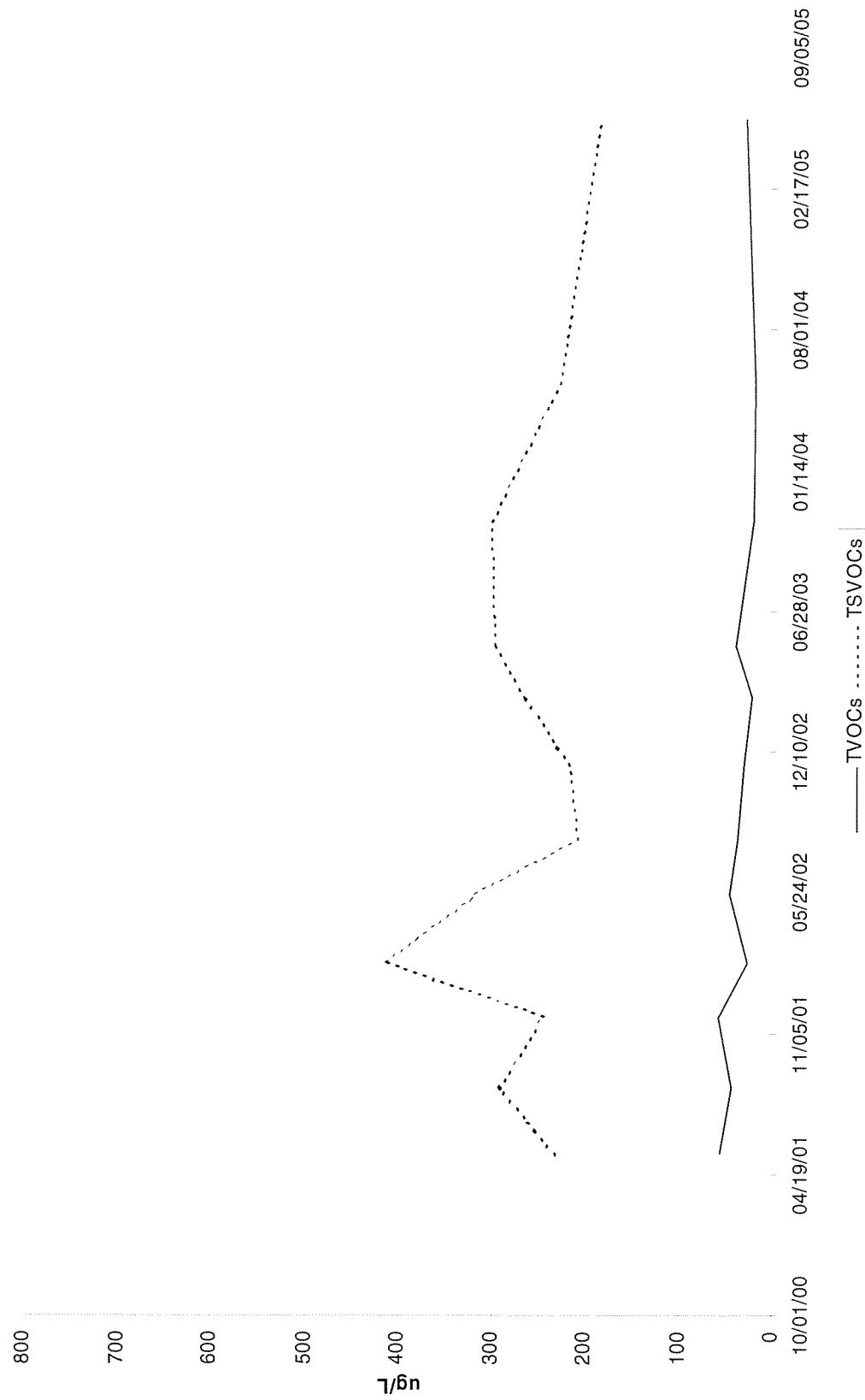


figure 2.8
OGC-3 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



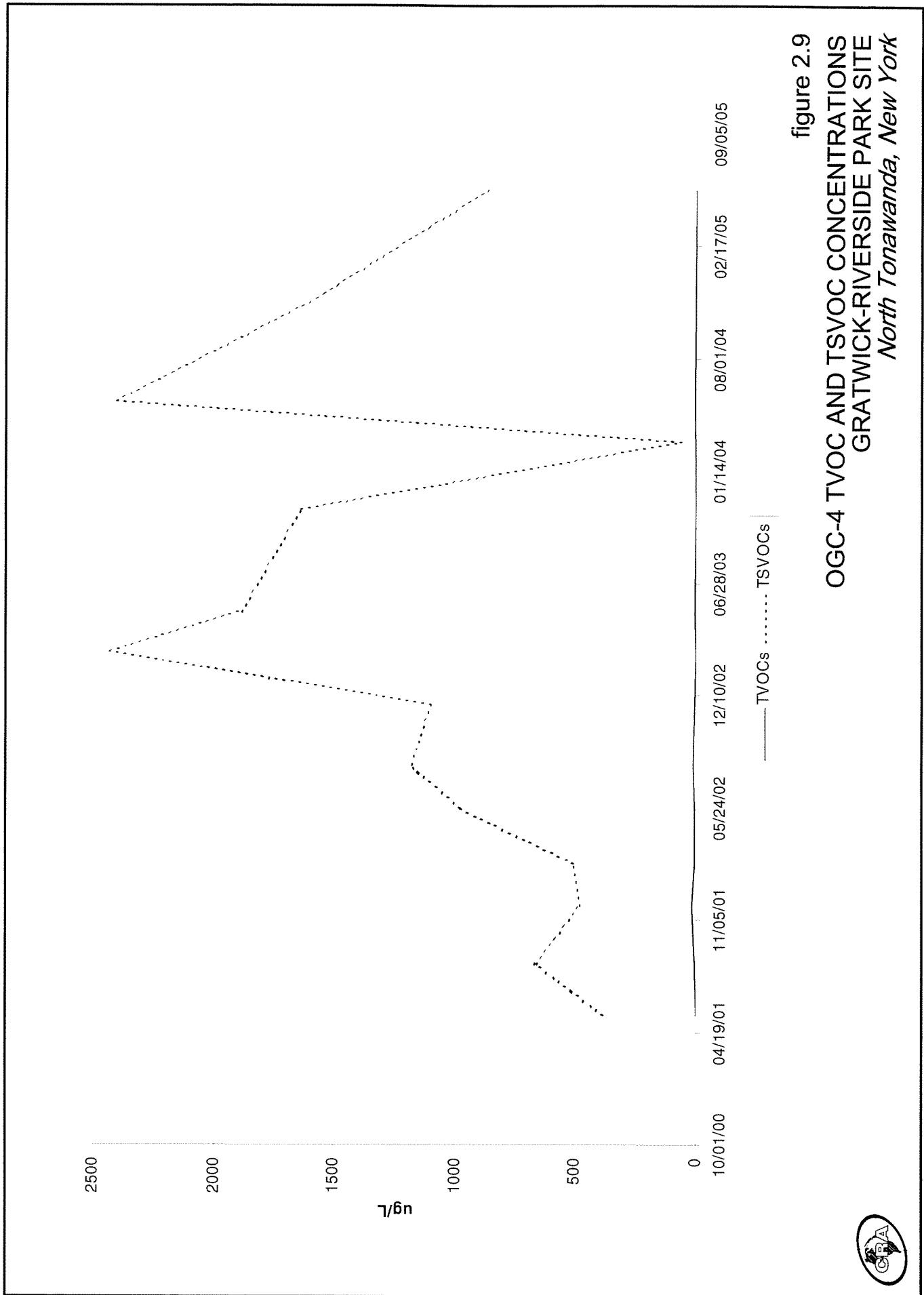


figure 2.9
OGC-4 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



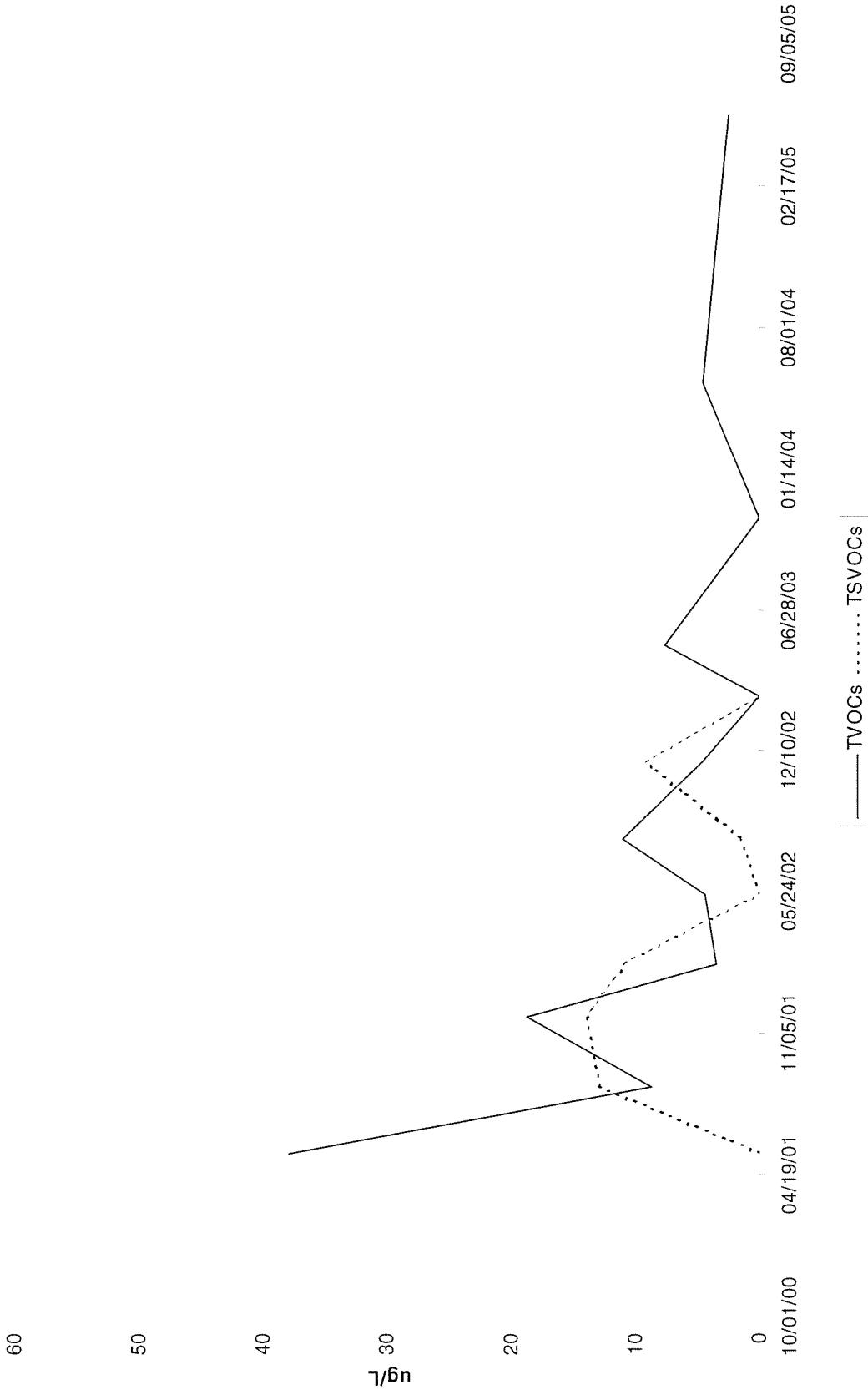


figure 2.10
OGC-5 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



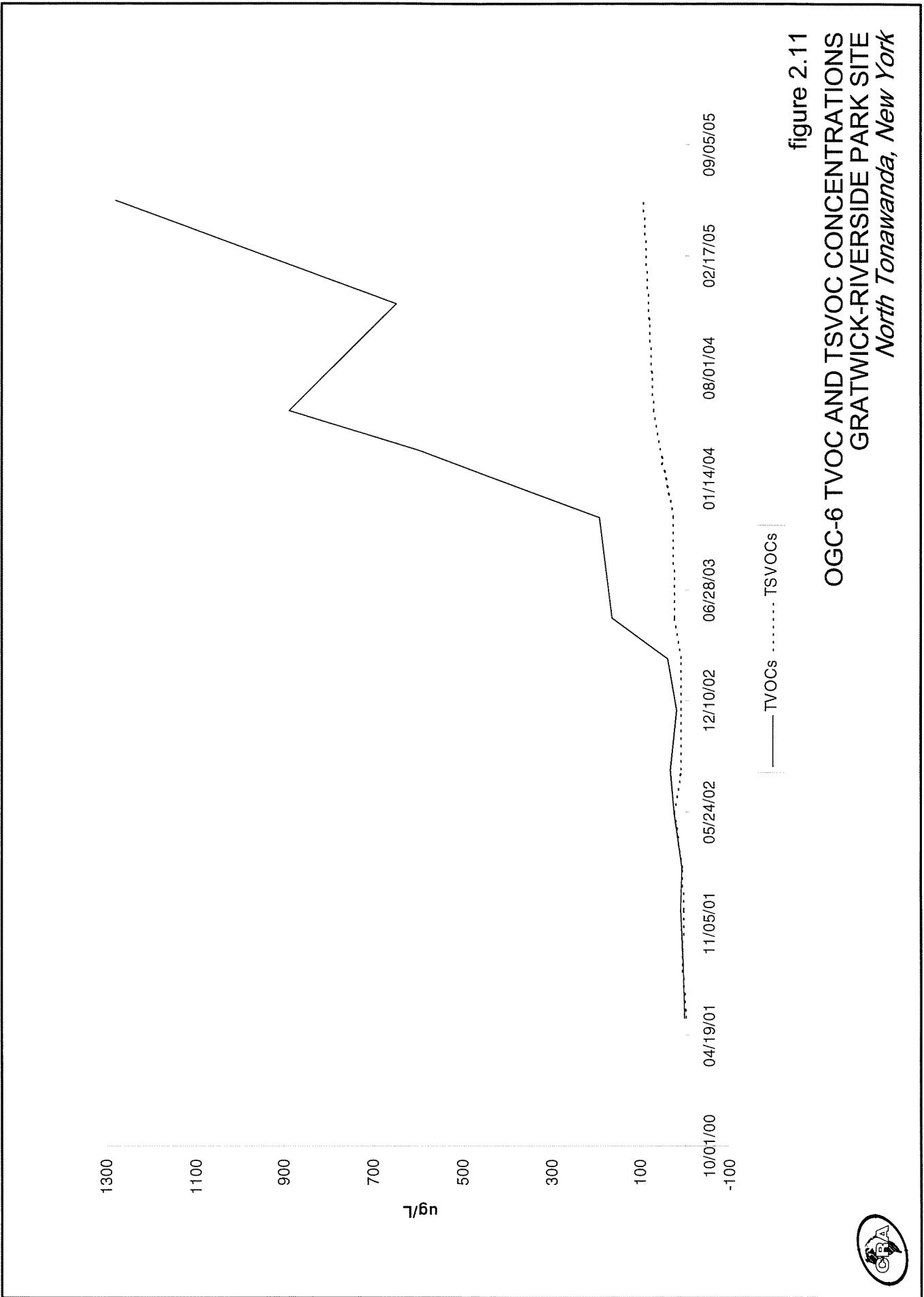


figure 2.11
OGC-6 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



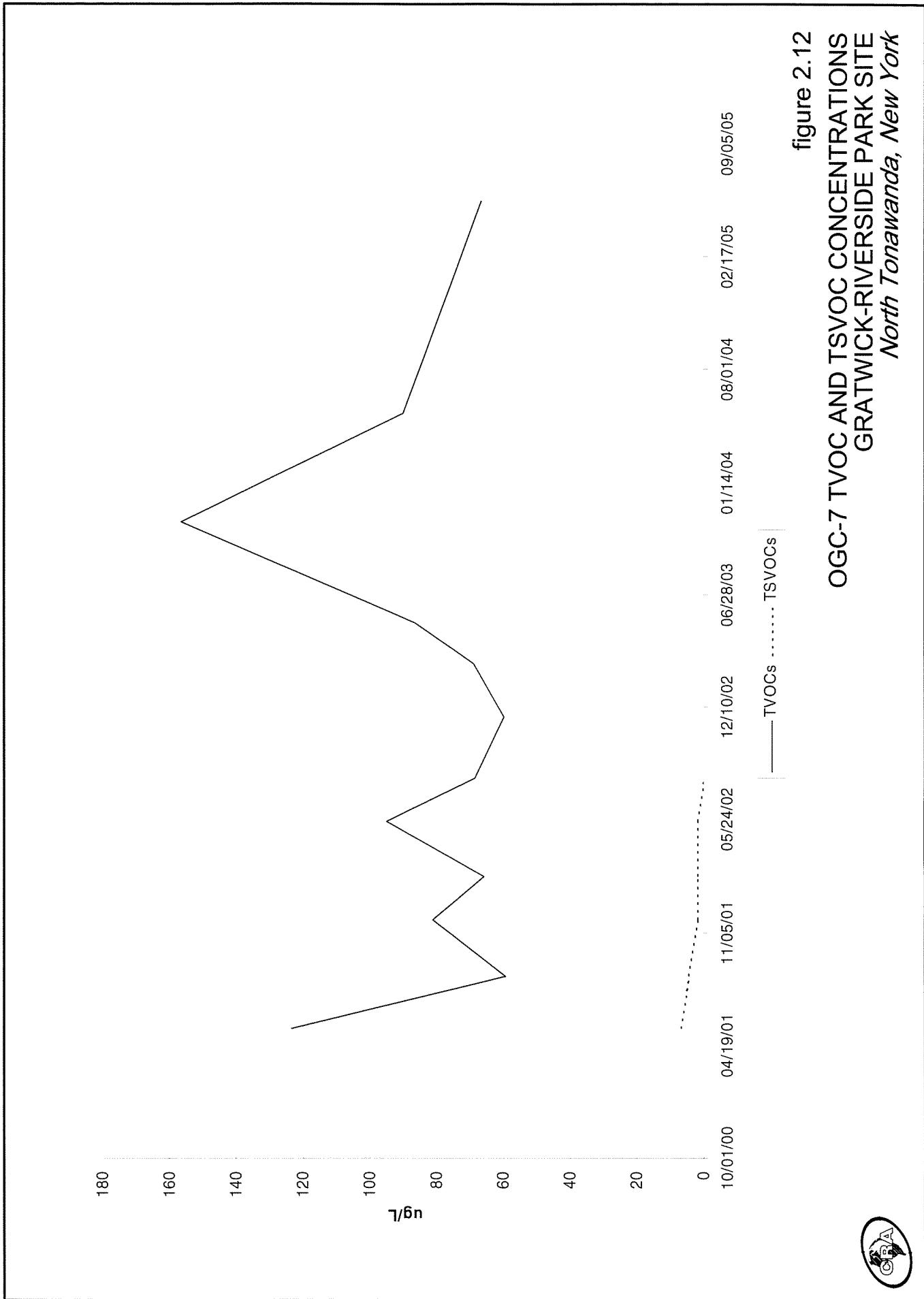


figure 2.12
OGC-7 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



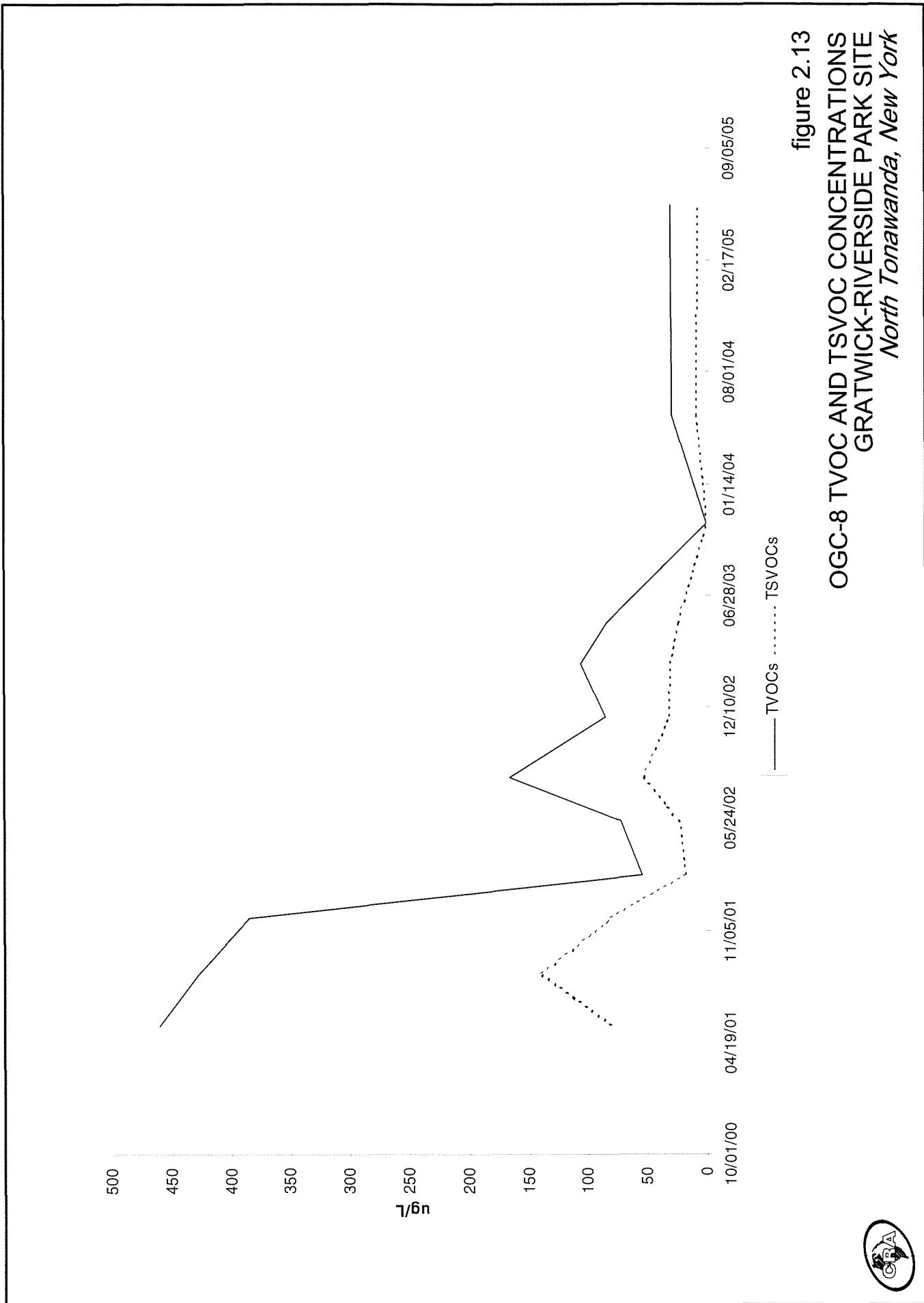


figure 2.13
OGC-8 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



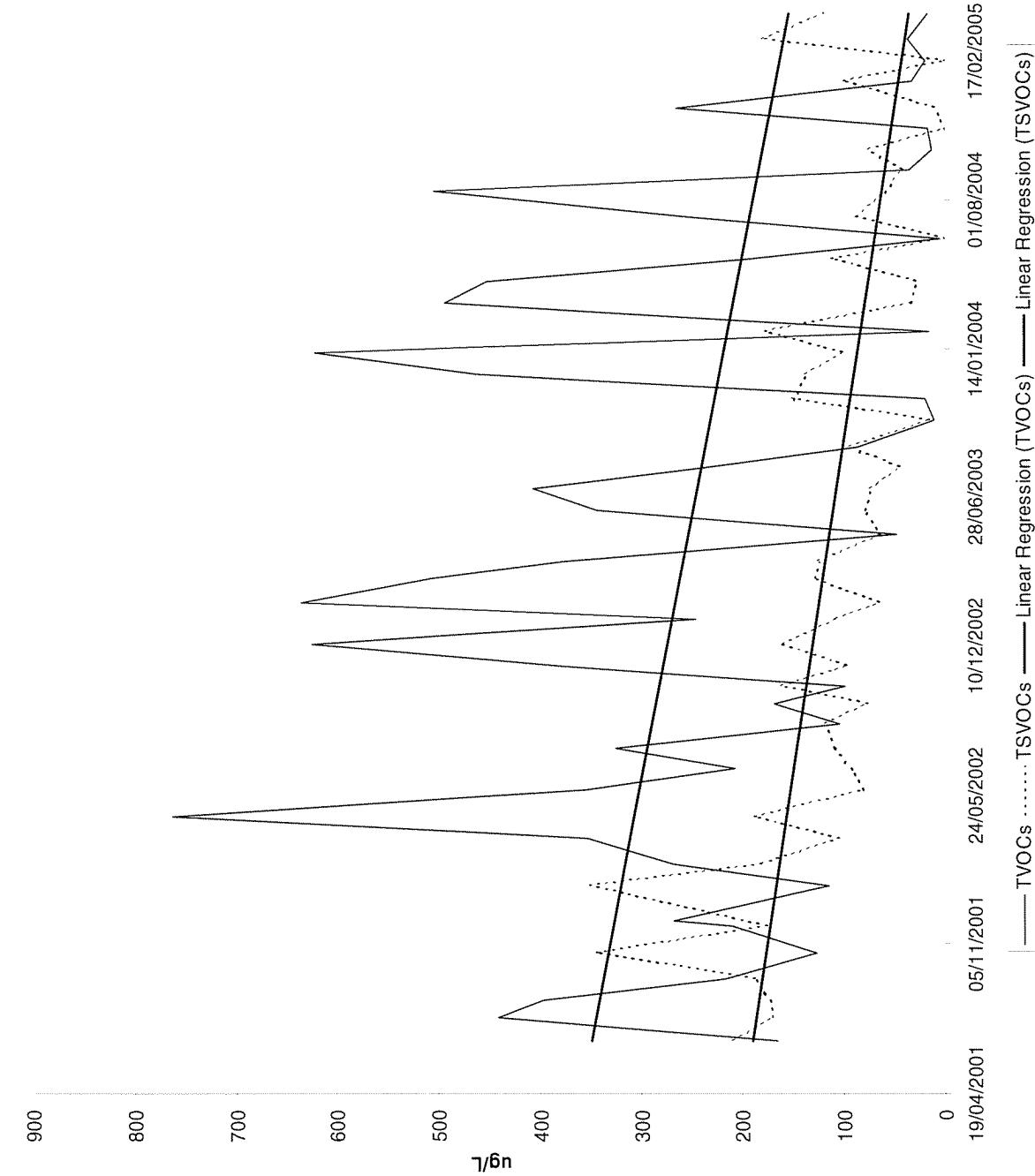


figure 2.14
EFFLUENT TVOCs AND TSVOCs vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York





figure 2.15
EFFLUENT pH vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



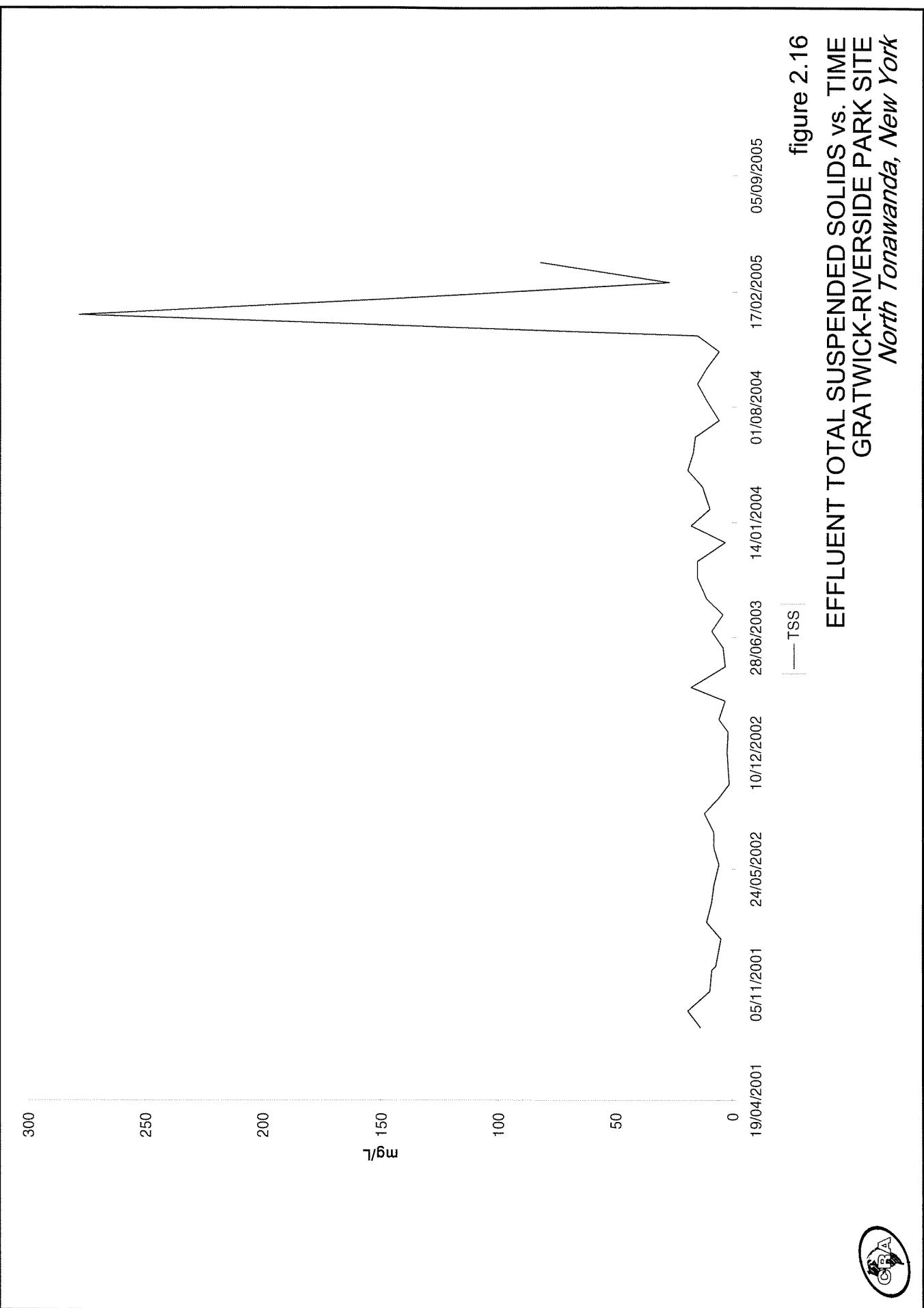


figure 2.16
EFFLUENT TOTAL SUSPENDED SOLIDS vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



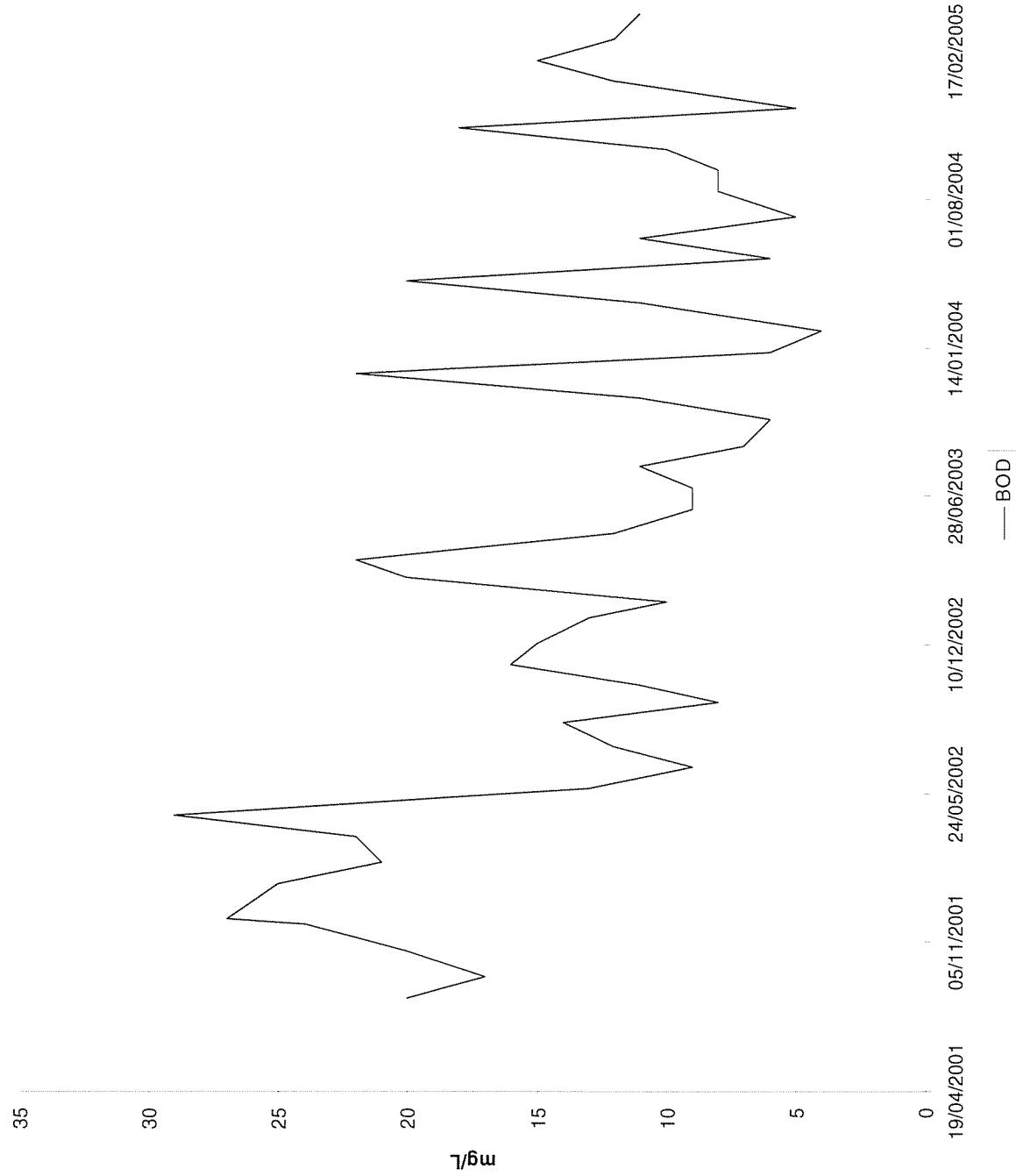


figure 2.17
EFFLUENT BOD vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



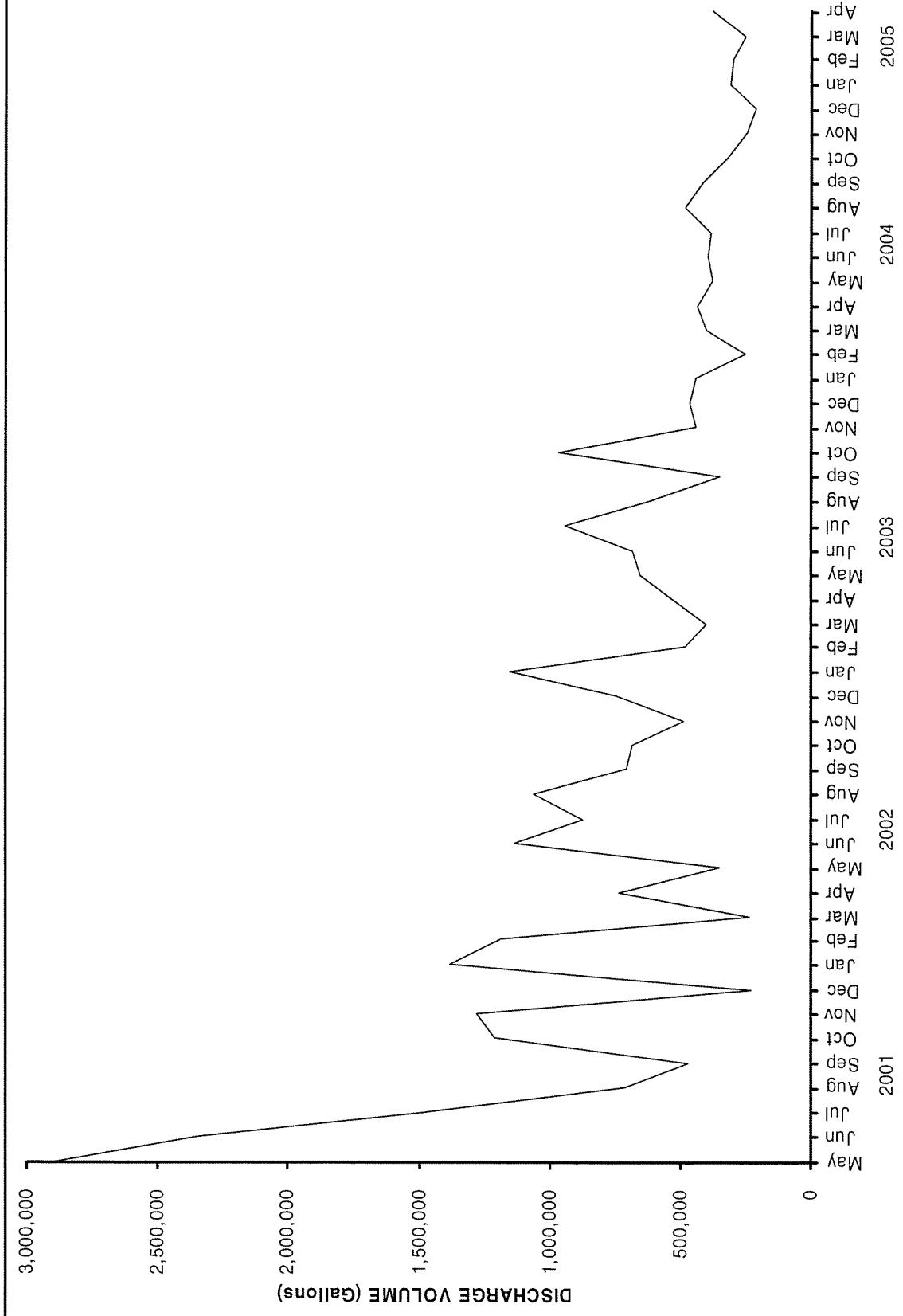


figure 2.18
EFFLUENT VOLUME vs. TIME
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York



TABLES

TABLE 2.1

**GROUNDWATER HYDRAULIC MONITORING LOCATIONS
OPERATION AND MAINTENANCE
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

INWARD HYDRAULIC GRADIENT MONITORING LOCATIONS

<u>Inner</u> ⁽¹⁾	<u>Outer</u>
MH2	Niagara River North (Downstream)
MH6	Niagara River North (Downstream)
MH8	Niagara River Middle
MH12	Niagara River South (Upstream)

UPWARD HYDRAULIC GRADIENT MONITORING LOCATIONS

<u>Upper</u> ⁽¹⁾	<u>Lower</u>
MH3	MW-6
MH8	MW-7
MH11	MW-8
MH14/MH15 ⁽²⁾	MW-9

FREQUENCY

- Weekly following GWS startup until six consecutive inward gradients are achieved; and
- Monthly thereafter for the remainder of the initial 2-year period (review after 2 years).

Notes:

⁽¹⁾ These manholes will be monitored twice daily by POTW staff during a wet weather bypass event pursuant to Section 5.0 of the O&M Manual.

⁽²⁾ Distance weighted averages of water levels used (MH14 - two thirds and MH15 - one third).

TABLE 2.2

WATER LEVELS (ft amsl)
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date	RIM Elevation	TOC Elevation (ft amsl)	MH2	MH3	MH6	OGC-1	MW-6	OGC-5	River North	OGC-6	MH8	MW-7	OGC-2	River Middle	OGC-7		
December 12, 2000		573.28			572.03		575.01	575.40	573.82	566.80	576.65	572.37	575.57	574.08	566.48		
January 8, 2001			NM	NM		NM	564.26	567.05	563.84	NM	564.24	567.20	564.58	NM	565.24		
March 29, 2001			NM	NM		NM	563.94	567.21	563.82	NM	563.84	567.30	564.01	NM	563.90		
May 11, 2001		559.31				NM	564.19	567.80	563.82	NM	564.10	566.89	564.28	NM	564.12		
May 18, 2001			NM		562.03		564.39	563.53	564.54	564.54	564.25	561.60	564.53	564.38	564.50		
May 25, 2001			NM	NM		NM	564.21	563.08	564.54	564.49	564.25	561.97	564.53	564.33	564.55		
June 1, 2001		559.34				NM	564.46	562.80	564.52	563.80	564.22	561.71	564.28	563.63	564.50		
June 8, 2001			NM		560.59		561.97	564.51	562.74	564.52	563.52	564.20	561.77	564.18	563.47		
June 15, 2001		560.79				NM	562.49	564.63	562.65	564.82	564.75	564.36	561.59	564.60	564.68		
June 22, 2001		560.77				NM	562.60	564.67	562.54	564.76	564.71	564.53	561.48	564.77	564.71		
June 29, 2001		560.40				NM	562.53	564.65	562.50	564.72	564.90	564.43	560.44	561.41	564.86		
July 31, 2001		559.21				NM	562.42	564.51	562.42	564.66	564.52	564.35	560.38	561.39	564.57		
August 20, 2001		561.49				NM	562.90	564.49	562.19	564.71	564.66	564.35	560.25	561.30	564.60		
September 28, 2001		561.03				NM	565.23	(1)	564.60	562.09	563.82	564.69	564.46	560.25	561.29	564.64	
October 22, 2001		561.38				NM	563.03	560.56	564.61	562.13	564.25	564.68	564.48	560.27	561.32	564.79	
November 27, 2001		561.45				NM	562.36	567.06	(3)	564.61	562.08	564.41	(2)	564.33	560.43	561.37	564.33
December 20, 2001		560.96				NM	564.53	563.95	561.88	563.65	(2)	563.83	560.45	561.36	564.04	563.87	
January 29, 2002		560.74				NM	564.39	564.47	561.83	564.78	564.69	564.27	559.75	561.25	564.72	564.86	
February 11, 2002		560.80				NM	563.75	564.09	561.83	563.87	563.89	563.99	560.98	561.89	564.12	564.01	
March 25, 2002		560.55				NM	564.19	564.22	561.73	563.84	564.03	564.07	561.06	561.50	564.18	564.39	
April 24, 2002		562.54				NM	564.60	564.12	561.88	564.70	564.61	564.49	561.13	561.95	564.67	564.72	
May 21, 2002		561.74				NM	564.10	564.28	561.79	561.97	564.84	564.76	560.05	561.38	564.85	564.84	
June 20, 2002		561.67				NM	561.24	565.58	564.74	561.92	564.56	564.58	560.68	561.54	564.85	564.80	
July 18, 2002		561.46				NM	564.99	564.78	561.89	565.00	564.89	564.66	560.79	561.65	564.90	564.93	
August 6, 2002		561.26				NM	565.89	564.86	561.92	564.70	564.65	564.71	561.05	561.93	564.59	564.85	
September 12, 2002		561.60				NM	565.60	564.80	561.82	565.05	565.04	564.67	561.10	561.99	564.87	564.95	
October 30, 2002		561.63				NM	561.21	566.24	564.18	561.97	563.95	(2)	564.07	561.07	564.10	564.00	
November 21, 2002		561.12				NM	560.67	554.47	(4)	564.05	562.05	563.94	(2)	563.98	561.41	564.20	563.71
December 11, 2002		561.55				NM	561.08	555.09	563.99	562.04	563.85	(2)	563.84	559.95	561.25	563.94	563.87

Notes:

(1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.

(2) River level too low to obtain a measurement at the measuring location.

(3) Water level monitored on 10/27/01 was 563.56 ft, which provided an inward gradient.

(4) Inspection of the groundwater collection pipe valves in MH6 on November 18, 2002 identified that they were closed. The valves were opened on November 18, 2002 and the water level dropped approximately 6 feet in 10 minutes.

TABLE 2.2

WATER LEVELS (ft amsl)
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date	OGC-3	MH11	MW-8	River South	MH12	OGC-8	OGC-4	MW-9	MH14	MH15	MH16
RIM Elevation											
TOC Elevation (ft amsl)	573.35	572.11	574.37	568.46	572.37	574.01	574.66	576.23	574.30	575.84	574.82
December 12, 2000	565.07	567.08	NM	NM	564.45	564.85	567.15				
January 8, 2001	563.95	567.29	NM	NM	564.01	564.00	567.35				
March 29, 2001	564.21	567.96	NM	NM	564.24	564.25	568.06				
May 11, 2001	564.58	561.95	564.70	564.15	564.63	564.59	562.53				
May 18, 2001	564.59	562.49	564.65	564.12	564.66	564.66	563.05				
May 25, 2001	564.57	561.99	564.80	564.17	564.63	564.60	562.54				
June 1, 2001	564.59	562.06	565.00	564.19	564.66	564.60	562.57				
June 8, 2001	564.87	561.89	565.05	562.45	564.96	564.89	562.47				
June 15, 2001	564.91	561.69	565.05	562.34	564.93	564.88	562.45				
June 22, 2001	564.87	561.05	561.54	565.18	562.29	565.00	564.80	562.19			
June 29, 2001	564.68	560.97	561.46	564.83	561.80	564.75	564.68	562.11			
July 31, 2001	564.78	560.73	561.19	564.96	560.77	564.85	564.76	562.45			
August 20, 2001	564.83	560.50	561.05	564.99	560.42	564.88	564.85	561.55			
September 28, 2001	564.85	560.61	561.07	564.95	560.36	564.87	564.84	561.58			
October 22, 2001	564.58	560.51	561.27	564.61	560.42	564.61	564.62	561.75			
November 27, 2001	563.89	559.51	561.30	564.05	560.06	563.89	563.94	561.71			
December 20, 2001	564.96	561.31	560.73	564.96	560.23	564.99	565.05	561.77			
January 29, 2002	564.06	Blocked	561.91	563.92	560.29	564.03	564.08	562.31			
February 11, 2002	564.28	561.23	561.93	564.53	560.24	564.35	564.35	562.52			
March 25, 2002	563.87	560.97	561.60	564.15	560.34	563.85	563.95	562.45			
April 24, 2002	564.79	561.41	561.95	564.86	560.63	564.86	564.84	562.96			
May 21, 2002	564.95	560.35	560.89	565.07	560.89	565.03	564.98	563.11			
June 20, 2002	564.85	560.98	561.50	564.88	561.04	564.90	564.94	562.91			
July 18, 2002	565.09	561.07	561.80	565.22	560.95	565.17	565.08	562.84			
August 6, 2002	564.88	561.33	561.88	564.90	561.07	564.91	562.75	562.08			
September 12, 2002	565.09	561.34	561.91	565.25	561.09	565.20	565.05	562.66			
October 30, 2002	564.03	561.36	561.95	564.16	561.31	564.14	564.00	562.57			
November 21, 2002	564.04	561.49	560.99	564.15	561.44	564.19	564.18	562.74			
December 11, 2002	564.01	561.51	560.73	564.14	561.45	564.09	564.02	562.91			

Notes:

- (1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the measuring location.
- (3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.

TABLE 2.2

Date	MH2	MH3	MH6	OGC-1	MW-6	OGC-5	River	OGC-6	MH8	MW-7	OGC-2	River	Middle	OGC-7
TOC Elevation (ft amsl)							North							
January 16, 2003	561.65	561.20	556.15	564.03	562.27	563.88	(2)	561.12	561.04	564.27	563.52	564.10		
February 25, 2003	561.58	561.10	555.74	563.80	561.85	563.71	(2)	563.67	560.60	561.49	563.81	563.81		
March 14, 2003	561.65	561.17	555.75	563.75	561.69	563.74	(2)	563.61	560.61	561.49	563.77	563.77		
April 14, 2003	561.68	561.22	554.54	564.32	562.42	564.34	564.30	564.17	558.65	561.42	564.39	564.24	564.40	
May 8, 2003	561.52	561.03	555.93	564.37	562.38	564.41	564.29	564.21	560.76	561.59	564.36	564.27	564.37	
June 19, 2003	562.26	561.83	556.02	564.73	562.43	564.83	564.78	564.59	560.85	561.60	564.77	564.66	564.81	
July 21, 2003	561.21	560.46	556.06	564.68	562.31	564.64	564.49	564.58	560.89	561.74	564.81	564.44	564.75	
August 28, 2003	561.65	561.20	554.61	564.65	562.21	564.76	564.64	564.51	558.52	561.29	564.67	564.60	564.75	
September 30, 2003	561.57	561.10	555.08	564.64	562.53	564.89	(2)	564.49	559.88	561.35	564.76	564.67	564.91	
October 20, 2003	561.48	561.07	554.98	564.61	562.52	564.93	(2)	564.45	559.77	561.17	564.68	564.63	564.86	
November 3, 2003	561.53	561.08	555.94	564.29	562.33	563.89	(2)	564.11	560.76	561.12	563.56	564.36	564.15	
December 23, 2003	561.08	559.49	555.62	564.29	562.30	564.04	(2)	564.17	560.67	561.48	564.33	(2)	564.18	
January 21, 2004	(5)	560.33	555.84	565.24	562.32	564.19	(2)	564.12	560.70	561.55	564.30	(2)	564.26	
February 12, 2004	(5)	561.08	556.12	563.99	562.16	563.76	(2)	563.87	560.95	561.81	564.00	(2)	563.88	
March 4, 2004	561.33	561.13	555.90	564.17	562.21	557.07 (6)	(2)	564.00	560.75	561.61	564.31	(2)	564.19	
April 16, 2004	560.05	558.78	554.91	564.59	562.48	564.49	(2)	564.36	559.59	561.71	564.56	564.43	564.56	
May 14, 2004	560.17	559.71	554.56	564.49	562.39	564.57	564.55	564.34	559.45	561.70	564.51	564.48	564.54	
June 25, 2004	561.64	561.21	555.74	564.76	562.27	564.71	564.68	564.62	560.50	561.42	564.82	564.56	564.78	
July 30, 2004	561.79	561.25	555.24	565.01	562.29	565.20	565.20	564.84	560.04	561.31	565.02	565.16	565.14	
August 31, 2004	561.37	560.59	555.83	565.06	562.23	565.05	564.98	564.92	560.67	561.56	565.14	564.93	565.17	
September 30, 2004	561.48	560.81	555.60	565.11	562.28	565.22	565.00	564.95	560.71	561.49	565.20	565.05	565.20	
October 20, 2004	561.65	561.19	555.96	564.65	562.10	564.57	564.45	564.44	560.82	561.69	564.57	564.41	564.57	
November 23, 2004	561.50	561.05	554.95	564.17	561.99	564.20	(2)	564.02	559.77	561.21	564.31	(2)	564.28	
December 31, 2004	561.60	560.74	556.19	564.58	562.16	564.50	564.68	564.25	561.02	561.80	564.37	564.56	564.40	

Notes:

- (1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the measuring location.
- (3) Water level monitored on 10/27/01 was 563.56 ft which provided an inward gradient.
- (4) Inspection of the groundwater collection pipe valves in MH6 on November 18, 2002 identified that they were closed.
- (5) The valves were opened on November 18, 2002 and the water level dropped approximately 6 feet in 10 minutes.
- (6) Buried with snow.
- (e) Believed to be erroneous reading.

TABLE 2.2

WATER LEVELS (ft amsl)
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date	OGC-3	MH11	MW-8	River South	MH12	OGC-8	OGC-4	MW-9	MH14	MH15	MH16
RIM Elevation TOC Elevation (ft amsl)											
January 16, 2003	564.13	561.68	562.00	564.11	561.83	564.14	564.20	563.17	563.37	562.28	563.20
February 25, 2003	563.87	561.60	561.48	564.21	561.56	563.90	563.94	562.89	563.07	562.01	562.91
March 14, 2003	563.79	561.57	561.46	564.11	561.54	563.92	563.91	562.90	563.09	562.05	562.93
April 14, 2003	564.48	558.53	560.98	564.45	561.56	564.54	564.52	563.36	563.54	562.49	563.40
May 8, 2003	564.48	561.03	561.56	564.61	561.61	564.59	564.44	563.07	563.26	562.01	563.11
June 19, 2003	564.92	561.12	561.56	564.96	561.94	564.99	564.95	563.10	563.41	562.25	563.15
July 21, 2003	564.81	561.10	561.69	564.78	562.03	564.84	564.88	562.89	563.03	561.98	562.89
August 28, 2003	564.86	564.37	562.35	564.91	562.19	564.94	564.85	566.17	566.48	566.36	566.59
September 30, 2003	565.02	558.68	560.17	565.08	562.26	565.08	565.02	562.77	562.89	562.02	562.78
October 20, 2003	564.94	558.66	560.02	565.03	562.25	565.05	564.96	562.75	562.88	562.01	562.76
November 3, 2003	564.26	561.01	561.57	564.28	562.52	564.27	564.31	562.85	563.00	561.91	562.83
December 23, 2003	564.24	560.94	561.34	564.36	562.75	564.08	564.28	563.20	563.31	562.28	563.20
January 21, 2004	564.33	(4)	561.47	564.36	562.49	564.41	564.35	562.72	(4)	561.74	562.68
February 12, 2004	563.93	561.23	561.75	564.16	562.30	563.96	563.98	562.88	(4)	561.73	562.66
March 4, 2004	564.25	561.04	561.56	564.26	562.07	564.34	564.35	562.70	562.75	561.75	562.66
April 16, 2004	564.64	559.85	561.38	564.69	561.00	564.74	564.66	562.64	562.79	561.72	562.63
May 14, 2004	564.63	559.87	561.39	564.71	560.80	564.68	564.55	562.71	562.74	561.74	562.67
June 25, 2004	564.85	560.79	561.19	564.91	560.95	564.89	564.89	562.70	562.74	561.76	562.68
July 30, 2004	565.28	560.26	560.71	565.46	561.15	565.33	565.21	562.70	561.13	561.74	562.67
August 31, 2004	565.26	560.94	561.39	565.25	561.35	565.31	565.27	562.95	563.08	562.02	562.93
September 30, 2004	565.29	561.00	561.43	565.30	561.25	565.40	565.26	562.98	562.90	562.20	562.98
October 20, 2004	564.67	561.09	561.56	564.49	561.50	564.76	564.68	562.64	562.82	561.73	562.88
November 28, 2004	564.34	560.05	560.56	564.30	561.57	564.38	564.40	562.71	561.04	561.62	562.69
December 31, 2004	564.69	561.23	561.75	564.81	561.81	564.78	564.55	562.71	562.05	561.77	562.69

Notes:

- (1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the measuring location.
- (3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.
- (4) Buried with snow.

TABLE 2.2

Date	RIM Elevation (ft amsl)	WATER LEVELS (ft amsl)							River Middle	OGC-7	
		MH2	MH3	MH6	OGC-1	MW-6	OGC-5	North	OGC-6	MH8	
January 28, 2005	562.60	562.15	556.22	564.68	562.27	564.62	(2)	564.53	561.06	561.85	564.67
February 28, 2005	561.05	559.96	555.58	564.58	562.14	564.68	(7)	564.48	560.47	561.46	564.21
March 31, 2005	561.25	559.94	555.93	564.55	562.04	564.40	(2)	564.38	560.78	561.66	564.63
April 20, 2005	560.20	559.54	556.01	565.01	562.26	564.94	564.83	564.84	560.89	561.76	565.01
May 27, 2005	560.23	558.92	555.82	564.71	562.24	564.79	564.78	564.63	560.65	561.55	564.74
											566.48
											572.49

Notes:

- (1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the measuring location.
- (3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.
- (4) Inspection of the groundwater collection pipe valves in MH6 on November 18, 2002 identified that they were closed.
The valves were opened on November 18, 2002 and the water level dropped approximately 6 feet in 10 minutes.
- (5) Buried with snow.
- (6) Believed to be erroneous reading.
- (7) Ice on pipe.

TABLE 2.2

Date	OGC-3	MH11	MW-8	River South	WATER LEVELS (ft amsl)					
					MH12	OGC-8	OGC-4	MW-9	MH14	MH15
RIM Elevation	573.35	572.11	574.37	568.46	572.37	574.01	574.66	576.23	574.30	575.84
TOC Elevation (ft amsl)										574.82
January 28, 2005	564.77	561.33	561.82	564.69	561.92	564.79	564.90	562.75	(4)	561.01
February 28, 2005	564.84	560.74	561.25	564.79	562.05	564.88	564.94	562.78	(4)	561.55
March 31, 2005	564.54	561.06	561.60	564.56	562.11	564.59	564.65	563.12	563.26	562.77
April 20, 2005	565.13	561.15	561.65	565.15	562.26	565.19	565.21	563.21	562.72	563.11
May 27, 2005	564.99	561.13	561.42	565.02	562.29	565.08	565.08	563.12	563.25	562.28
										563.20
										563.19
										563.11

Notes:

- (1) Water level monitored on 09/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the measuring location.
- (3) Water level monitored on 10/27/01 was 563.56 ft. which provided an inward gradient.
- (4) Buried with snow.

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date Monitored	5/11/2001			5/18/2001			5/25/2001			6/1/2001			6/8/2001			6/15/2001		
	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction
Monitoring Location																		
Outer River North	564.54	Inward	564.49	NA	563.80	NA	563.52	NA	Inward	564.75	NA	564.71	Inward					
Inner MH12	559.31		NM		559.34					NM		560.79						
Outer River North	564.54	Inward	564.49	Inward	563.80	NA	563.52	NA	Inward	564.75	NA	564.71	Inward					
Inner MH16	561.98		562.03		NM		561.97			562.49		562.60						
Outer River Middle	564.38	NA	564.33	NA	563.63	NA	563.47	NA		564.68	NA	564.71	Inward					
Inner MH18	NM		NM		NM		NM			NM		560.53						
Outer River South	564.70	Inward	564.65	Inward	564.80	Inward	565.00	Inward		565.05	Inward	565.05	Inward					
Inner MH12	564.15		561.12		564.17		564.19			562.45		562.34						
Monitoring Location																		
Outer River North	564.90	Inward	564.52	Inward	564.66	Inward	564.69	Inward		564.68	Inward	564.36 (2)	Inward					
Inner MH12	560.77		560.62		559.87		561.49			561.03		561.38						
Outer River North	564.90	Inward	564.52	Inward	564.66	Inward	564.69	(1) Outward		564.68	Inward	564.36 (2)	Outward					
Inner MH16	562.53		562.42		562.90		565.23			563.03		567.06						
Outer River Middle	564.86	Inward	564.48	Inward	564.68	Inward	564.64	Inward		564.68	Inward	564.26	Inward					
Inner MH18	560.44		560.38		560.25		560.25			560.27		560.43						
Outer River South	565.18	Inward	564.83	Inward	564.96	Inward	564.99	Inward		564.95	Inward	564.61	Inward					
Inner MH12	562.29		561.80		560.77		560.42			560.36		560.42						

Notes:

(1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.

(2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.

(3) Valves in MH6 were opened on November 18, 2002.

(4) Snow covered well, could not locate.

NM - Not Measured

NA - Not Applicable

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date Monitored	11/27/2001			12/20/2001			1/29/2002			2/11/2002			3/25/2002			4/24/2002		
	Water Level (ft amsl)	Gradient	Direction	Water Level (ft amsl)	Gradient	Direction	Water Level (ft amsl)	Gradient	Direction	Water Level (ft amsl)	Gradient	Direction	Water Level (ft amsl)	Gradient	Direction	Water Level (ft amsl)	Gradient	Direction
Monitoring Location																		
Outer River North Inner MH2	563.80 (2) 561.45	Inward	564.69 560.96	Inward	563.89 560.74	Inward	564.03 560.80	Inward	563.90 (2) 560.55	Inward	564.61 562.54	Inward						
Outer River North Inner MH6	563.80 (2) 564.53	Outward	564.69 563.39	Inward	563.89 563.75	Inward	564.03 564.19	Outward	563.90 (2) 563.25	Inward	564.61 564.12	Inward						
Outer River Middle Inner MH8	563.54 560.45	Inward	564.45 559.75	Inward	563.74 560.98	Inward	563.97 561.06	Inward	563.59 560.65	Inward	564.19 561.13	Inward						
Outer River South Inner MH12	564.05 560.06	Inward	564.96 560.23	Inward	563.92 560.29	Inward	564.53 560.28	Inward	564.15 560.34	Inward	564.86 560.63	Inward						
Monitoring Location																		
Outer River North Inner MH2	564.76 561.74	Inward	564.58 561.67	Inward	564.89 561.46	Inward	564.65 561.26	Inward	565.04 561.60	Inward	563.91 (2) 561.63	Inward						
Outer River North Inner MH6	564.76 564.10	Inward	564.58 565.58	Outward	564.89 564.99	Outward	564.65 565.89	Outward	565.04 565.60	Outward	563.91 (2) 566.24	Outward						
Outer River Middle Inner MH8	564.66 560.05	Inward	564.68 560.68	Inward	564.90 560.79	Inward	564.59 561.05	Inward	564.95 561.10	Inward	563.75 561.07	Inward						
Outer River South Inner MH12	565.07 560.84	Inward	564.88 561.04	Inward	565.22 560.95	Inward	564.90 561.07	Inward	565.25 561.09	Inward	564.16 561.31	Inward						

Notes:

- (1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
- (3) Valves in MH6 were opened on November 18, 2002.
- (4) Snow covered well, could not locate.
- NM - Not Measured
- NA - Not Applicable

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date Monitored	11/21/2002			12/11/2002			1/16/2003			2/25/2003			3/14/2003			4/14/2003		
	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction
Monitoring Location																		
Outer River North MH2	563.90 (2) 561.12	Inward 561.55		563.89 (2) 555.09	Inward 555.09		563.86 (2) 556.15	Inward 556.15		563.96 (2) 555.74	Inward 555.74		563.86 (2) 555.75	Inward 555.75		564.30 561.68	Inward	
Outer River North MH6	563.90 (2) 554.37 (3)	Inward 554.37		563.89 (2) 559.95	Inward 559.95		563.72 561.04	Inward 561.04		563.34 560.60	Inward 560.60		563.24 560.61	Inward 560.61		564.30 554.54	Inward	
Outer River Middle MH8	563.71 558.93	Inward 558.93		564.14 561.45	Inward 561.45		564.11 561.83	Inward 561.83		564.21 561.26	Inward 561.26		564.11 561.54	Inward 561.54		564.24 558.65	Inward	
Outer River South MH12	564.15 561.44	Inward 561.44														564.45 561.56	Inward	
Monitoring Location																		
Outer River North MH2	564.61 561.52	Inward 562.26		564.78 562.26	Inward 562.26		564.49 561.21	Inward 561.21		564.64 561.65	Inward 561.65		564.83 (2) 561.65	Inward 561.65		564.78 (2) 561.48	Inward	
Outer River North MH6	564.61 555.93	Inward 556.02		564.78 556.02	Inward 556.02		564.49 556.06	Inward 556.06		564.64 554.61	Inward 554.61		564.83 (2) 554.61	Inward 554.61		564.78 (2) 554.98	Inward	
Outer River Middle MH8	564.27 560.76	Inward 560.85		564.66 560.85	Inward 560.85		564.44 560.89	Inward 560.89		564.6 558.52	Inward 558.52		564.6 558.52	Inward 558.52		564.63 559.77	Inward	
Outer River South MH12	564.61 561.61	Inward 561.94		564.96 562.03	Inward 562.03		564.78 562.19	Inward 562.19		564.91 562.26	Inward 562.26		565.08 562.26	Inward 562.26		565.03 562.25	Inward	

Notes:

- (1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
- (3) Values in MH6 were opened on November 18, 2002.
- (4) Snow covered well, could not locate.
- NM - Not Measured
- NA - Not Applicable

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date Monitored	11/21/2003			12/11/2003			1/16/2004			2/25/2004			3/14/2004			4/14/2004		
	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction
Monitoring Location																		
Outer	River North	564.03 (2) 561.53	Inward	564.11 (2) 561.08	Inward	564.11 (2) (4)	Inward	563.91 (2) (4)	Inward	564.01 (2) 561.33	Inward	564.44 (2) 560.05	Inward	564.44 (2) 560.05	Inward	564.44 (2) 560.05	Inward	
Outer	River North	564.03 (2) 555.94	Inward	564.11 (2) 555.82	Inward	564.11 (2) 555.84	Inward	563.91 (2) 556.12	Inward	564.01 (2) 555.9	Inward	564.44 (2) 554.91	Inward	564.44 (2) 554.91	Inward	564.44 (2) 554.91	Inward	
Outer	River Middle	564.36	Inward	564.11 (2)	Inward	564.11 (2)	Inward	563.91 (2)	Inward	564.01 (2)	Inward	564.43	Inward	564.43	Inward	564.43	Inward	
Outer	River South	564.28	Inward	564.36	Inward	564.36	Inward	564.16	Inward	564.26	Inward	564.69	Inward	564.69	Inward	564.69	Inward	
Inner	MH12	562.52		562.75		562.49		562.3		562.07		561		561		561		
Monitoring Location																		
Outer	River North	564.55 560.17	Inward	564.68 561.64	Inward	565.20 561.79	Inward	564.98 561.37	Inward	565.00 561.48	Inward	564.45 561.65	Inward	564.45 561.65	Inward	564.45 561.65	Inward	
Outer	River Middle	564.55 559.45	Inward	564.68 560.50	Inward	565.20 560.04	Inward	564.98 560.67	Inward	565.00 560.71	Inward	564.45 560.82	Inward	564.45 560.82	Inward	564.45 560.82	Inward	
Outer	River South	564.71 560.80	Inward	564.91 560.95	Inward	565.46 561.15	Inward	565.25 561.35	Inward	565.30 561.25	Inward	564.49 561.50	Inward	564.49 561.50	Inward	564.49 561.50	Inward	
Inner	MH12																	

Notes:

- (1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
- (2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
- (3) Valves in MH6 were opened on November 18, 2002.
- (4) Snow covered well, could not locate.

NM - Not Measured
NA - Not Applicable

TABLE 2.3

SUMMARY OF HORIZONTAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Date Monitored	11/23/2004		12/31/2004		1/28/2005		2/28/2005		3/31/2005		4/29/2005	
	Water Level (ft amsl)	Gradient Direction										
Monitoring Location												
Outer River North MH12	564.05 (2) 561.50	Inward	564.68 561.60	Inward	564.44 (2) 562.60	Inward	(6) NA 561.05	(6) NA 561.25	564.31 (2) 560.20	Inward	564.83 560.20	Inward
Outer River North MH16	564.05 (2) 554.95	Inward	564.68 556.19	Inward	564.44 (2) 556.22	Inward	(6) NA 555.58	(6) NA 555.93	564.31 (2) 556.01	Inward	564.83 556.01	Inward
Outer River Middle MH18	564.18 (5) 559.77	Inward	564.56 561.02	Inward	564.32 561.06	Inward	564.46 560.47	564.46 560.78	564.08 560.78	Inward	564.71 560.89	Inward
Outer River South MH12	564.30 561.57	Inward	564.81 561.81	Inward	564.69 561.92	Inward	564.79 562.05	564.79 562.05	564.56 562.11	Inward	565.15 562.26	Inward

Notes:

- (1) Water level monitored on 9/14/01 was 563.87 ft amsl which provided an inward gradient.
 - (2) River level too low to obtain a measurement at the monitoring location. Water level shown is River South Water level minus 0.25 feet.
 - (3) Valves in MH16 were opened on November 18, 2002.
 - (4) Snow covered well, could not locate.
 - (5) River level too low to obtain a measurement at the monitoring location. Water level shown is River South water level minus 0.12 feet.
 - (6) Ice covered monitoring location. No water level obtained.
- NM - Not Measured
NA - Not Applicable

TABLE 2.4

**SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

Date Monitored	6/15/2001			6/22/2001			6/29/2001			7/31/2001			8/20/2001			9/28/2001			10/22/2001		
	Monitoring Location	Water Level (ft amsl)	Gradient	Water Level	Gradient	Water Level	Gradient	Water Level	Gradient												
Upper MW-6	MH3 560.59 MW-6 562.54	Upward	560.55 562.50	Upward	560.40 562.42	Upward	559.21 562.90	Upward	561.07 562.09	Upward	560.56 562.13	Upward	562.36 562.08	Downward							
Upper Lower MW-7	MH8 560.53 MW-7 561.48	Upward	560.44 561.41	Upward	560.38 561.39	Upward	560.25 561.30	Upward	561.29 561.32	Upward	560.27 561.32	Upward	560.43 561.31	Upward							
Upper Lower MW-8	MH11 561.12 MW-8 561.69	Upward	561.05 561.54	Upward	560.97 561.46	Upward	560.73 561.19	Upward	560.50 561.05	Upward	560.61 561.07	Upward	560.51 561.27	Upward							
Upper Lower MW-9	MH14 562.32 MW-9 562.45	Upward	562.32 562.19	Downward	562.45 562.11	Downward	562.45 562.45	Neutral	561.72 561.55	Downward	561.70 561.58	Downward	562.10 561.77	Downward							
Upper MH15	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		
Date Monitored	11/22/2001			12/20/2001			1/29/2002			2/11/2002			3/25/2002			4/24/2002			5/21/2002		
	Monitoring Location	Water Level (ft amsl)	Gradient	Water Level	Gradient	Water Level	Gradient	Water Level	Gradient												
Upper Lower MW-6	MH3 560.94 MW-6 561.88	Upward	560.50 561.83	Upward	560.15 561.83	Upward	560.28 561.73	Upward	560.10 561.72	Upward	562.05 561.88	Downward	561.28 561.97	Upward							
Upper Lower MW-7	MH8 560.45 MW-7 561.36	Upward	559.75 561.25	Upward	560.98 561.89	Upward	561.06 561.50	Upward	560.65 561.60	Upward	561.13 561.95	Upward	560.05 561.38	Upward							
Upper Lower MW-8	MH11 559.51 MW-8 561.30	Upward	561.31 560.73	Downward	NM 561.91	—	561.23 561.93	Upward	560.97 561.60	Upward	561.41 561.95	Upward	560.35 560.91	Upward							
Upper Lower MW-9	MH14 561.87 MW-9 561.71	Downward	561.89 561.77	Downward	562.53 562.31	Downward	562.18 562.52	Upward	562.77 562.64	Downward	563.09 562.96	Downward	563.25 563.11	Downward							
Upper Average (1)	MH15 NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		

Notes:

NM - Not monitored. MH11 was blocked and could not be accessed.
(1) - Distance weighted for MH14 (two thirds) and MH15 (one third).

TABLE 2.4

**SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

Monitoring Location	Date Monitored	6/20/2002			7/18/2002			8/6/2002			9/12/02			10/30/02			11/21/02			12/11/02		
		Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction	Water Level (ft amsl)	Gradient (ft amsl)	Direction
MH13	Upper	561.24	Upward	560.99	Upward	560.79	Upward	561.14	Upward	561.21	Upward	560.67	Upward	561.08	Upward	561.08	Upward	562.04	Upward	561.08	Upward	
MW-6	Lower	561.92		561.89		561.92		561.82		561.97		562.05		562.05		562.05		562.05		562.05		562.05
MH8	Upper	560.68	Upward	560.79	Upward	561.05	Upward	561.10	Upward	561.07	Upward	558.03	Upward	559.95	Upward	561.41	Upward	561.25	Upward	561.25	Upward	
MW-7	Lower	561.54		561.65		561.93		561.99		561.95		561.95		561.95		561.95		561.95		561.95		561.95
MH11	Upper	560.98	Upward	561.07	Upward	561.33	Upward	561.34	Upward	561.36	Upward	561.49	Downward	561.51	Downward	560.99	Downward	560.73	Downward	560.73	Downward	
MW-8	Lower	561.50		561.60		561.88		561.91		561.95		560.99		560.99		560.99		560.99		560.99		560.99
MH14	Upper	562.98	Downward	561.83	Upward	562.08	Upward	562.11	Upward	562.68	Downward	562.88	Downward	563.07	Downward	562.74	Downward	562.91	Downward	562.91	Downward	
MW-9	Lower	562.91		562.84		562.75		562.66		562.57		562.57		562.57		562.57		562.57		562.57		562.57
MH15	Upper	562.00	Upward	561.93	Upward	561.86	Upward	561.75	Upward	561.62	Upward	561.82	Upward	562.01	Upward	562.33	Upward	562.53	Upward	562.72	Upward	
Average ⁽¹⁾		562.65	Upward	561.86	Upward	562.01	Upward	561.99	Upward	562.33	Upward	562.53	Upward	562.72	Upward	562.72	Upward	562.72	Upward	562.72	Upward	

Notes:

NM - Not monitored. MH11 was blocked and could not be accessed.
(1) - Distance weighted for MH14 (two thirds) and MH15 (one third).

TABLE 2.4

**SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

Date Monitored	11/16/2003			2/25/2003			3/14/03			4/14/03			5/8/03			6/19/03		
Monitoring Location	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	
Upper MW-6	561.20	Upward	561.10	Upward	561.17	Upward	561.22	Upward	561.03	Upward	561.83	Upward	562.43	Upward	562.43	Upward	562.43	Upward
Lower MW-6	562.27		561.85		561.69		562.42		562.38									
Upper MW-7	561.04	Upward	560.60	Upward	560.61	Upward	558.65	Upward	560.76	Upward	560.85	Upward	561.60	Upward	561.60	Upward	561.60	Upward
Lower MW-7	561.95		561.49		561.49		561.42		561.59									
Upper MW-8	561.68	Upward	561.60	Downward	561.57	Downward	558.53	Upward	561.03	Upward	561.12	Upward	561.56	Upward	561.56	Upward	561.56	Upward
Lower MW-8	562.00		561.48		561.46		560.98		561.56									
Upper MW-9	563.37	Downward	563.07	Downward	563.09	Downward	563.54	Downward	563.26	Downward	563.41	Downward	563.10	Downward	563.10	Downward	563.10	Downward
Lower MW-9	563.17		562.89		562.90		563.36		563.07									
Upper MH15	562.28	Upward	562.01	Upward	562.05	Upward	562.49	Upward	561.02	Upward	562.25	Upward	563.02	Upward	563.02	Upward	563.02	Upward
Average ⁽¹⁾	563.01		562.72		562.74		563.19		562.84									
Date Monitored	7/21/03			8/28/03			9/30/03			10/20/03			11/03/03			12/23/03		
Monitoring Location	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	
Upper MW-6	560.46	Upward	561.20	Upward	561.10	Upward	562.53	Upward	561.07	Upward	561.08	Upward	562.33	Upward	559.49	Upward	562.30	Upward
Lower MW-6	562.31		562.21		561.29		561.35		561.17									
Upper MW-7	560.89	Upward	558.52	Upward	559.88	Upward	559.77	Upward	560.76	Upward	560.67	Upward	561.12	Upward	561.48	Upward	561.48	Upward
Lower MW-7	561.74		561.29		561.37		558.68		558.66									
Upper MW-8	561.10	Upward	564.37	Downward	561.17	Upward	560.02	Upward	561.01	Upward	560.94	Upward	561.34	Upward	561.34	Upward	561.34	Upward
Lower MW-8	561.69		562.35		562.89		562.88		562.75									
Upper MW-9	563.03	Downward	566.48	Downward	566.17	Upward	562.02	Upward	561.91	Upward	562.28	Upward	563.31	Downward	563.20	Downward	563.20	Downward
Lower MW-9	562.89		566.36		566.44		562.60		562.59									
Upper MH15	561.98	Upward	566.44	Downward														
Average ⁽¹⁾	562.68																	

Notes:

NM - Not monitored. MH11 was blocked and could not be accessed.
 (1) - Distance weighted for MH14 (two thirds) and MH15 (one third).

TABLE 2.4

**SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

Date Monitored	01/21/04			02/12/04			03/04/04			04/16/04			05/14/04			06/25/04		
	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient
Monitoring Location																		
Upper MW-3	560.33	Upward	561.08	Upward	561.13	Upward	558.78	Upward	559.71	Upward	561.21	Upward	562.27	Upward				
Lower MW-6	562.32		562.16		562.21		562.48		562.39									
Upper MW-7	560.70	Upward	560.95	Upward	560.75	Upward	559.59	Upward	559.45	Upward	560.50	Upward	561.42	Upward				
Lower MW-7	561.55		561.81		561.61		561.71		561.70									
Upper MW-8	MH11 (2)	NA	561.23	Upward	561.04	Upward	559.85	Upward	559.87	Upward	560.79	Upward	561.19	Upward				
Lower MW-8	561.47		561.75		561.56		561.38		561.39									
Average ⁽¹⁾																		
Lower MW-9	Average ⁽¹⁾	NA	(2)	NA	562.08	Upward	562.43	Upward	562.41	Upward	562.41	Upward	562.70	Upward	562.41	Upward	562.70	Upward
Date Monitored																		
Monitoring Location	07/30/04			08/31/04			09/30/04			10/20/04			11/23/04			12/31/04		
	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Direction	Water Level (ft amsl)	Gradient
Upper MW-3	561.25	Upward	560.59	Upward	560.81	Upward	561.19	Upward	561.05	Upward	560.74	Upward						
Lower MW-6	562.29		562.23		562.28		562.10		561.99									
Upper MW-7	560.04	Upward	560.67	Upward	560.71	Upward	560.82	Upward	559.77	Upward	561.02	Upward						
Lower MW-7	561.31		561.56		561.49		561.19		561.21									
Upper MW-8	MH11 (2)	Upward	560.94	Upward	561.00	Upward	561.09	Upward	560.05	Upward	561.23	Upward	561.75	Upward				
Lower MW-8	560.71		561.39		561.43		561.56		560.56									
Average ⁽¹⁾																		
Lower MW-9	Average ⁽¹⁾	Upward	562.73	Upward	562.67	Upward	562.46	Upward	561.23	Upward	561.96	Upward	562.71	Upward				

Notes:

- NA - Not Applicable.
 NM - Not monitored. MH11 was blocked and could not be accessed.
 (1) - Distance weighted for MH14 (two thirds) and MH15 (one third).
 (2) - Buried with snow.

TABLE 2.4

**SUMMARY OF VERTICAL GRADIENTS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

Monitoring Location	1/28/2005			2/28/2005			3/31/2005			4/29/2005		
	Date Monitored	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Water Level (ft amsl)	Gradient	Direction
Upper MW-6	MH3	562.15	Upward	559.96	Upward	559.94	Upward	559.54	Upward	559.54	Upward	Upward
Lower MW-6	MW-6	562.27		562.14		562.04		562.26				
Upper MW-7	MH8	561.06	Upward	560.47	Upward	560.78	Upward	560.89	Upward			
Lower MW-7	MW-7	561.85		561.46		561.66		561.76				
Upper MW-8	MH11	561.33	Upward	560.74	Upward	561.06	Upward	561.15	Upward			
Lower MW-8	MW-8	561.82		561.25		561.60		561.65				
Average (1)												
Lower MW-9	MW-9	(3) 562.75	NA	(3) 562.78	NA	(3) 562.91	Upward	562.57	Upward	563.21	Upward	

Notes:

NA - Not Applicable.
 NM - Not monitored. MH11 was blocked and could not be accessed.
 (1) - Distance weighted for MH14 (two thirds) and MH15 (one third).
 (2) - Buried with snow.
 (3) - Not Monitored - MH14 was buried with snow and could not be accessed.

TABLE 2.5

**GROUNDWATER SAMPLING SUMMARY
OPERATION AND MAINTENANCE MANUAL
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

LOCATIONS

OGC1	MW-6
OGC2	MW-7
OGC3	MW-8
OGC4	MW-9
OGC5	OGC6
OGC7	OGC8

FREQUENCY

- quarterly for 2 years following GWS startup.
- semi-annually for Year 3 except for OGC-4 (quarterly for SVOCs) and OGC-6 (quarterly for VOCs).
- annually for Years 4 through 7 except OGC-4 (semi-annual for SVOCs) and OGC-6 (semi-annual for VOCs) (review after Year 7)

PARAMETERS

Volatiles

Acetone	Methylene Chloride
Benzene	Tetrachloroethene
2-Butanone	Toluene
Chlorobenzene	Trichloroethene
1,1-Dichloroethane	Vinyl Chloride
trans-1,2-Dichloroethene	Xylenes (Total)
Ethylbenzene	

Semi-Volatiles

1,2-Dichlorobenzene	4-Methylphenol
1,4-Dichlorobenzene	Naphthalene
2,4-Dimethylphenol	Di-n-octylphthalate
2-Methylphenol	Phenol

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

<i>Location</i>	<i>Date</i>	<i>Class GA Level</i>	<i>Volatiles (µg/L)</i>	<i>MW-9</i>	<i>05/18/01</i>	<i>08/20/01</i>	<i>11/27/01</i>	<i>02/11/02</i>	<i>05/21/02</i>	<i>08/06/02</i>	<i>02/25/03</i>	<i>05/08/03</i>	<i>11/04/03</i>	<i>05/14/04</i>	<i>05/27/05</i>
<i>Semi-Volatiles (µg/L)</i>															
Acetone		50	9.4]	4.3]	7.3]/6.7]			4.2]	7.0]/7.2				13]/12		
Benzene		1	0.24]	0.24]	0.39]/0.35]			0.44]	0.29]/0.30]	0.29]/0.29]			0.40]/ND0.70		17
2-Butanone		50		0.50]	0.86]/0.85]			1.3		1.0]/1.1			0.91]/0.87]		1.1
Chlorobenzene		5		0.50]	0.22]/ND			0.31]	0.24]/0.24]	0.22]/0.20]			0.40]/0.38]		1.7
trans-1,2-Trichloroethene		5		0.30]	0.46]/0.42]			0.73]	0.44]/0.42]	0.46]/0.46]					
Ethylbenzene		5		0.34]	0.33]/ND	4.0]	0.53]							7.2]	1.6
Methylene Chloride		5	1.6]	1.1]	1.0]/0.92]		1.6	0.92]/0.80]	0.77]/0.74]				0.67]/0.71]		
Tetrachloroethene		5		1.6]	3.0]/2.5]	2.8]	2.7	2.1]/2.0	2.7]/2.7	2.0	2.0]/1.9		4.6	3.2	2.6
Toluene		5	2.2]	1.8]	2.4]/2.2]	3.0]	4.4	2.0]/2.0	2.2]/2.3		1.8]/1.8	9.5]	4.9	3.0	3.6
Trichloroethene		5									1.7]/1.7				
Vinyl Chloride		2									0.98]/1.0]		3.0		
Total Xylenes		5	1.0]	1.5]			2.5]	1.3]/1.3]	1.4]/1.4]						
<i>Semi-Volatiles (µg/L)</i>															
1,2-Dichlorobenzene		3*			0.6]										
1,4-Dichlorobenzene		3*													
2,4-Dimethylphenol		50	12	12	18]/17	38	20]/22	30]/34	30	35]/36	36	42	2]	50	
2-Methylphenol	NL	1]	3]	3]	3]/3]	7]	4]/4]	6]/6]	6]	6]/6]	6]	5]	8]		
4-Methylphenol	NL	69	110	97/92	230		100/110	190/230	150	130/130	160	190	260		
Naphthalene		10													
Di-n-octyl phthalate		50													
Phenol		1	[31]	[34]	[28/22]	[24]	[38/41]	[34/35]	[42]	[46/46]	[180]	[30]	[27]		

Notes:

- * Applies to sum of compounds
- NL - Not listed
- Exceeds Class GA Level
- NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location Date	Class GA Level	OGC-4										
		05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	05/08/03	11/04/03	3/04/04	05/14/04	11/23/04
<i>Volatiles (µg/L)</i>												
Acetone	50				7.9]							
Benzene	1	0.21J	0.2J									
2-Butanone	50											
Chlorobenzene	5	0.49J	0.66J	0.22J		0.83J/0.79J		0.46J				
trans-1,2-Trichloroethene	5											
Ethylbenzene	5	0.41J	0.39J		0.54J/0.53J		0.48J	0.39J				
Methylene Chloride	5	1.0J	1.2J	0.87J	5.1J/4.9J	0.86J/0.84J	1.1	0.78J				
Tetrachloroethene	5					1.0/0.98J	1.4	0.72J				
Toluene	5	1.6J	1.4J	1.5J		1.5/1.4	1.7	0.96J				
Trichloroethene	5											
Vinyl Chloride	2											
Total Xylenes	5	1.0J	0.94J		0.84J/0.82J	1.1J						
<i>Semi-Volatiles (µg/L)</i>												
1,2-Dichlorobenzene	3*											
1,4-Dichlorobenzene	3*											
2,4-Dimethylphenol	50	8J	12	6J	8J/6J	7J/7J	8J	7J/7J				
2-Methylphenol	NL	0.9J	2J	35	2J/ND	1J/2J	2J	3J				
4-Methylphenol	NL	64	86	40	58/55	61/67	68	69/68	73	32	55	
Naphthalene	10											
Di-n-octyl phthalate	50				420/460	710/1100	1100	1100				
Phenol	1	310	560	400								

Notes:

- * Applies to sum of compounds
- NL - Not listed
- Exceeds Class GA Level
- NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location	Date	Class GA Level	OGC-8								
			05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03
<i>Volatile (µg/L)</i>											
Acetone	50	[78] [11]	31/29	19j		4.7j	2.6	3.6j		3.1	6.2 [1.8]
Benzene	1	14/14	[14]								5.8 [1.2]
2-Butanone	50	4.0									4.7j [1.1]
Chlorobenzene	5	3.7j	4.1j/4.1j	4.0j		0.87j	1.7	1.1		1.1	0.65j [0.50j]
trans-1,2-Trichloroethene	5	4.3j	3.2j/3.1j	4.0j		0.76j	1.5	0.88j		1.0	0.48j [0.41j]
Ethylbenzene	5	[13]	16/16	[15]	1.6j	2.8	5.8	3.1	3.9	3.1	1.8 1.2
Methylene Chloride	5	0.52j/0.48j	0.62j	1.8j		9.9	22	14		7.0 [11]	3.8
Tetrachloroethene	5	[40]	51/52	[59]	7.7j	21	12	27		16 [17]	8.1 [7.7]
Toluene	5	140	140/140	110	17j	22	28	38		27 [27]	
Trichloroethene	5	120	110/110	110	20j	22	53	27		17 [35]	
Vinyl Chloride	2	3.7j	3.4/3.6	3.1	1.1j	1.4	18	0.70j		0.78j [11]	
Total Xylenes	5	43	55/54	46	4.8j	8.3	9.5			9.9 [5.4]	3.0
<i>Semi-Volatiles (µg/L)</i>											
1,2-Dichlorobenzene	3*										
1,4-Dichlorobenzene	3*										
2,4-Dimethylphenol	50	2j	4j/2j	4j	0.8j	0.8j	3j	1j		7j	4j 2j
NL	18	30/25	16	4j	5j	10	13	7j		20	9 5j
NL	30	51/45	28	8j			26	14		14j	6j
Naphthalene	10	1j	3j/25	1j			0.9j				
Di-n-octyl phthalate	50		0.1j/ND		31	5j	8j	11	10j		
Phenol	1	[30]	49/44							4j [4]	6j [2]

Notes:

* Applies to sum of compounds

NL - Not listed

Exceeds Class GA Level

NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location	Date	Class GA Level	River South									
			05/18/01	09/17/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03
Volatile (µg/L)												
Acetone	50	3.0]										
Benzene	1											
2-Butanone	50											
Chlorobenzene	5											
trans-1,2-Trichloroethene	5											
Ethylbenzene	5											
Methylene Chloride	5											
Tetrachloroethene	5											
Toluene	5	0.29]										
Trichloroethene	5											
Vinyl Chloride	2											
Total Xylenes	5											
Semi-Volatile (µg/L)												
1,2-Dichlorobenzene		3*										
1,4-Dichlorobenzene		3*										
2,4-Dimethylphenol		50										
2-Methylphenol		NL										
4-Methylphenol		NL										
Naphthalene		10										
Di-n-octyl phthalate		50										
Phenol		1										

Notes:

- * Applies to sum of compounds
- NL - Not listed
- Exceeds Class GA Level
- NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location	Date	Class GA Level	MW-8										
			05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04
<i>Volatile (µg/L)</i>													
Acetone	50	[52]	[12]	[11]	[75]	[67]	[8.6]	[12]	[20]	[8.1]	[73]	[23/24]	[28/33]
Benzene	1	[6.5]	[4.3]	[4.1]						[12]	[12]	[10/12]	[4.2]
2-Butanone	50												
Chlorobenzene	5	1.8J	1.0J	1.0J		3.2	4.9	4.4	3.6	6.2	6.0/6.4	2.7/3.3	2.4
trans-1,2-Trichloroethene	5	2.2J	1.8J	2.9J	4.8J	[7.3]	[11]	[16]	[12]	[13]	[10/12]	[7.3/9.4]	[7.4]
Ethylbenzene	5	[5.7]	[3.7]	4.4J	[8.2J]	[12]	[18]	[18]	[15]	[23]	[30/32]	[20/24]	4.6
Methylene Chloride	5	1.1J	0.58J	0.66J	4.4J	1.2	1.4	1.6	1.3	2.2/2.2	7.3/9.2	1.7	
Tetrachloroethene	5	[21]	[12]	[9.8]	[23J]	[32]	[61]	[58]	[80]	[80]	[91/100]	[120/130]	62
Toluene	5	[75]	[36]	[31]	[80]	[100]	[140]	[160]	[100]	[120]	[240/240]	[97/120]	30
Trichloroethene	5	[82]	[40]	[35]	[110]	[180]	[320]	[280]	[210]	[320]	[460/460]	[380/390]	180
Vinyl Chloride	2	[5.2]	[1.6J]	[3.3]	[23]	[12]	[18]	[14]	[12]	[18]	[21/21]	[13/16]	5.8
Total Xylenes	5	[22]	[13]	[16]	[30J]	[40]	[68]	[69]	[58]	[93]	[120/120]	[92/110]	32
<i>Semi-Volatiles (µg/L)</i>													
1,2-Dichlorobenzene	3*					2J	2J	2J	2J	4J	3J/3J	19J/2J	4J
1,4-Dichlorobenzene	3*					0.6J	2J	1J	1J	4J	3J/3J	15J/14	7J
2,4-Dimethylphenol	50	1J	11	16	19	18	15	27	20	27	37/38	18J/18	18J
2-Methylphenol	NL	33	55	41	48	44	38	56	37	35	45/46	130/130	34/31
4-Methylphenol	NL	10	32	34	55	60	59	83	64	75	2J/2J		
Naphthalene	10				0.7J	0.8J	0.8J	1J					
Di-n-octyl phthalate	50												
Phenol	1	[43]	[130]	[140]	[85]	[110]	[91]	[110]	[140]	[78]	[80/80]	[28/28]	[11J]

Notes:

* Applies to sum of compounds

NL - Not listed

Exceeds Class GA Level

NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location Date	Volatile (µg/L)	Class GA Level	OGC-3										
			05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04
Acetone	50	[13] / [19] [1.6] / [1.6]	3.8	15	[1.8]	7.1	6.7	[1.2]	[1.5]	5.6	[1.6]	[1.4]	10/8/4 [1.2/1.1]
Benzene	1	[1.6]	[1.6]	[1.6]	[1.6]	[1.8]	[1.8]	[1.2]	[1.5]	[1.6]	[1.6]	[1.4]	[1.2/1.1]
2-Butanone	50	0.24	0.28	1.1	1.1	0.28	0.28	1.1	0.98	0.22	0.44	1.0	
Chlorobenzene	5	1.6] / 1.6] 1.6] / 1.5]	1.0	1.4	2.3	1.5	2.4	1.7	1.8	2.0			1.4/1.3
trans-1,2-Trichloroethene	5	1.6] / 1.6] 1.6] / 1.5]	2.0	2.3	1.5	1.9	1.9						1.2/1.0
Ethylbenzene	5	2.4] / 2.2]	3.0	2.2	1.7	2.2	1.8	1.8	1.8	1.5	4.3	3.6	0.71]/0.63]
Methylene Chloride	5	5.7] / 5.1] 20 / 20]	5.9	5.3	14]	5.1	3.7	4.6	4.0	[14]	[14]	2.6	2.6/2.4
Tetrachloroethene	5	ND / 1.0]	0.4	0.72	18]	19	17	14]	13	12]	0.62]	[9.8]	[7.7]
Toluene	5	5.6] / 5.4]	7.5	8.7	4.8	7.8	5.8	5.8	5.0	6.6]		3.9	3.3/3.0
Total Xylenes	5												
<i>Semi-Volatiles (µg/L)</i>													
1,2-Dichlorobenzene	3*												
1,4-Dichlorobenzene	3*												
2,4-Dimethylphenol	50	5] / 5]	9	8	11	11	7	8	11	12	10	9	81/4]
2-Methylphenol	NL	98 / 96	120	87	160	140	100	100	120	140	150	110	83/73
4-Methylphenol	NL	13 / 13	21	17	28	23	14	15	22	23	20	17	14/12
Naphthalene	10												
Di-n-octyl phthalate	50												
Phenol	1	[120 / 110]	[140]	[130]	[210]	[140]	[85]	[92]	[110]	[120]	[120]	[90]	[78/74]

Notes:

- * Applies to sum of compounds
- NL - Not listed
- Exceeds Class GA Level
- NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
 SITE GROUNDWATER AND RIVER WATER
 GRATWICK-RIVERSIDE PARK
 NORTH TONAWANDA, NEW YORK

Location	Date	Class GA Level	GW-5S										OGC-7									
			12/17/87	08/12/88	05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04	05/27/05						
<i>Volatiles (µg/L)</i>																						
Acetone	50	[293] 2			21J	0.25J	8.2J			3.6J		0.20J	0.26J									
Benzene	1	[27]					0.30J			0.28J												
2-Butanone	50																					
Chlorobenzene	5	[180] 9	[89] 7J		6.3J	3.1J	[5.4] 1.0J	4.9J	4.8J	4.2		0.84J	0.91J									
trans-1,2-Trichloroethene	5																					
Ethylbenzene	5	1			1.1J	0.80J																
Methylene Chloride	5	[11]	[7J]		4.3J	3.6J	3.4J	2.9J	4.0	3.4												
Tetrachloroethene	5	[75]	[49]		[12]	[5.8] 40	[6.7] 48	[5.7] 45	[6.9] 44	[5.2] 38												
Toluene	5	[287]	[220]		70	2.6J	0.84	1.7J	3.5J	2.2		1.8										
Trichloroethene	5	7	41		2.6J	6.0J	4.8J	6.5J	3.9J	7.6		5.3										
Vinyl Chloride	2																					
Total Xylenes	5	54	37																			
<i>Semi-Volatiles (µg/L)</i>																						
1,2-Dichlorobenzene	3*				2J																	
1,4-Dichlorobenzene	3*																					
2,4-Dimethylphenol	50	10	11		2J	2J	1.0J		0.8J		1J											
2-Methylphenol	NL	24	24		3J	2J		0.9J	0.7J		1J											
4-Methylphenol	NL	38																				
Naphthalene	10																					
Di-n-octyl phthalate	50																					
Phenol	1	[61]	[92]		[4J]		0.7J															

Notes:

* Applies to sum of compounds

NL - Not listed

 Exceeds Class GA Level

NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location	Date	Class GA Level	River Middle										
			05/18/01	09/17/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04
Volatiles ($\mu\text{g/L}$)													
Acetone		50											
Benzene		1											
2-Butanone		50											
Chlorobenzene		5											
trans-1,2-Trichloroethene		5											
Ethylbenzene		5											
Methylene Chloride		5											
Tetrachloroethene		5											
Toluene		5											
Trichloroethene		5											
Vinyl Chloride		2											
Total Xylenes		5											
Semi-Volatiles ($\mu\text{g/L}$)													
1,2-Dichlorobenzene		3*											
1,4-Dichlorobenzene		3*											
2,4-Dimethylphenol		50											
2-Methylphenol		NL											
4-Methylphenol		NL											
Naphthalene		10											
Di-n-octyl phthalate		50											
Phenol		1											

Notes:

* Applies to sum of compounds

NL - Not listed

 Exceeds Class GA Level

NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location Date	Volatile (µg/L)	Class GA Level	MW-7										
			05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04
Acetone	50	5.7]		6.5]			4.3]	5.4			4.8		
Benzene	1	[1.9]	[2.0]				[2.0]	[1.3]	[1.8]		0.90		
2-Butanone	50												
Chlorobenzene	5												
trans-1,2-Trichloroethene	5	0.82]	1.1]			0.98]		0.89]	1				
Ethylbenzene	5	0.85]	0.81]			1.0		0.61]	0.75]				
Methylene Chloride	5												
Tetrachloroethene	5												
Toluene	5	3.5]	3.6]		1.6]			3.3	1.9	3			
Trichloroethene	5	0.55]	0.63]		0.43]		0.45]	0.36]					
Vinyl Chloride	2	1.6]	2.0	[3.8]	[2.9]		1.7	[2.2]		1.3			
Total Xylenes	5	2.1]	2.1]		2.7]		1.5]	1.9]		0.76]			
<i>Semi-Volatiles (µg/L)</i>													
1,2-Dichlorobenzene	3*												
1,4-Dichlorobenzene	3*												
2,4-Dimethylphenol	50												
2-Methylphenol	NL	3]	2]	2]	4]	4]	6]	1]	1]	2]		2]	
4-Methylphenol	NL	3]	2]	2]	4]	4]	6]	1]	1]	2]		1]	
Naphthalene	10												
Di-n-octyl phthalate	50												
Phenol	1	[24]	[7]		[26]		[26]	[6]		[5]	[2]		1]

Notes:

- * Applies to sum of compounds
- NL - Not listed
- [] Exceeds Class GA Level
- NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
 SITE GROUNDWATER AND RIVER WATER
 GRATWICK-RIVERSIDE PARK
 NORTH TONAWANDA, NEW YORK

Location Date	Volatile (µg/L)	Class GA Level	OGC-2										
			05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04
Acetone	50	11J											
Benzene	1												
2-Butanone	50												
Chlorobenzene	5												
trans-1,2-Trichloroethene	5												
Ethylbenzene	5												
Methylene Chloride	5												
Tetrachloroethene	5												
Toluene	5												
Trichloroethene	5	0.39J											
Vinyl Chloride	2												
Total Xylenes	5												
<i>Semi-Volatiles (µg/L)</i>													
1,2-Dichlorobenzene		3*											
1,4-Dichlorobenzene		3*											
2,4-Dimethylphenol		50											
2-Methylphenol		NL											
4-Methylphenol		10											
Naphthalene		50											
Di-n-octyl phthalate		1											
Phenol													

Notes:

- * Applies to sum of compounds
- NL - Not listed
- Exceeds Class GA Level
- NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location	Date	Class GA Level	OGC-6												
			05/18/01	08/20/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	03/04/04	05/14/04	11/23/04
<i>Volatiles (µg/L)</i>															
Acetone	50	6.6J									3.7J	0.71	0.87	1.4	[2.5]
Benzene	1														[5.2]
2-Butanone	50														
Chlorobenzene	5														
trans-1,2-Trichloroethene	5														
Ethylbenzene	5														
Methylene Chloride	5														
Tetrachloroethene	5														
Toluene	5														
Trichloroethene	5														
Vinyl Chloride	2														
Total Xylenes	5	0.22J	0.53J	0.26J	1.7J	1.2J	1.0J				4.1	4.7	8.6	13	[28]
<i>Semi-Volatiles (µg/L)</i>															NA
1,2-Dichlorobenzene		3*													
1,4-Dichlorobenzene		3*													
2,4-Dimethylphenol	50														
2-Methylphenol	NL	2J	2J	5J	11	8J	1J	9J	13	22	27				
4-Methylphenol	NL	1J	0.02J	10											
Naphthalene	10														
Di-n-octyl phthalate	50														
Phenol	1	[7J]	[2J]	[4J]	[5J]	[3J]	[2J]				[5J]	[3J]	[9J]	[8J]	

Notes:

* Applies to sum of compounds

NL - Not listed

Exceeds Class GA Level

NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location Date	Volatile (µg/L)	Class GA Level	River North											
			05/18/01	09/17/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04	05/27/05
Acetone	50	2.4J												3.6J
Benzene	1	0.21J												0.39J
2-Butanone	50													
Chlorobenzene	5													
trans-1,2-Trichloroethene	5													
Ethylbenzene	5													
Methylene Chloride	5													
Tetrachloroethene	5													
Toluene	5													
Trichloroethene	5													
Vinyl Chloride	2													
Total Xylenes	5													
<i>Semi-Volatiles (µg/L)</i>														
1,2-Dichlorobenzene		3*												
1,4-Dichlorobenzene		3*												
2,4-Dimethylphenol		50												
2-Methylphenol		NL												
4-Methylphenol		NL												
Naphthalene		10												
Di-n-octyl phthalate		50												
Phenol		1												

Notes:

- * Applies to sum of compounds
- NL - Not listed
- Exceeds Class GA Level
- NS - Not Sampled

TABLE 2.6

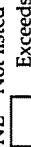
SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location Date	Volatile (µg/L)	Class GA Level	OGC-5										
			05/20/01	08/21/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03	05/14/04
Acetone	50	38]			11]								
Benzene	1	[1.5]			[1.4]								
2-Butanone	50												
Chlorobenzene	5												
trans-1,2-Trichloroethene	5												
Ethylbenzene	5												
Methylene Chloride	5												
Tetrachloroethene	5												
Toluene	5												
Trichloroethene	5												
Vinyl Chloride	2												
Total Xylenes	5												
<i>Semi-Volatiles (µg/L)</i>													
1,2-Dichlorobenzene	3*												
1,4-Dichlorobenzene	3*												
2,4-Dimethylphenol	50	8]			6]								
2-Methylphenol	NL	1]			1]								
4-Methylphenol	NL	2]			5]								
Naphthalene	10	1]			4]								
Di-n-octyl phthalate	50												
Phenol	1												
		0.9]											

Notes:

* Applies to sum of compounds

NL - Not listed

 Exceeds Class GA Level

NS - Not Sampled

TABLE 2.6

SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location Date	Volatile (µg/L)	Class GA Level	GW-6S		MW-6		05/14/04	05/27/05						
			12/15/1987	08/10/88	05/18/01	08/21/01	11/27/01	02/11/02	05/21/02	08/06/02	11/22/02	02/25/03	05/08/03	11/04/03
Acetone	50	[684] 3	4.9]		0.64]				4.4]	0.59]	0.56]	44	6.7	13
Benzene	1											0.57]		
2-Butanone	50													
Chlorobenzene	5	[58]	3.3]	4.4]	1.5]	1.3]	1.5]	1.1]	0.65]	0.37]	0.54]	0.81]	0.37]	0.52]
trans-1,2-Trichloroethene	5								0.32]		0.34]	1.4		
Ethylbenzene	5	2			0.21]									
Methylene Chloride	5	[43]												
Tetrachloroethene	5	[16]	3.0]	[5.1]	2.2]	0.29]	2.2]	2.0]	0.44]	2.0]	1.3	0.91]	2.1	0.67]
Toluene	5	[62]												
Trichloroethene	5	[11]	1.7]											
Vinyl Chloride	2													
Total Xylenes	5	[7]												
<i>Semi-Volatiles (µg/L)</i>														
1,2-Dichlorobenzene	3*													
1,4-Dichlorobenzene	3*													
2,4-Dimethylphenol	50	5	1]	5]	5]	0.7]	2]	2]	1]	1]	0.9]	9]	2]	6]
2-Methylphenol	NL	3		5]	6]	3]	2]	2]	2]	1]	1]	0.9]	5]	5]
4-Methylphenol	NL	4			15	13]	5]	4]	3]	2]	2]	2]	12]	12]
Naphthalene	10				[67]	[69]			[14]		[14]		[76]	[76]
Di-n-octyl phthalate	50													
Phenol	1	[3]				[4]	[2]	2]						

Notes:

* Applies to sum of compounds

NL - Not listed

Exceeds Class GA Level

NS - Not Sampled

TABLE 2.6

**SUMMARY OF DETECTED COMPOUNDS
SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK**

Location Date	Volatile (µg/L)	Class GA Level	OGC-1										
			05/18/01	8/21/2001	11/27/01	02/11/02	05/21/02	08/06/02	02/25/03	11/04/03	05/08/03	11/04/04	05/27/05
Acetone	50	20J											
Benzene	1	1.1J											
2-Butanone	50	0.64J											
Chlorobenzene	5	2.2J	2.0J	1.7J	0.24J	0.78J	0.91J						
trans-1,2-Trichloroethene	5	5.6J	3.7J	4.6J	1.8J	0.58J	2.7						
Ethylbenzene	5	0.52J	0.43J				0.21J						
Methylene Chloride	5												
Tetrachloroethene	5	0.78J	0.54J	4.2J	0.42J	0.53J	0.30J						
Toluene	5	5.2J	5.4J	16J	4.8J	0.43J	1.9						
Trichloroethene	5	15J	11J	4.5J	2.2	2.7	6.1J						
Vinyl Chloride	2	1.3J	0.51J	0.72J			6.1J						
Total Xylenes	5	2.1J	1.6J				0.42J						
<i>Semi-Volatiles (µg/L)</i>													
1,2-Dichlorobenzene	3*	1J	3J	2J	1J								
1,4-Dichlorobenzene	3*	9J	16	8J	3J	0.6J	1J						
2,4-Dimethylphenol	50	6J	12	5J	2J		2J						
2-Methylphenol	NL	20	35	15J	5J		1J	5J					
4-Methylphenol	NL	71	130	21J			7J	18					
Naphthalene	10												
Di-n-octyl phthalate	50	150	290	57J	15J	1J	8J	41J					
Phenol	1												

Notes:

* Applies to sum of compounds

NL - Not listed

Exceeds Class GA Level

NS - Not Sampled

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	MH1	MH2	MH3	MW-6	OGC-1	MH4	OGC-5	MH5	MH6	OGC-6	MH7	MW-7	MH8	OGC-2	MH9
Date															
07/24/00															
10/24/00															
03/29/01	*	*	*	*	7.60	10.82	*	11.14	10.42	8.30	8.17	8.50	10.16	8.68	9.80
05/11/01	*	*	*	*	11.05	11.14	*	*	10.42	10.00	10.50	10.50	8.90	11.22	11.26
05/18/01									9.35	6.90	8.24	7.33	8.19	8.70	
06/08/01									9.4	6.91	8.22	7.43	7.33	8.40	
06/15/01															
06/22/01	*	*	*	*	10.1	10.38	9.6	9.6	10.6	10.56	7	8.97	9.27	11.33	
06/29/01					10.9	10.8	11	10.9	10.54	7.92	8.55	9.2	11.28	8.63	
07/31/01					10.82	10.81	10.97	11.25	10.44	7.9	8.31	7.71	11.45	9.35	
08/20/01	11	11	9.86	10.95											
09/28/01	10.75	10.97	9.89	11.01											
10/22/01	10.7	10.45	10.5	11											
11/27/01	10.61	10.46	10.12	11.65											
12/20/01	10.17	10.11	9.97	11.22											
01/29/02	11.8	11.62	11.15	11.82											
02/11/02	10.26	10.16	10.5	10.4											
03/25/02	10.62	10.45	11.22	10.69											
04/24/02	10.37	10.22	10.68	11.36											
05/21/02	9.96	9.81	10.76	10.42											
06/20/02	10.64	9.4	10.91	11.19											
07/18/02	10.89	10.69	10.87	11.75											
08/06/02	10.62	10.47	8.21	5.67											
09/12/02	10.92	11.23	11.17	11.85											
10/30/02	10.1	11.22	10.74	10.89											
11/21/02	9.06	9.3	10.09	11.89											
12/11/02	8.92	9.17	10.16	11.03											
01/16/03	10.9	11.76	11.02	11.59											
02/25/03	10.72	11.12	10.51	11.81											
03/14/03	11.77	11.92	10.07	11.93											
04/14/03	9.78	9.71	9.67	10.82											
05/08/03	10.32	10.48	10.43	12.35											
06/19/03	10.21	10.39	10.36	12.31											
07/21/03	10.06	10.21	10.25	12.17											
08/28/03	10.22	10.91	10.32	11.16											
09/30/03	9.32	9.4	9.95	10.91											
10/20/03	9.22	9.3	9	10											
11/03/03	9.15	9.14	8.86	9.49											
12/23/03	10.03	9.03	9.7	10.3											

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

<i>Monitoring Location</i>	<i>MH1</i>	<i>MH2</i>	<i>MH3</i>	<i>MW-6</i>	<i>OGC-1</i>	<i>MH4</i>	<i>OGC-5</i>	<i>MH5</i>	<i>MH6</i>	<i>OGC-6</i>	<i>MH7</i>	<i>MW-7</i>	<i>MH8</i>	<i>OGC-2</i>	<i>MH9</i>
<i>Date</i>															
01/21/04															
02/12/04	8.45		(1)	9.06	9.01	9.56		8.0		10.31	9.84		9.69	10.6	8.8
03/04/04	8.21	10.05	(1)	9.72	13.24	11.02	7.77	8.75	7.65	10.8	10.52	10.32	11.23	9.2	
04/16/04				8.93	10.28	10.69		8.82	9.43	10.52		10.28	10.87	9.24	
05/14/04				9.52	8.77	10.16	9.28	8.61	9.2	10.96		10.41	11.18	9.12	
06/25/04				10.5	8.08	10.16	9.47	8.74	7.19	11.69	9.49		9.36	11.00	9.09
07/30/04				10.22	8.66	10.07	9.98	8.46	8.41	10.89		9.82	10.65	9.1	
08/31/04				10.03	9.00	9.91	10.45	8.41	8.42	10.67		9.31	10.51	8.94	
09/30/04				9.89	8.7	9.69	10.0	8.17	7.58	10.36		8.97	10.65	8.85	
10/20/04				10.01	8.77	9.9	9.8	8.4	8.11	10.13		9.2	10.47	8.6	
11/23/04				9.91	7.95	9.8	9.28	8.18	8.46		9.89		9.95	8.84	
12/31/04				9.26	8.47	9.87	9.83	8.32	8.32	10.89		9.8	10.84	8.96	
01/28/05				10.13	8.82	9.42	9.26	8.44	10.31		10.04		9.79	9.57	8.73
02/28/05				10.21	10.75	9.25	8.91	8.39	8.86		10.6		9.66	9.05	9.1
03/31/05				10.66	9.5	9.09	9.17	8.54	10.89		10.61		9.11	10.8	6.8
04/29/05				10.91	8.96	9.78	8.95	8.51	9.06	10.99		9.58	11.06		
05/27/05				11.29	8.92	9.90	9.59	8.74	8.72	11.26		9.62	10.29	9.56	
				9.88	7.85	10.26	9.18	9.12	11.3			9.62	11.16	9.78	

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

Monitoring Location	MH10	OGC-7	MH11	MW-8	OGC-3	MH12	MH13	OGC-8	MH14	MW-9	OGC-4	MH15	MH16	MH17
Date	07/24/00	9.2		8.38					10.6	9.5				7.4
10/24/00									7.76					8.15
03/29/01	8.37			6.41	9.41	8.25	7.5	9.77		8.17	10.41			8.83
05/11/01	10.9	11.51	11.55	11.59	11.21	8.25	11.4	11.58		7.37	11.16	11.21		9.27
05/18/01		10.93	11.2	10.34	6.99			10.32		10.60	10.03	10.44		12.27
06/08/01	9.68		10.1	10.34	10.8	7.03		10.54		10.34	10.55			7.25
06/15/01	10.0	10.3	10.7	*	*	10.92	7.3	11	8.98	10.47	11.1			8.88
06/22/01	*	*	*	*										7.57
06/29/01	11.13	10.9	11.4	10.22	7.54	11.2	9.18	10.94		11.2				7.9
07/31/01	11.49	10.58	11.69	11.75	7.91		11.73	9.73		11.62	11.63			8.28
08/20/01	9.17	10.59	11.35	10.87	7.7		11.49	9.8		12.05	11.89			8.2
09/28/01	10	10.57	11.5	11.0	7.9		11.47	9.77		11.2	11.75			8.21
10/22/01	10.75	10.44	10.89	11.01	7.7		11.01	9.6		10.51	10.7			7.0
11/27/01	11.98	10.87	12.46	12.46	8.1		12.28	10.01		11.87	12.25			7.26
12/20/01	11.63	10.22	11.98	11.97	7.82		11.76	8.73		10.61	11.37			7.11
01/29/02	12.25		12.15	12.59	7.76		12.41	8.09		11.85	12.33			7.16
02/11/02	11.12		11.79	12.09	7.63		12.13	7.48		11.73	11.8			6.89
03/25/02	12.38		12.59	12.77	8.01		12.66	8.51		12.11	12.46			7.88
04/24/02	12		12.26	12.39	7.86		12.34	7.94		11.55	11.95			7.43
05/21/02	11.86		12.25	12.49	7.94		12.5	7.45		12.16	12.24			7.22
06/20/02	11.92		12.26	12.34	8.07		12.28	8.12		11.63	12.2			7.84
07/18/02	11.78		12.11	12.16	8.11		12.13	9.82		11.31	11.96			7.36
08/06/02	6.95	11.76	7.88	7.63	8.02		8.87	9.76		8.89	9.03			7.49
09/12/02	11.93	12.19	12.23	12.32	8.76		12.3	10.81		11.77	12.04			8.17
10/30/02	11.91	12.2	12.21	12.24	NM		12.22	8.34		11.89	12.01			7.63
11/21/02	11.79	9.46	12.53	12.46	7.64		12.62	7.71		12.42	12.5			7.37
12/11/02	11.26	9.41	11.39	11.54	7.56		11.51	7.86		10.76	11.29			7.18
01/16/03	12.39	12.55	12.74	8.47			12.82	8.76		12.3	12.52			7.98
02/25/03	11.94		12.46	12.49	8.42		12.51	8.71		12.19	12.52			8.13
03/14/03	12.16	12.33	12.56	8.26			12.44	8.79		12.11	12.35			7.79
04/14/03	11.02	11.63	11.18	7.92			11.62	8.87		10.89	11.89			7.42
05/08/03	11.93	12.51	12.55	8.12			12.63	7.77		12.12	12.44			8.43
06/19/03	11.87	12.39	12.41	8.02			12.41	7.73		12.01	12.21			8.16
07/21/03	11.81	12.12	12.25	7.99			12.32	7.64		11.91	11.98			7.62
08/28/03	11.79	12.13	12.24	11.26			12.21	11.52		12.04	12.04			11.32
09/30/03	11.27	11.95	11.44	8.65			11.87	9.45		10.33	11.57			8.56
10/20/03	11.2	11.8	11.2	8.5			11.6	8		10.42	11.44			8.01
11/03/03	11.04	10.91	10.3	8.39			10.63	7.24		10.59	11.24			7.48
12/23/03	11.04	11.18	11.17	8.41			11.01	7.66		10.88	11.03			7.44

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

<i>Monitoring Location</i>	<i>MH10</i>	<i>OGC-7</i>	<i>MH11</i>	<i>MW-8</i>	<i>OGC-3</i>	<i>MH12</i>	<i>MH13</i>	<i>OGC-8</i>	<i>MH14</i>	<i>MW-9</i>	<i>OGC-4</i>	<i>MH15</i>	<i>MH16</i>	<i>MH17</i>
<i>Date</i>														
01/21/04	10.69		11.06	11.16	8.39		11.5		(1)	9.98	10.89	9.53	6.25	
02/12/04	10.79	11.42	11.66	11.78	8.96	11.75	(1)	11.09	11.6	8.5	6.66			
03/04/04	10.79	11.07	11.06	11.29	9.02	11.37	11.5	11.25	11.6	9.03	7.75			
04/16/04	11.23	10.42	11.57	11.62	9.22	11.36	11.6	11.11	11.44	9.6	6.54			
05/15/04	11.19	11.78	11.91	12.13	8.34	11.8	11.7	11.61	11.68	9.5	6.62			
06/25/04	11.22	11.35	11.31	11.48	8.86	11.27	11.21	10.84	11.2	9.11	7.48			
07/30/04	11.10	11.00	11.09	11.42	8.6	11.13	8.40	10.69	11.16	9.42	6.84			
08/31/04	10.84	10.95	10.87	11.19	8.07	10.84	7.78	10.48	10.73	8.14	6.57			
09/30/04	11.0	10.87	11.01	11.4	8.44	11.03	8.1	10.7	10.66	8.32	6.75			
10/20/04	10.91	11.07	11.06	11.26	8.22	11.05	10.84	10.3	10.93	8.64	6.85			
11/23/04	11.08	9.39	11.34	11.44	8.33	11.31	8.64	10.92	11.36	9.08	7.63			
12/31/04	10.64	8.92	10.85	11.09	8.48	10.85	8.57	10.58	10.87	8.86	7.09			
01/28/05	10.79	8.99	11.11	11.31	9.16	11.20	(1)	10.76	11.2	8.95	6.64			
02/28/05	10.79	11.05	10.83	10.81	8.44	10.3	(1)	10.03	10.88	8.49	6.57			
03/31/05	11.22	11.28	11.51	11.49	9.04	11.37	8.5	11.17	11.27	7.24	6.94			
04/29/05	11.48	11.75	11.78	11.75	9.17	11.79	9.64	11.39	11.53	8.32	7.40			
05/27/05	13.65	11.64	13.74	11.79	8.91	11.62	8.6	11.07	11.21	9.05	8.08			

Notes:

(1) Buried with snow and could not be accessed.

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

<i>Monitoring Location</i>	<i>City MH1</i>	<i>City MH2</i>	<i>City MH3</i>
<i>Date</i>			
07/24/00	6.3	7.3	7.41
10/24/00	7.08	7.52	7.16
03/29/01	7.52	7.50	7.16
06/15/01	7.7	7.69	7.4
06/22/01	8.0	7.9	7.8
07/31/01	8.0	8.0	7.7
08/20/01	8.2	8.3	8.0
09/28/01	8.1	8.3	7.9
10/22/01	8.0	8.0	7.8
11/27/01	7.9	8.2	8.01
12/20/01	*	*	*
01/29/02	7.62	7.93	7.97
02/11/02	7.52	7.73	7.79
03/25/02	*	*	*
04/24/02	7.46	7.62	7.69
05/21/02	7.47	7.66	7.72
06/20/02	7.57	7.69	7.78
07/18/02	7.72	7.84	8.01
08/06/02	7.63	7.68	7.92
09/12/02	7.72	7.79	7.98
10/30/02	7.73	7.8	7.93
11/21/02	7.32	7.37	7.41
12/11/02	7.29	7.31	7.35
01/16/03	7.62	7.7	7.79
02/25/03	7.64	7.71	7.89
03/14/03	7.39	7.54	7.61
04/14/03	7.22	7.39	7.41
05/08/03	7.29	7.43	7.48
06/19/03	7.27	7.39	7.41
07/21/03	7.25	7.36	7.38
08/28/03	7.29	7.44	7.41
09/30/03	7.29	7.45	7.40
10/20/03	7.4	7.71	7.39
11/03/03	8.46	7.14	7.27
12/23/03	9.34	7.63	7.57
01/26/2005	8.92	7.58	7.4

CA

TABLE 2.7

PH READINGS
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA NEW YORK

Monitoring Location	City MH1	City MH2	City MH3
Date			
01/21/04	(2)	8.12	(2)
02/12/04	8.45	7.77	7.65
03/04/04	8.21	7.76	7.79
04/16/04	10.95	8.38	8.32
05/14/04	7.30	7.62	7.75
06/25/04	8.06	7.99	7.94
07/30/04	7.85	7.90	7.81
08/31/04	10.2	7.5	7.4
09/30/04	8.6	7.7	7.9
10/20/04	7.59	7.56	7.61
11/23/04	9.64	7.6	7.67
12/31/04	9.09	7.68	7.38
01/28/05	8.92	7.58	7.40
02/28/05	(1)	8.16	7.90
03/31/05	8.49	7.59	7.55
04/29/05	8.74	8.05	7.89
05/27/05	9.24	8.33	8.27

Notes:

* - pH meter malfunctioned.

NM - Not Measured.

(1) - Buried with snow.

(2) - Road conditions were not safe to allow for monitoring.

TABLE 2.8
EFFLUENT SAMPLING SUMMARY
OPERATION AND MAINTENANCE MANUAL
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

LOCATIONS

effluent monitoring station at Site discharge point

FREQUENCY

monthly (as dictated by the City of North Tonawanda Industrial Wastewater Discharge Permit)

PARAMETERS

Volatiles

Acetone	Methylene Chloride
Benzene	Styrene
2-Butanone	Tetrachloroethene
Chlorobenzene	Toluene
1,1-Dichloroethane	1,1,1-Trichloroethane
1,2-Dichloroethane	Trichloroethene
trans-1,2-Dichloroethene	Vinyl Chloride
Ethylbenzene	Xylenes (Total)

Semi-Volatiles

1,4-Dichlorobenzene	4-Methylphenol
1,2-Dichlorobenzene	Naphthalene
2,4-Dimethylphenol	Di-n-octylphthalate
2-Methylphenol	Phenols (4AAP)

Inorganics

Aluminum	Lead
Antimony	Magnesium
Arsenic	Manganese
Barium	Mercury
Beryllium	Nickel
Cadmium	Selenium
Chromium	Silver
Copper	Sodium
Iron	Zinc

Wet Chemistry

Alkalinity (Bicarbonate)	Oil and Grease
Alkalinity (Total)	pH
BOD	Phosphorous
Chloride	Sulfate
COD	Sulfide
Cyanide	TDS
Hardness	TKN
NH ₃	TOC
NO ₃	TSS

TABLE 2.9

PROPOSED EFFLUENT SAMPLING SUMMARY - NEXT 3-YEAR PERIOD
OPERATION AND MAINTENANCE MANUAL
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

LOCATIONS

effluent monitoring station at Site discharge point

FREQUENCY

Semi-Annual (Spring and Fall)

PARAMETERS

Volatiles

Acetone	Methylene Chloride
Benzene	Styrene
2-Butanone	Tetrachloroethene
Chlorobenzene	Toluene
1,1-Dichloroethane	1,1,1-Trichloroethane
1,2-Dichloroethane	Trichloroethene
trans-1,2-Dichloroethene	Vinyl Chloride
Ethylbenzene	Xylenes (Total)

Semi-Volatiles

1,4-Dichlorobenzene	4-Methylphenol
1,2-Dichlorobenzene	Naphthalene
2,4-Dimethylphenol	Di-n-octylphthalate
2-Methylphenol	Phenols (4AAP)

Wet Chemistry

Chloride
Cyanide
NH ₃
NO ₃
Phosphorous
Sulfate
Sulfide

TABLE 2.10
ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Parameter	Unit	Discharge Sample Port		GRATWICK-RIVERSIDE				Surface Water Standard (1)			
		Date	Sample ID:	7/30/2001	8/21/2001	9/20/2001	10/24/2001	11/29/2001	12/6/2001		
Volatiles											
1,1,1-Trichloroethane	µg/L	3.0		1.8J	1.1J	7.6U	7.6U	3.8U	3.8U	5	
1,1-Dichloroethane	µg/L	8.8		7.3	5.8	3.4J	2.1U	2.6J	3.5J	5	
1,2-Dichloroethane	µg/L	5.0U		5.0U	5.0U	10U	10U	5.0U	5.0U	0.6	
2-Butanone	µg/L	7.6J		10	10U	20U	20U	6.8J	6.7J	50	
Acetone	µg/L	77		93	140	36	26	55	55	50	
Benzene	µg/L	6.4		7.2	6.2	3.5J	3.2J	3.1J	4.0J	1	
Chlorobenzene	µg/L	3.7J		4.9J	5.0J	3.4J	16	3.5J	5.4J	5	
Ethylbenzene	µg/L	8.9		11	9	8.6J	3.6J	4.8J	6.8J	5	
Methylene chloride	µg/L	1.1J		2.8U	2.8U	5.6U	5.6U	2.8U	2.8U	5	
Styrene	µg/L	1.0J		5.0U	5.0U	10U	10U	5.0U	5.0U	5	
Tetrachloroethene	µg/L	22		33	25	16	8.3	15	23	0.7 (2)	
Toluene	µg/L	74		84	68	42	20	37	50	5	
trans-1,2-Dichloroethene	µg/L	2.6		2.1	2.8	3.3J	1.8J	1.5J	2.4	5	
Trichloroethene	µg/L	150J		130	87	55	32	56	72	5	
Vinyl chloride	µg/L	11		13	13	13J	5.6J	8.0J	13	0.3 (2)	
Xylene (total)	µg/L	40		44	34	32	11	17	26	5	
Semi-Volatiles											
1,2-Dichlorobenzene	µg/L	9U		2U	1J	6	0.6J	0.9J	9U	3	
1,4-Dichlorobenzene	µg/L	21U		4U	1J	2J	1J	4U	1J	3	
2,4-Dimethylphenol	µg/L	14		13	19	12	8	17	13	50 (2)	
2-Methylphenol	µg/L	49		46	38	28	15	38	37J	NL	
4-Methylphenol	µg/L	58		47	46	30	21	46	40J	NL	
Di-n-octyl phthalate	µg/L	12U		2U	2U	1J	1J	2U	12U	50 (2)	
Naphthalene	µg/L	1J		1J	1J	67J	67J	0.8J	8U	10	
Phenol	µg/L	86		64	67	110	230	74	110	1	

TABLE 2.10
ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Parameter	Sample ID: Sample Date:	Discharge Sample Port GRATWICK-RIVERSIDE 6/29/2001	Unit	Surface Water Standard (1)			
				10/24/2001	9/20/2001	11/29/2001	12/6/2001
Metals							
Aluminum	mg/L	0.31	0.24	0.34	0.20U	0.20	0.20U
Antimony	mg/L	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U
Arsenic	mg/L	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U
Barium	mg/L	0.059	0.063	0.081	0.067	0.064	0.050
Beryllium	mg/L	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.003 (2)
Cadmium	mg/L	0.0010U	0.0010U	0.0010U	0.0010U	0.0010U	0.005
Chromium	mg/L	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U
Copper	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.023 (3)
Iron	mg/L	0.050U	0.050U	0.050U	0.050U	0.050U	0.30
Lead	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.012
Magnesium	mg/L	0.35	0.66	1	0.77	6.8	1.1
Manganese	mg/L	0.0030U	0.0030U	0.0036	0.012	0.028	0.0043
Mercury	mg/L	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.0000026 (4)
Nickel	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.10
Selenium	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.0046 (4)
Silver	mg/L	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.050
Sodium	mg/L	273	271	262	310	290	286
Zinc	mg/L	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U
General Chemistry							
pH	S.U.	NA	9.45	11.23	9.20	10.06	10.71
Hardness	mg/L	524	488	529	301	456	410
Total Dissolved Solids (TDS)	mg/L	1500	1450	1530	1280	1200	1200
Total Suspended Solids (TSS)	mg/L	NA	NA	14	19	9.0	7.0
Chloride	mg/L	497	123	497	820	577	389
BOD	mg/L	NA	NA	20	17	24	27
COD	mg/L	NA	NA	155	240	50	49
Oil and Grease	mg/L	NA	NA	0.60U	1.0	0.87U	1.0U
Organic Carbon	mg/L	NA	16	10	18	9.0	--
Alkalinity, Total (As CaCO ₃)	mg/L	131	115	120	115	20.9	22.2
Bicarbonate (as CaCO ₃)	mg/L	5.0U	5.0U	5.0U	5.0U	22.2	57
Ammonia	mg/L	NA	6	4.9	4.9	21	11.6
Nitrate (as N)	mg/L	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U

TABLE 2.10

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Parameter	Unit	<i>Discharge Sample Port</i> GRATWICK-RIVERSIDE						Surface Water Standard (1)
		6/29/2001	7/30/2001	8/21/2001	9/20/2001	10/24/2001	11/29/2001	
General Chemistry								
TKN	mg/L	NA	10	7.6	7.6	14.8	10.6	NL
Sulfate	mg/L	281	20.4	307	196	329	245	250
Sulfide	mg/L	13.2	16.0	14.3	5.6	2.5	10.6	14
Phenol	mg/L	NA	NA	0.28	0.24	0.28	0.15	0.002
Phosphorous	mg/L	NA	NA	0.29	NA	0.05	0.11	0.001
Cyanide	mg/L	NA	NA	0.005U	0.005U	0.005U	0.06	0.020 (2)
								0.0052

Notes:

U - Non-detect at associated value

-- Not Analyzed

J - Estimated

NL - Not Listed

SL - Sample Lost

(1) - Lowest Standard/Guidance Value shown

(2) - Guidance Value

(3) - Calculated using a hardness of 300 ppm

(4) - Applies to dissolved form

TABLE 2.10
ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Parameter	Unit	Sample ID: Sample Date:	1/23/2002	2/21/2002	3/27/2002	4/24/2002	5/30/2002	6/29/2002	7/25/2002	8/27/02	9/23/02	10/17/02	11/13/02	12/12/2002	Surface Water Standard ⁽¹⁾
Volatiles															
1,1,1-Trichloroethane	µg/L	7.3U	7.6U	7.6U	3.8U	3.8U	3.8U	7.6U							
1,1-Dichloroethane	µg/L	2.3J	4.1J	4.9J	9.9	9.4U	9.4U	9.4U	9.4U	9.4U	1.4J	1.4J	1.4J	4.5J	
1,2-Dichloroethane	µg/L	10U	10U	10U	10U	10U	10U	10U	10U	10U	5.0U	5.0U	5.0U	5.0U	
2-Butanone	µg/L	20U	20U	110	20U	20U	20U	20U	20U	10U	10U	10U	10U	50	
Acetone	µg/L	42	53	56	98	52	25	25	25	130	7.0J	28	15	48	
Benzene	µg/L	2.1J	3.2J	4.6J	9.1	4.7J	2.1J	2.1J	2.1J	3.3J	1.9J	3.3J	2.1J	5.3	
Chlorobenzene	µg/L	3.8J	6.6J	5.2J	4.4J	8.9J	5.8J	5.8J	5.8J	5.4J	6.9	4.0J	5.6J	6.1	
Ethylbenzene	µg/L	2.0J	7.6J	9.6J	18	10J	5.3J	5.3J	7.8J	6.4J	7.2	4.6J	13	18	
Methylene chloride	µg/L	6.4U	5.6U	5.6U	2.9J	5.6U	5.6U	5.6U	5.6U	3.2J	3.5U	3.5U	3.5U	2.2J	
Styrene	µg/L	10U	10U	10U	10U	10U	10U	10U	10U	10U	5.0U	5.0U	5.0U	10U	
Tetrachloroethene	µg/L	4.9J	23	28	46	48	27	27	19	9.6	12	6.0	42	48	
Toluene	µg/L	15	46	57	110	42	33	33	41	18	30	14	64	110	
trans-1,2-Dichloroethene	µg/L	3.6U	2.4J	2.5J	4.2	3.6U	3.6U	3.6U	2.1J	2.2	1.8U	2.0	1.8U	3.2J	
Trichloroethene	µg/L	27	92	140	260	140	80	80	74	20	48	20	130	230	
Vinyl chloride	µg/L	8.4J	20U	5.1J	14J	13J	8.6J	8.6J	6.6J	11	10	11	18	15J	
Xylene (total)	µg/L	7.3J	29	40	76	37	21	21	30	20	24	15	50	78	
Semi-Volatiles															
1,2-Dichlorobenzene	µg/L	2J	1J	3	9U	0.8J	0.8J	0.8J	1J	0.6J	0.6J	0.6J	1J	0.9J	
1,4-Dichlorobenzene	µg/L	2J	2J	1J	3J	2J	1J	1J	1J	0.8J	2J	1J	2J	3	
2,4-Dimethylphenol	µg/L	11J	9J	8	14	5J	4	4	9	6	7	8	12	21	
2-Methylphenol	µg/L	28J	21J	17	36	10J	8J	8J	18	8J	13	15	19	32	
4-Methylphenol	µg/L	40J	27J	24	57	19J	13	13	27	13	20	21	30	61	
Di-n-octyl phthalate	µg/L	14U	12U	2U	2U	12U	2U	2U	2U	2U	0.3J	3U	2U	2U	
Naphthalene	µg/L	57	24	12	1J	7U	15	15	13	23	8	29	2U	1J	
Phenol	µg/L	96	42	73	46	51	51	41	66	28	84	35	38	1	

TABLE 2.10

**ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE**

<i>Parameter</i>	<i>Sample ID:</i> <i>Sample Date:</i>	1/23/2002	2/21/2002	3/27/2002	4/24/2002	5/30/2002	6/29/2002	7/25/2002	8/27/2002	9/23/2002	10/17/2002	11/13/2002	12/12/2002	<i>Surface Water Standard⁽¹⁾</i>
	<i>Unit</i>													
<i>General Chemistry</i>														
TKN	mg/L	8.1	4.5	5.0	4.8	SL	2.0	1.7	5.6	6.2	7.8	10.5	10.8	NL
Sulfate	mg/L	261	250	262	239	226	215	236	214	213	254	302	250	
Sulfide	mg/L	9.9	9.9	11.2	13.7	4.4	1.0U	1.0U	1.4	1.0U	7.4	21.6	0.002	
Phenol	mg/L	0.12	0.28	0.22	0.22	SL	0.40	0.40	0.27	0.16	0.16	0.12	0.001	
Phosphorous	mg/L	0.09	0.08	0.09	0.17	0.02	0.10	0.04	0.018	0.04	0.06	0.10	0.020 (2)	
Cyanide	mg/L	0.005U	0.005U	0.040J	0.005U	0.005U	0.005U							

Notes:

U - Non-detect at associated value

-- Not Analyzed

J - Estimated

NL - Not Listed

SL - Sample Lost

(1) - Lowest Standard/Guidance Value shown

(2) - Guidance Value

(3) - Calculated using a hardness of 300 ppm

(4) - Applies to dissolved form.

(5) - TOC analyzer malfunction prevented analysis of this compound.

TABLE 2.10

**ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE**

Sample ID: Sample Date:	1/16/03	2/06/03	3/11/03	4/04/03	5/09/03	6/10/03	7/10/03	8/7/03	9/4/03	10/10/03	11/7/03	12/10/03	Surface Water Standard (1)
Parameter	Unit												
Volatiles													
1,1,1-Trichloroethane	µg/L	2.6U	2.6U	5.2U	1.3U	2.6U	5.2U	5.2U	1.3U	2.6U	2.6U	2.6U	5
1,1-Dichloroethane	µg/L	9.6	5.6	6.4	0.84U	5.4	7.4	4.6	3.3U	0.84U	1.7U	1.7U	5
1,2-Dichloroethane	µg/L	1.7U	1.7U	3.4U	0.85U	1.7U	3.4U	3.4U	3.4U	0.85U	1.7U	1.7U	0.6
2-Butanone	µg/L	9.3U	9.3U	19U	4.6U	9.3U	19U	19U	19U	4.6U	9.3U	9.3U	50
Acetone	µg/L	21	51	42	10U	28	52	42U	42U	10U	21U	35	50
Benzene	µg/L	3.4	7.9	6.2	4.4U	1.1U	3.2	4.6	4.4U	4.4U	1.1U	2.2U	7.2
Chlorobenzene	µg/L	6.1	6.6	6.9	7.5	6.9	4.1	7.0	5.0	3.6U	5.4	9.3	5
Ethylbenzene	µg/L	9.9	2.3	15	12	1.9	11	12	9.5	4.3	1.8	2.1	5
Methylene chloride	µg/L	7.0U	7.0U	14U	3.5U	7.0U	14U	14U	14U	3.5U	7.0U	7.0U	5
Styrene	µg/L	5.2U	5.2U	10U	2.6U	5.2U	10U	10U	10U	2.6U	5.2U	5.2U	5
Tetrachloroethene	µg/L	22	59	46	31	8.3	45	38	32	12	1.3U	2.5U	47
Toluene	µg/L	37	110	81	56	7.1	46	57	39	17	1.2U	3.2	82
trans-1,2-Dichloroethene	µg/L	3.0U	4.3	3.0U	6.0U	1.8	4.5	6.0U	6.0U	1.5U	3.0U	3.3	5
Trichloroethene	µg/L	92	260	220	160	17	140	170	110	53	1.7	5.7	180
Vinyl chloride	µg/L	10	20	11	9.6	5.8	12	9.5	5.7U	5.7U	1.9	2.8U	11
Xylene (total)	µg/L	41	99	64	50	7.0	44	56	40	28U	6.9U	14U	73
Semi-Volatiles													
1,2-Dichlorobenzene	µg/L	4U	20U	20U	20U	20U	19U	19U	16U	16U	16U	16U	3
1,4-Dichlorobenzene	µg/L	4U	18U	19U	19U	19U	18U	18U	15U	15U	15U	14U	3
2,4-Dimethylphenol	µg/L	10	18U	19U	19U	19U	18U	18U	20	12U	13U	18	50
2-Methylphenol	µg/L	12	16U	22	16U	16U	15U	15U	15U	15U	15U	15U	NL
4-Methylphenol	µg/L	24	35	45	31	18U	19	17U	15U	46	15U	16U	57
Di-n-octyl phthalate	µg/L	4U	20U	19U	19U	20U	19U	18U	26U	26U	27U	26U	(2)
Naphthalene	µg/L	3U	18U	18U	18U	18U	17U	17U	17U	17U	18U	17U	10
Phenol	µg/L	61	30	62	94	64	61	74	46	28	16	150	46
													1

TABLE 2.10
ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID:	1/16/03	2/06/03	3/11/03	4/04/03	5/09/03	6/10/03	7/10/03	8/7/03	9/4/03	10/10/03	11/7/03	12/10/03	Surface Water Standard (1)
Parameter	Unit												
General Chemistry													
TKN	mg/L	9.24	2.52	1.1	4.48	5.04	8.4	6.7	5.88	2.24	7.28	5.88	NL
Sulfate	mg/L	202	177	184	230	236	234	170	208	254	149	242	386
Sulfide	mg/L	3.2	4.0	8.0	10	2.2	4.0	4.8	2.4	1.0U	2.0	0.002	250
Phenol	mg/L	0.11	0.10	0.009	0.006	0.01U	0.008U	0.034	0.08U	0.014U	0.006U	0.012U	0.001
Phosphorous	mg/L	0.12	0.10	0.18	0.10	0.04	0.11	0.10	0.13	0.16	0.11	0.24	0.13
Cyanide	mg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	(2) 0.020

Notes:

U - Non-detect at associated value

- Not Analyzed

J - Estimated

NL - Not Listed

SL - Sample Lost

(1) - Lowest Standard/Guidance Value shown

(2) - Guidance Value

(3) - Calculated using a hardness of 300 ppm

(4) - Applies to dissolved form

(5) - TOC analyzer malfunction prevented analysis of this compound.

TABLE 2.10

**ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE**

Sample ID: Sample Date:	1/8/04	2/6/04	3/16/04	4/13/04	5/14/04	6/10/04	7/9/04	8/12/04	9/9/04	10/8/04	11/5/04	12/3/04	Surface Water Standard (1)
Parameter	Unit												
Volatiles													
1,1,1-Trichloroethane	µg/L	2.6U	5.2U	1.3U	5.2U	1.3U	5.2U	1.3U	5.2U	5.2U	5.2U	5.2U	5
1,1-Dichloroethane	µg/L	9.2	3.3U	11	14	4.1	11	5.9	10	5.2U	5.2U	5.2U	5
1,2-Dichloroethane	µg/L	3.4U	0.85U	3.4U	0.85U	3.4U	0.85U	0.85U	0.85U	5.2U	5.2U	5.2U	0.6
2-Butanone	µg/L	1.7U	19U	4.6U	19U	4.6U	19U	4.6U	4.6U	5.2U	5.2U	5.2U	50
Acetone	µg/L	53	42U	38	42U	12	42U	22	34	5.2U	5.2U	42U	19
Benzene	µg/L	7.8	4.4U	6.1	4.4	2.1	5.3	2.9	5.6	5.2U	5.2U	4.4U	50
Chlorobenzene	µg/L	8.8	3.0	3.6U	8.8	3.6U	8.8	3.6U	4.4	2.9	19	13	1
Ethylbenzene	µg/L	19	0.11U	17	14	6.4	18	8.7	18	6.4	6.4	0.11U	5
Methylene chloride	µg/L	7.0U	14U	3.5U	14U	3.5U	15	3.5U	3.5U	14U	14U	14U	5
Syrene	µg/L	5.2U	10U	2.6U	10U	2.6U	10U	2.6U	2.6U	14U	14U	14U	5
Tetrachloroethene	µg/L	60	5.0U	50	38	16	63	22	52	14U	14U	14U	5
Toluene	µg/L	98	4.9U	80	75	26	78	38	83	14U	14U	14U	12
trans-1,2-Dichloroethene	µg/L	3.6	6.0U	4.0	6.0U	1.8	6.0U	2.1	3.6	14U	14U	14U	5
Trichloroethene	µg/L	260	7.5	200	220	82	240	97	200	4.8	4.8U	4.8U	5
Vinyl chloride	µg/L	14	5.7U	10	8.9	4.9	11	5.6	12	5.7U	5.7U	5.7U	2
Xylyne (total)	µg/L	91	28U	81	78	29	87	42	83	28U	28U	28U	5
Semi-Volatiles													
1,2-Dichlorobenzene	µg/L	16U	16U	16U	16U	16U	16U	16U	16U	16U	16U	16U	3
1,4-Dichlorobenzene	µg/L	15U	15U	15U	15U	15U	15U	15U	15U	14U	14U	15U	3
2,4-Dimethylphenol	µg/L	15	12U	13U	12U	12U	13U	12U	12U	14	14	12U	50
2-Methylphenol	µg/L	16U	16U	15U	15U	16U	16U	15U	15U	15U	15U	16U	NL
4-Methylphenol	µg/L	48	15U	24	16	15U	16U	20	32	29	15U	16U	NL
Di-n-octyl phthalate	µg/L	27U	27U	26U	27U	27U	27U	26U	26U	26U	26U	27U	50
Naphthalene	µg/L	37	18U	17U	20	18U	18U	17U	20	18U	18U	18U	10
Phenol	µg/L	39	140	11	14	91	16	67	13	6U	55	6U	1

TABLE 2.10

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID: Sample Date:	1/8/04	2/6/04	3/16/04	4/13/04	5/14/04	6/10/04	7/09/94	8/12/04	9/10/04	10/06/04	11/05/04	12/03/04	Surface Water Standard (1)
Parameter	Unit												
Metals													
Aluminum	mg/L	0.20U	NL										
Antimony	mg/L	0.020U	0.003										
Arsenic	mg/L	0.010U	0.050										
Barium	mg/L	0.095	0.092	0.11	0.096	0.085	0.083	0.068	0.076	0.059	0.079	0.070	0.077
Beryllium	mg/L	0.0020U	0.003										
Cadmium	mg/L	0.0010U	0.005										
Chromium	mg/L	0.0040U	0.050										
Copper	mg/L	0.010U	0.023										
Iron	mg/L	0.050U	0.066	0.050U	0.055	0.26	0.050U	0.056	0.097	0.20	0.22	0.11	0.30
Lead	mg/L	0.0060U	0.0060U	0.0060U	0.0060U	0.0060U	0.0060U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.012
Magnesium	mg/L	6.68	4.2	1.2	1.0	5.4	0.66	2.8	0.57	5.4	5.2	2.7	35
Manganese	mg/L	0.0030U	0.19	0.0033	0.0058	0.018	0.0030U	0.012	0.0030U	0.022	0.031	0.022	0.30
Mercury	mg/L	0.00020U	0.0000026 (4)										
Nickel	mg/L	0.010U	0.10										
Selenium	mg/L	0.015U	0.0046 (4)										
Silver	mg/L	0.0030U	0.050										
Sodium	mg/L	362	425	425	423	349	319	305	334	447	360	294	NL
Zinc	mg/L	0.030	0.020U	(2)									

TABLE 2.10

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID: Sample Date:	1/8/04	2/6/04	3/16/04	4/13/04	5/14/04	6/10/04	7/09/04	8/12/04	9/10/04	10/08/04	11/05/04	12/03/04	Surface Water Standard (1)
Parameter	Unit												
General Chemistry													
pH	S.U.	11	9.13	11.13	11.16	9.44	11.26	8.81	11.19	9.21	7.26	9.10	10.95
Hardness	mg/L	450	452	446	484	408	430	336	312	430	372	348	360
Total Dissolved Solids (TDS)	mg/L	1490	1770	1780	1760	1920	1560	1490	1390	1560	1720	1320	1220
Total Suspended Solids (TSS)	mg/L	6	4	11	20	6	11	5	8	8	10	18	5
Chloride	mg/L	742	986	869	809	1020	792	728	678	692	913	676	599
BOD	mg/L	18	10	13	19	17	16	6	11	15	11	6	15
COD	mg/L	55	30	51	51	58	26	67	43	46	59	17	24
Oil and Grease	mg/L	1.0U	1.0U	1.0U	1.0U	0.57	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	NL
Organic Carbon	mg/L	9	9	6	5	6	6	8	7	8	9	8	NL
Alkalinity, Total (As CaCO ₃)	mg/L	56.0	23.0	71.2	110.0	12.3	122	45.7	113	37.8	44.6	46.5	55.7
Bicarbonate (as CaCO ₃)	mg/L	10UJ	23	10U	10U	12.3	47.1	10U	10U	37.8	44.6	46.5	55.7
Ammonia	mg/L	0.32	0.7	0.35	1.75	1.95	0.70	0.35	0.70	1.05	0.7	1.05	1.4
Nitrate (as N)	mg/L	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	10
TKN	mg/L	0.56	2.8	1.4	0.28	0	0.84	0.56	1.68	1.12	0.56	0.84	1.12
Sulfate	mg/L	276	315	381	568	356	360	283	279	265	311	225	250
Sulfide	mg/L	4.0	1.2	3.2	5.6	1.6	1.6	8.4J	2.4J	5.6	2.4	2	0.002
Phenol	mg/L	0.015U	0.008U	0.009U	0.012U	0.008U	0.010U	0.010U	0.010U	0.007U	0.008U	0.001	
Phosphorous	mg/L	0.20	0.11	0.24	0.23	0.13	0.05	0.20	0.06	0.14	0.10	0.14	0.020
Cyanide	mg/L	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	0.005U	(2)

Notes:

U - Non-detect at associated value

- Not Analyzed

J - Estimated

NL - Not Listed

SL - Sample Lost

(1) - Lowest Standard/Guidance Value shown

(2) - Guidance Value

(3) - Calculated using a hardness of 300 ppm

(4) - Applies to dissolved form

(5) - TOC analyzer malfunction prevented analysis of this compound.

TABLE 2.10

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRETZWICK-RIVERSIDE PARK SITE

Sample ID: Sample Date:	01/07/05	02/03/05	03/04/05	04/08/05	Surface Water Standard (1)
Parameter	Unit				
Volatiles					
1,1,1-Trichloroethane	µg/L	2.6U	2.6U	2.6U	5
1,1-Dichloroethane	µg/L	1.7U	1.7U	1.7U	5
1,2-Dichloroethane	µg/L	1.7U	1.7U	1.7U	0.6
2-Butanone	µg/L	9.3U	9.3U	9.3U	50
Acetone	µg/L	21U	21U	21U	50
Benzene	µg/L	2.2U	2.2U	2.2U	1
Chlorobenzene	µg/L	14	18	16	5
Ethylbenzene	µg/L	3.2	2.2	0.056U	5
Methylene chloride	µg/L	7.0U	7.0U	7.0U	5
Styrene	µg/L	5.2U	5.2U	5.2U	5
Tetrachloroethene	µg/L	2.5U	2.5U	3.5	0.7 (2)
Toluene	µg/L	4.0	2.4U	5.3	5
trans-1,2-Dichloroethene	µg/L	3.0U	3.0U	3.0U	5
Trichloroethene	µg/L	8.7	2.4U	12	5
Vinyl chloride	µg/L	3.6	2.8U	2.8U	0.3 (2)
Xylene (total)	µg/L	14U	14U	14U	5
Semi-Volatiles					
1,2-Dichlorobenzene	µg/L	16U	16U	16U	3
1,4-Dichlorobenzene	µg/L	15U	14U	15U	3
2,4-Dimethylphenol	µg/L	16	12U	13U	50 (2)
2-Methylphenol	µg/L	16U	15U	16U	NL
4-Methylphenol	µg/L	49	15U	16	NL
Di-n-octyl phthalate	µg/L	27U	26U	27U	50 (2)
Naphthalene	µg/L	18U	17U	33	10
Phenol	µg/L	34	6U	130	1
				120]	

TABLE 2.10
ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE

Sample ID: Sample Date:	01/07/05	02/03/05	03/04/05	04/08/05	Surface Water Standard (1)
Parameter		Unit			
Metals					
Aluminum	mg/L	0.20U	0.20U	0.20U	NL
Antimony	mg/L	0.020U	0.020U	0.020U	0.003
Arsenic	mg/L	0.010U	0.010U	0.010U	0.050
Barium	mg/L	0.068	0.069	0.085	1.0
Beryllium	mg/L	0.0020U	0.0020U	0.0020U	0.003 (2)
Cadmium	mg/L	0.0010U	0.0010U	0.0010U	0.005
Chromium	mg/L	0.0040U	0.0040U	0.0040U	0.050
Copper	mg/L	0.010U	0.010U	0.010U	0.023 (3)
Iron	mg/L	0.098	0.54	0.37	3.4
Lead	mg/L	0.0050U	0.0050U	0.0050U	0.012
Magnesium	mg/L	4.3	5.7	5.6	35
Manganese	mg/L	0.01	0.035	0.033	0.30
Mercury	mg/L	0.00020U	0.00020U	0.00020U	0.000026 (4)
Nickel	mg/L	0.010U	0.010U	0.010U	0.10
Selenium	mg/L	0.015U	0.015U	0.015U	0.0046 (4)
Silver	mg/L	0.0030U	0.0030U	0.0030U	0.050
Sodium	mg/L	387	422	448	NL (2)
Zinc	mg/L	0.020U	0.020U	0.020U	2.0

TABLE 2.10

**ANALYTICAL RESULTS SUMMARY
MONTHLY SITE DISCHARGE
GRATWICK-RIVERSIDE PARK SITE**

Sample ID:	Sample Date:	Parameter	Unit	01/07/05	02/03/05	03/04/05	04/08/05	Surface Water Standard (1)
General Chemistry								
pH		S.U.	9.71	8.94		9.27	8.18	NL
Hardness		mg/L	372	390		398	468	NL
Total Dissolved Solids (TDS)		mg/L	1520	1480		1620	2010	NL
Total Suspended Solids (TSS)		mg/L	278	147		27	82	NL
Chloride		mg/L	950	836J		1060	1200	250
BOD		mg/L	12	15		12	11	NL
COD		mg/L	52	48		52	65	NL
Oil and Grease		mg/L	0.28	1.0U		1.0U	1.0U	NL
Organic Carbon		mg/L	8	9		9	10	NL
Alkalinity, Total (As CaCO ₃)		mg/L	44	46.4		40	105	NL
Bicarbonate (as CaCO ₃)		mg/L	44	46.4		40	105	NL
Ammonia		mg/L	0.7	0.7		0.7	0.35	2.0
Nitrate (as N)		mg/L	0.050U	0.050U		0.050U	0.050U	10
TKN		mg/L	0.56	0.28		0.56	0.28	NL
Sulfate		mg/L	273	232		431	256	250
Sulfide		mg/L	8.8	4		5.2	1.0U	0.002
Phenol		mg/L	0.006U	0.012U		0.010U	0.014U	0.001
Phosphorous		mg/L	0.15	0.08		0.11	0.1	0.020 (2)
Cyanide		mg/L	0.005U	0.005U		0.005U	0.005U	0.0052

Notes:

U - Non-detect at associated value

-- Not Analyzed

J - Estimated

NL - Not Listed

SL - Sample Lost

(1) - Lowest Standard/Guidance Value shown

(2) - Guidance Value

(3) - Calculated using a hardness of 300 ppm

(4) - Applies to dissolved form

(5) - TOC analyzer malfunction prevented analysis of this compound.

TABLE 2.11

**GROUNDWATER VOLUMES DISCHARGED
TO NORTH TONAWANDA POTW
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

<i>Month</i>	<i>Volumes (gallons)</i>	
	<i>Monthly</i>	<i>Total</i>
May 2001	2,900,000	2,900,000
June 2001	2,353,800	5,253,800
July 2001	1,488,500	6,742,300
August 2001	712,800	7,455,100
September 2001	473,100	7,928,200
October 2001	1,213,100	9,141,300
November 2001	1,281,100	10,422,400
December 2001	231,700 ⁽¹⁾	10,654,100
January 2002	1,383,200 ⁽²⁾	12,037,300
February 2002	1,186,000	13,223,300
March 2002	233,600	13,456,900
April 2002	736,000	14,192,900
May 2002	348,200	14,541,100
June 2002	1,137,200	15,678,300
July 2002	869,300	16,547,600
August 2002	1,060,800	17,608,400
September 2002	707,000	18,315,400
October 2002	679,800	18,995,100
November 2002	489,500	19,484,700
December 2002	743,500	20,228,200
January 2003	1,150,700	21,378,900
February 2003	483,300	21,862,200
March 2003	402,300	22,264,500
April 2003	531,900	22,796,400
May 2003	655,600	23,452,000
June 2003	682,100	24,134,000
July 2003	942,000	25,076,100
August 2003	627,500	25,703,600
September 2003	349,600	26,053,200

TABLE 2.11

**GROUNDWATER VOLUMES DISCHARGED
TO NORTH TONAWANDA POTW
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK**

<i>Month</i>	<i>Volumes (gallons)</i>	
	<i>Monthly</i>	<i>Total</i>
October 2003	966,500	27,019,700
November 2003	442,200	27,461,900
December 2003	463,900	27,925,800
January 2004	443,900	28,369,700
February 2004	253,700	28,623,400
March 2004	403,700	29,027,100
April 2004	433,600	29,460,700
May 2004	377,400	29,838,100
June 2004	395,000	30,233,100
July 2004	384,300	30,617,400
August 2004	479,700	31,097,100
September 2004	413,900	31,511,000
October 2004	319,400	31,902,400
November 2004	249,200	32,151,600
December 2004	209,900	32,361,500
January 2005	310,100	32,671,600
February 2005	301,100	32,972,700
March 2005	250,200	33,222,900
April 2005	378,400	33,601,300

Notes:

- (1) To December 7, 2001.
- (2) From December 8, 2001.

TABLE 2.12
SURFACE WATER SAMPLING SUMMARY
OPERATION AND MAINTENANCE MANUAL
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

LOCATIONS

River South
River Middle
River North

FREQUENCY

- quarterly for 2 years following GWS startup (concurrent with groundwater sampling)
- semi-annually for Year 3 (concurrent with groundwater sampling)
- annually for Years 3 through 7 (concurrent with groundwater sampling) (review after Year 7)

PARAMETERS

Volatiles

Acetone	Methylene Chloride
Benzene	Tetrachloroethene
2-Butanone	Toluene
Chlorobenzene	Trichloroethene
1,1-Dichloroethane	Vinyl Chloride
trans-1,2-Dichloroethene	Xylenes (Total)
Ethylbenzene	

Semi-Volatiles

1,2-Dichlorobenzene	4-Methylphenol
1,4-Dichlorobenzene	Naphthalene
2,4-Dimethylphenol	Di-n-octylphthalate
2-Methylphenol	Phenol

APPENDICES

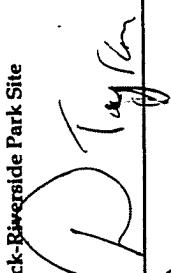
A

APPENDIX A

MONTHLY INSPECTION LOGS (NOVEMBER 2004 TO APRIL 2005)

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

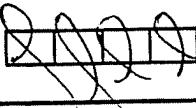
PROJECT NAME: Gratwick-Riverside Park Site



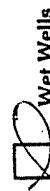
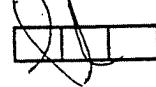
INSPECTOR(S):

*Item**Inspect For*

1. Perimeter Collection System/Off-Site Foremain

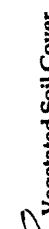



- cover on securely
- condition of cover
- condition of inside of manhole
- flow conditions

- cover on securely
- condition of cover
- condition of inside of wet well

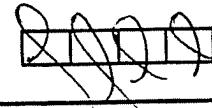
2. Landfill Cap




- erosion
- bare areas
- washouts
- leachate seeps
- length of vegetation
- dead/dying vegetation

LOCATION: Wheatfield, New York
 DATE: 11/23/04
 (MM DD YY)

*Comments**Action Required*



- cover on securely
- condition of cover
- condition of inside of manhole
- flow conditions

- cover on securely
- condition of cover
- condition of inside of wet well

- erosion
- bare areas
- washouts
- leachate seeps
- length of vegetation
- dead/dying vegetation

FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

D. T. Ybarra

INSPECTOR(S):

D. T. Ybarra

*Item**Action Required**Comments*

LOCATION:

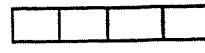
Wheatfield, New York

DATE:

1/11/4/30/01
(MM DD YY)**2. Landfill Cap (continued)**

- MWB*
- Access Roads
- bare areas, dead/dying veg.
 - erosion
 - potholes or puddles
 - obstruction

3. Wetlands (Area "F")
- dead/dying vegetation
 - change in water budget
 - general condition of wetlands

4. Other Site Systems

- Perimeter Fence
- integrity of fence
- integrity of gates
- integrity of locks
- placement and condition of signs

FORM 17

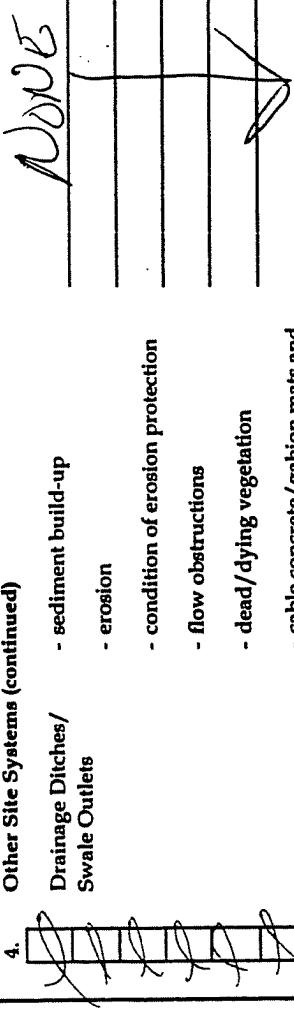
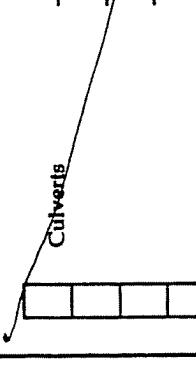
**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site



INSPECTOR(S):

LOCATION: Wheatfield, New York
 DATE: 11/23/01
 (MM DD YY)

Item	Inspect For	Action Required	Comments
4. Other Site Systems (continued)			
Drainage Ditches/ Swale Outlets	<ul style="list-style-type: none"> - sediment build-up - erosion - condition of erosion protection - flow obstructions - dead / dying vegetation - cable concrete/gabion mats and riprap 		
Curves	<ul style="list-style-type: none"> - sediment build-up - erosion - condition of erosion protection - flow obstructions 		
Gas Vents	<ul style="list-style-type: none"> - intact / damage 		
Wells	<ul style="list-style-type: none"> - locks secure 		

FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

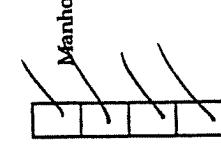
LOCATION: Wheatfield, New York

DATE: 11/23/01
(MM DD YY)INSPECTOR(S): Danielle Cera / Dave Tyson

Item

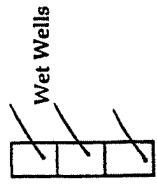
1. Perimeter Collection System/Off-Site Forcemain
Inspect For

Action Required



Manholes

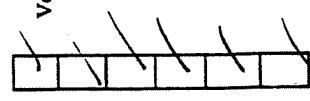
- cover on securely
- condition of cover
- condition of inside of manhole
- flow conditions



Wet Wells

- cover on securely
- condition of cover
- condition of inside of wet well

2. Landfill Cap



Vegetated Soil Cover

- erosion
- bare areas
- washouts
- leachate seeps
- length of vegetation
- dead/dying vegetation

Comments

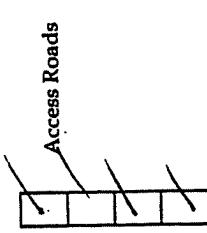
No Action✓

FORM 17

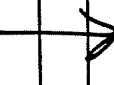
**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

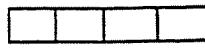
LOCATION: Wheatfield, New York

DATE: 11/23/04
(MM DD YY)INSPECTOR(S): D. Cesa/H. Tyman**Inspect For****Action Required****2. Landfill Cap (continued)**

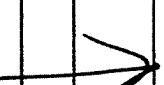
- Access Roads
- bare areas, dead/dying veg.
- erosion
- potholes or puddles
- obstruction

No Action

- 3. Wetlands (Area "F")**
- dead/dying vegetation
 - change in water budget
 - general condition of wetlands

No Change**4. Other Site Systems****Perimeter Fence**

- integrity of fence
- integrity of gates
- integrity of locks
- placement and condition of signs

N/A**FORM 17**

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11/21/94
(MM DD YY)INSPECTOR(S): D. Carr / D. Tyner**Item****Inspect For****Action Required****4. Other Site Systems (continued)**

Drainage Ditches/
Swale Outlets

- sediment build-up
- erosion
- condition of erosion protection
- flow obstructions
- dead/dying vegetation
- cable concrete/gabion mats and riprap

Culverts

- sediment build-up
- erosion
- condition of erosion protection
- flow obstructions

Gas Vents

Wells

- intact/damaged
- locks secure

No action

N/A

No action

OK

FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site



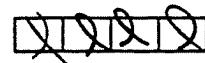
O. C. L/k

INSPECTOR(S):

LOCATION: Wheatfield, New York
DATE: 01/28/05
(MM DD YY)

Comments**Action Required**

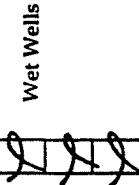
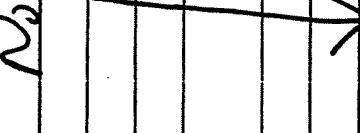
1. Perimeter Collection System/Off-Site Forcemain

Item**Inspect For****Manholes**

- cover on securely
- condition of cover
- condition of inside of manhole
- flow conditions



None

**Wet Wells**

- cover on securely
- condition of cover
- condition of inside of wet well



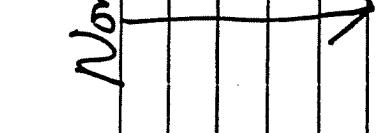
2. Landfill Cap

Vegetated Soil Cover

- erosion
- bare areas
- washouts
- leachate seeps
- length of vegetation
- dead/dying vegetation




None



FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

H. Cusick
INSPECTOR(S):

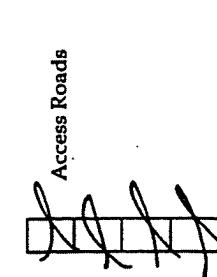
LOCATION: Wheatfield, New York

DATE: 01/28/05
(MM DD YY)

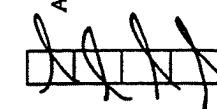
*Comments**Action Required**Inspect For*

Item

2. Landfill Cap (continued)

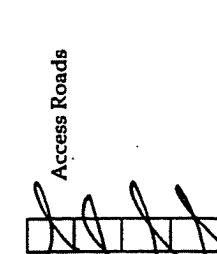


- bare areas, dead/dying veg.
- erosion
- potholes or puddles
- obstruction



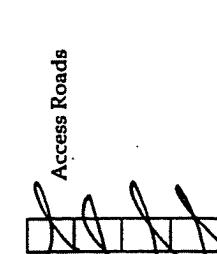
- bare areas, dead/dying veg.
- erosion
- potholes or puddles
- obstruction

- dead/dying vegetation
- change in water budget
- general condition of wetlands



- dead/dying vegetation
- change in water budget
- general condition of wetlands

- integrity of fence
- integrity of gates
- integrity of locks
- placement and condition of signs



- bare areas, dead/dying veg.
- erosion
- potholes or puddles
- obstruction

- dead/dying vegetation
- change in water budget
- general condition of wetlands

- integrity of fence
- integrity of gates
- integrity of locks
- placement and condition of signs

FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site



INSPECTOR(S):

LOCATION: Wheatfield, New York

DATE: 01/20/05
 (MM DD YY)

Item **Inspect For** **Action Required**

		<i>Comments</i>
4.	Other Site Systems (continued)	
	Drainage Ditches/ Swale Outlets	<ul style="list-style-type: none"> - sediment build-up - erosion - condition of erosion protection - flow obstructions - dead/dying vegetation - cable concrete/gabion mats and riprap
	Culverts	<ul style="list-style-type: none"> - sediment build-up - erosion - condition of erosion protection - flow obstructions
	Gas Vents	<ul style="list-style-type: none"> - intact / damage
	Wells	<ul style="list-style-type: none"> - locks secure
		<i>Note</i>

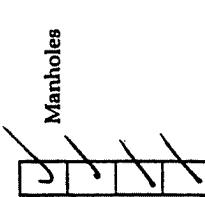
FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

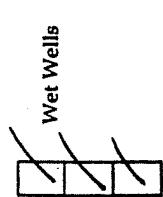
PROJECT NAME: Gratwick-Riverside Park Site

INSPECTOR(S):

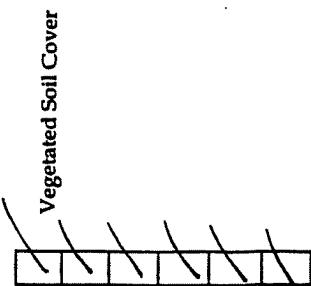
LOCATION: Wheatfield, New York

 01/24/05
 (MM DD YY)
Item**Inspect For****Action Required**
1. Perimeter Collection System/Off-Site Foremain
**Manholes**

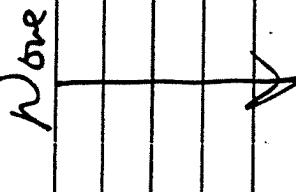
- cover on securely
- condition of cover
- condition of inside of manhole
- flow conditions

**Wet Wells**

- cover on securely
- condition of cover
- condition of inside of wet well

2. Landfill Cap
**Vegetated Soil Cover**

- erosion
- bare areas
- washouts
- leachate seeps
- length of vegetation
- dead/dying vegetation

**Landfill Cap****FORM 17**

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

D. Cernia

LOCATION: Wheatfield, New York

DATE: 01/27/05
(MM DD YY)

INSPECTOR(S):

Item

Action Required

Comments

2. Landfill Cap (continued)
- Access Roads
- bare areas, dead / dying veg.
 - erosion
 - potholes or puddles
 - obstruction
-

3. Wetlands (Area "F")
- dead/dying vegetation
 - change in water budget
 - general condition of wetlands

4. Other Site Systems
- Perimeter Fence
- integrity of fence
 - integrity of gates
 - integrity of locks
 - placement and condition of signs
-

FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

D. Lush

INSPECTOR(S):

*Inspect For**Action Required*

4. Other Site Systems (continued)

Drainage Ditches/
Swale Outlets - sediment build-up
 - erosion

- condition of erosion protection
- flow obstructions
- dead / dying vegetation
- cable concrete/gabion mats and riprap

Culverts - sediment build-up
 erosion
 - condition of erosion protection
 - flow obstructions

Gas Vents - intact / damage
 Wells - locks secure

LOCATION: Wheatfield, New York
DATE: 02/28/05
(MM DD YY)

Comments

In Good Condition

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

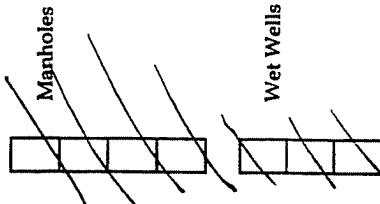
INSPECTOR(S): D. Della

LOCATION: Wheatfield, New York

DATE: 10/31/04
(MM DD YY)

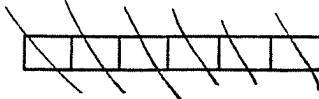
Item	Inspect For	Action Required	Comments
1. Perimeter Collection System/Off-Site Foremain			

1. Perimeter Collection System/Off-Site Foremain



- Manholes
 - cover on securely
 - condition of cover
 - condition of inside of manhole
 - flow conditions
- Wet Wells
 - cover on securely
 - condition of cover
 - condition of inside of wet well

2. Landfill Cap



- Vegetated Soil Cover
- erosion
- bare areas
- washouts
- leachate seeps
- length of vegetation
- dead/dying vegetation

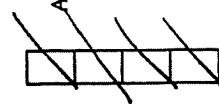
FORM 17

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

INSPECTOR(S): D. C. C.

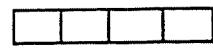
LOCATION: Wheatfield, New York

DATE: 03/31/25
(MM DD YY)**Comments****Action Required****2. Landfill Cap (continued)**

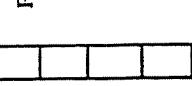
- | | |
|--------------|--|
| Access Roads | <ul style="list-style-type: none"> - bare areas, dead/dying veg. - erosion - potholes or puddles - obstruction |
|--------------|--|

None

- | | |
|------------------------|--|
| 3. Wetlands (Area "F") | <ul style="list-style-type: none"> - dead/dying vegetation - change in water budget - general condition of wetlands |
|------------------------|--|

None**4. Other Site Systems**

- | | |
|-----------------|--|
| Perimeter Fence | <ul style="list-style-type: none"> - integrity of fence - integrity of gates - integrity of locks - placement and condition of signs |
|-----------------|--|

**FORM 17**

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 03/20/05
(MM DD YY)INSPECTOR(S): D. Curr

Item

Inspect For

Action Required

Comments

4. Other Site Systems (continued)

Drainage Ditches /
Swale Outlets

- sediment build-up
- erosion
- condition of erosion protection
- flow obstructions
- dead/dying vegetation
- cable concrete/gabion mats and riprap

Culverts

- sediment build-up
- erosion
- condition of erosion protection
- flow obstructions

Gas Vents
 Wells

- intact / damage
- locks secure

FORM 17

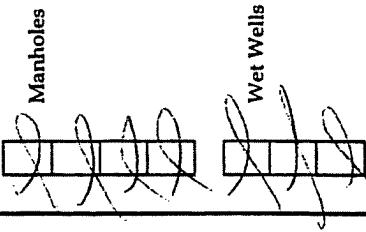
**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site
D. Culkin
 INSPECTOR(S):

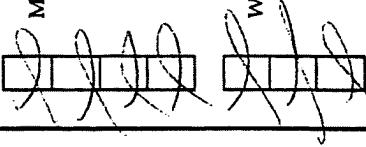
LOCATION: Wheatfield, New York
 DATE: **04/21/05**
 (MM DD YY)

Item**1. Perimeter Collection System/Off-Site Forecmain****Action Required****Comments****Suspect For**

- Manholes
- cover on securely
 - condition of cover
 - condition of inside of manhole
 - flow conditions
- Wet Wells
- cover on securely
 - condition of cover
 - condition of inside of wet well

**Vegetated Soil Cover**

- erosion
- bare areas
- washouts
- leachate seeps
- length of vegetation
- dead/ dying vegetation

**2. Landfill Cap**

- Note:**
- erosion
 - bare areas
 - washouts
 - leachate seeps
 - length of vegetation
 - dead/ dying vegetation

FORM 17

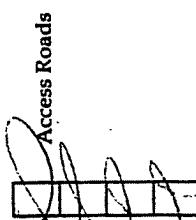
**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

INSPECTOR(S): D. Berlin

(Handwritten signature over the line)

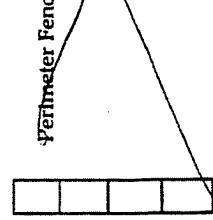
Inspect For

Item**2. Landfill Cap (continued)**

- Access Roads
- bare areas, dead/dying veg.
 - erosion
 - potholes or puddles
 - obstruction

- Done

3. Wetlands (Area "T")
- dead/dying vegetation
 - change in water budget
 - general condition of wetlands
- Done

4. Other Site Systems

- Perimeter Fence
- integrity of fence
 - integrity of gates
 - integrity of locks
 - placement and condition of signs

LOCATION:

Wheatfield, New York

DATE:

01/11/05
(MM DD YY)**Comments****Action Required****Comments**

**GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG**

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York
 DATE: 04/19/05
 (MM DD YY)

INSPECTOR(S): W. Wm.**Comments****Action Required****Inspect For****Item****Inspect For****Action Required****Comments****Other Site Systems (continued)****Inspect For****Action Required****Comments****Drainage Ditches /****Swale Outlets****Inspect For****Action Required****Comments****- sediment build-up****- erosion****- condition of erosion protection****- flow obstructions****- dead/dying vegetation****- cable concrete/gabion mats and riprap****Culverts****Inspect For****Action Required****Comments****- sediment build-up****- erosion****- condition of erosion protection****- flow obstructions****Gas Vents****Wells****Inspect For****Action Required****Comments****- intact / damage****- locks secure**

FORM 17

B

APPENDIX B

QA/QC REVIEWS

TABLE OF CONTENTS

- December 2004 Groundwater Discharge Sample
- January 2005 Groundwater Discharge Sample
- February 2005 Groundwater Discharge Sample
- March 2005 Groundwater Discharge Sample
- April 2005 Groundwater Discharge Sample
- May 2005 Annual Sampling, Groundwater and River Water



**CONESTOGA-ROVERS
& ASSOCIATES**

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MEMORANDUM

TO: Klaus Schmidtke

REF. NO.: 7987

FROM: Susan C. Scrocchi/js/61

DATE: February 8, 2005

E-Mail and Interoffice Mail

RE: **Analytical Results and QA/QC Review
Monthly Wastewater Treatment Plant Sampling
Gratwick-Riverside Park Site
December 2004**

INTRODUCTION

One effluent sample was collected in support of the Monthly Wastewater Treatment Plant Sampling at the Gratwick-Riverside Park Site (Site) during December 2004. The sample was submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

<i>Parameter</i>	<i>Methodology¹</i>
Site-Specific Volatile Organic Compounds (VOCs)	EPA 624
Site-Specific Semi-Volatile Organic Compounds (SVOCs)	EPA 625
Target Compound List (TCL) Metals	EPA 200.7
Sulfate	EPA 300.0
Chloride	EPA 300.0
Alkalinity	EPA 310.2
Nitrate	EPA 353.2
Sulfide	EPA 376.1
Total Dissolved Solids (TDS)	EPA 160.1
Total Hardness	EPA 130.2

The analytical results are summarized in Table 1. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "USEPA Contract Laboratory National Functional Guidelines for Organic Data Review" (October 1999), and the "National Functional Guidelines for Inorganic Data Review" (February 1994).

Data assessment was based on information obtained from final data sheets, blank data, duplicate results, surrogate recoveries, and spike recoveries.

¹ "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79-220, March 1983.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times.

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for VOCs and SVOCs. All VOC and SVOC surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Method blanks were extracted and/or analyzed for all parameters and all results were non-detect for the compounds of interest, indicating that no analytes were introduced to the sample during analysis.

Blank spikes (BS) were prepared and analyzed for all parameters. All recoveries were acceptable indicating good analytical accuracy.

A matrix spike (MS) was prepared and analyzed for sulfate and hardness. The recoveries were acceptable, indicating good analytical accuracy. A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for SVOCs and metals. All results were acceptable indicating good analytical accuracy and precision.

CONCLUSION

Based on the preceding assessment, the data were acceptable without qualification.

TABLE 1

Page 1 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
DECEMBER 2004**

<i>Sample Location:</i>	<i>Effluent</i>	
<i>Sample ID:</i>	GRATWICK RIVERSIDE	
<i>Sample Date:</i>	12/3/2004	
<i>Parameter</i>	<i>Units</i>	
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	1.3 U
1,1-Dichloroethane	µg/L	6.5
1,2-Dichloroethane	µg/L	0.85 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	4.6 U
Acetone	µg/L	19
Benzene	µg/L	3.3
Chlorobenzene	µg/L	4.5
Ethylbenzene	µg/L	12
Methylene chloride	µg/L	3.5 U
Styrene	µg/L	2.6 U
Tetrachloroethene	µg/L	31
Toluene	µg/L	46
trans-1,2-Dichloroethene	µg/L	1.5 U
Trichloroethene	µg/L	130
Vinyl chloride	µg/L	6.7
Xylene (total)	µg/L	54
Semi-Volatile Organic Compounds		
1,2-Dichlorobenzene	µg/L	16 U
1,4-Dichlorobenzene	µg/L	15 U
2,4-Dimethylphenol	µg/L	13 U
2-Methylphenol	µg/L	16 U
4-Methylphenol	µg/L	16 U
Di-n-octyl phthalate	µg/L	27 U
Naphthalene	µg/L	18 U
Phenol	µg/L	11
Metals		
Aluminum	mg/L	0.20 U
Antimony	mg/L	0.020 U
Arsenic	mg/L	0.010 U
Barium	mg/L	0.077
Beryllium	mg/L	0.0020 U
Cadmium	mg/L	0.0010 U
Chromium Total	mg/L	0.0040 U
Copper	mg/L	0.010 U
Iron	mg/L	0.050 U
Lead	mg/L	0.0050 U
Magnesium	mg/L	2.7
Manganese	mg/L	0.0067
Mercury	mg/L	0.00020 U
Nickel	mg/L	0.010 U
Selenium	mg/L	0.015 U
Silver	mg/L	0.0030 U
Sodium	mg/L	294
Zinc	mg/L	0.020 U

TABLE 1

Page 2 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
DECEMBER 2004**

<i>Sample Location:</i>	<i>Effluent</i>
<i>Sample ID:</i>	GRATWICK RIVERSIDE
<i>Sample Date:</i>	12/3/2004
<i>Parameter</i>	<i>Units</i>
<i>General Chemistry</i>	
Alkalinity, Total (As CaCO ₃)	mg/L
Ammonia	mg/L
Bicarbonate (as CaCO ₃)	mg/L
Biochemical Oxygen Demand (BOD)	mg/L
Chemical Oxygen Demand (COD)	mg/L
Chloride	mg/L
Cyanide (total)	mg/L
Hardness	mg/L
Nitrate (as N)	mg/L
Oil and Grease	mg/L
pH (water)	s.u.
Phenolics (Total)	mg/L
Phosphorus	mg/L
Sulfate	mg/L
Sulfide	mg/L
Total Dissolved Solids (TDS)	mg/L
Total Kjeldahl Nitrogen (TKN)	mg/L
Total Organic Carbon (TOC)	mg/L
Total Suspended Solids (TSS)	mg/L
Volatile Suspended Solids	mg/L

Note:

U Non-detect at associated value.



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Niagara Falls, New York 14304
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www.CRAworld.com

MEMORANDUM

TO: Klaus Schmidtke

REF. NO.: 7987

FROM: Susan C. Scrocchi/js/62 *SG* | *J*

DATE: March 1, 2005

E-Mail and Interoffice Mail

RE: **Analytical Results and QA/QC Review
Monthly Wastewater Treatment Plant Sampling
Gratwick-Riverside Park Site
January 2005**

**PREVIOUSLY TRANSMITTED
BY E-MAIL**

INTRODUCTION

One effluent sample was collected in support of the Monthly Wastewater Treatment Plant Sampling at the Gratwick-Riverside Park Site (Site) during January 2005. The sample was submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

<i>Parameter</i>	<i>Methodology</i> ¹
Site-Specific Volatile Organic Compounds (VOCs)	EPA 624
Site-Specific Semi-Volatile Organic Compounds (SVOCs)	EPA 625
Target Compound List (TCL) Metals	EPA 200.7
Sulfate	EPA 300.0
Chloride	EPA 300.0
Alkalinity	EPA 310.2
Nitrate	EPA 353.2
Sulfide	EPA 376.1
Total Dissolved Solids (TDS)	EPA 160.1
Total Hardness	EPA 130.2

The analytical results are summarized in Table 1. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "USEPA Contract Laboratory National Functional Guidelines for Organic Data Review" (October 1999), and the "National Functional Guidelines for Inorganic Data Review" (February 1994).

Data assessment was based on information obtained from final data sheets, blank data, duplicate results, surrogate recoveries, and spike recoveries.

¹ "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79-220, March 1983.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times.

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for VOCs and SVOCs. All VOC and SVOC surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Method blanks were extracted and/or analyzed for all parameters and all results were non-detect for the compounds of interest, indicating that no analytes were introduced to the sample during analysis.

Blank spikes (BS) were prepared and analyzed for all parameters. All recoveries were acceptable indicating good analytical accuracy.

A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for VOCs and metals. All results were acceptable indicating good analytical accuracy and precision.

CONCLUSION

Based on the preceding assessment, the data were acceptable without qualification.

TABLE 1

Page 1 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK RIVERSIDE PARK SITE
JANUARY 2005**

Sample Location: *Effluent*
Sample ID: **GRATWICK RIVERSIDE**
Sample Date: **1/7/2005**

<i>Parameter</i>	<i>Units</i>	
<i>Volatile Organic Compounds</i>		
1,1,1-Trichloroethane	µg/L	2.6 U
1,1-Dichloroethane	µg/L	1.7 U
1,2-Dichloroethane	µg/L	1.7 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	9.3 U
Acetone	µg/L	21 U
Benzene	µg/L	2.2 U
Chlorobenzene	µg/L	14
Ethylbenzene	µg/L	3.2
Methylene chloride	µg/L	7.0 U
Styrene	µg/L	5.2 U
Tetrachloroethene	µg/L	2.5 U
Toluene	µg/L	4.0
trans-1,2-Dichloroethene	µg/L	3.0 U
Trichloroethene	µg/L	8.7
Vinyl chloride	µg/L	3.6
Xylene (total)	µg/L	14 U
<i>Semi-Volatile Organic Compounds</i>		
1,2-Dichlorobenzene	µg/L	16 U
1,4-Dichlorobenzene	µg/L	15 U
2,4-Dimethylphenol	µg/L	16
2-Methylphenol	µg/L	16 U
4-Methylphenol	µg/L	49
Di-n-octyl phthalate	µg/L	27 U
Naphthalene	µg/L	18 U
Phenol	µg/L	34
<i>Metals</i>		
Aluminum	mg/L	0.20 U
Antimony	mg/L	0.020 U
Arsenic	mg/L	0.010 U
Barium	mg/L	0.068
Beryllium	mg/L	0.0020 U
Cadmium	mg/L	0.0010 U
Chromium Total	mg/L	0.0040 U
Copper	mg/L	0.010 U
Iron	mg/L	0.098
Lead	mg/L	0.0050 U
Magnesium	mg/L	4.3
Manganese	mg/L	0.010
Mercury	mg/L	0.00020 U
Nickel	mg/L	0.010 U
Selenium	mg/L	0.015 U
Silver	mg/L	0.0030 U
Sodium	mg/L	387
Zinc	mg/L	0.020 U

TABLE 1

Page 2 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK RIVERSIDE PARK SITE
JANUARY 2005**

<i>Sample Location:</i>	<i>Effluent</i>
<i>Sample ID:</i>	GRATWICK RIVERSIDE
<i>Sample Date:</i>	1/7/2005

<i>Parameter</i>	<i>Units</i>
------------------	--------------

General Chemistry

Alkalinity, Total (As CaCO ₃)	mg/L	44.0
Ammonia	mg/L	0.70
Bicarbonate (as CaCO ₃)	mg/L	44.0
Biochemical Oxygen Demand (BOD)	mg/L	12
Chemical Oxygen Demand (COD)	mg/L	52
Chloride	mg/L	950
Cyanide (total)	mg/L	0.005 U
Hardness	mg/L	372
Nitrate (as N)	mg/L	0.050 U
Oil and Grease	mg/L	0.28
pH (water)	s.u.	9.71
Phenolics (Total)	mg/L	0.006 U
Phosphorus	mg/L	0.15
Sulfate	mg/L	273
Sulfide	mg/L	8.8
Total Dissolved Solids (TDS)	mg/L	1520
Total Kjeldahl Nitrogen (TKN)	mg/L	0.56
Total Organic Carbon (TOC)	mg/L	8
Total Suspended Solids (TSS)	mg/L	278
Volatile Suspended Solids	mg/L	43

Note:

U Non-detect at associated value.



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MEMORANDUM

TO: Klaus Schmidtke
FROM: Susan C. Scrocchi/js/63 *SCS/J*

REF. NO.: 7987
DATE: April 4, 2005
E-Mail and Interoffice Mail

RE: Analytical Results and QA/QC Review
Monthly Wastewater Treatment Plant Sampling
Gratwick-Riverside Park Site
February 2005

PREVIOUSLY TRANSMITTED
BY E-MAIL

INTRODUCTION

One effluent sample was collected in support of the Monthly Wastewater Treatment Plant Sampling at the Gratwick-Riverside Park Site (Site) during February 2005. The sample was submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

<i>Parameter</i>	<i>Methodology</i> ¹
Site-Specific Volatile Organic Compounds (VOCs)	EPA 624
Site-Specific Semi-Volatile Organic Compounds (SVOCs)	EPA 625
Target Compound List (TCL) Metals	EPA 200.7
Sulfate	EPA 300.0
Chloride	EPA 300.0
Alkalinity	EPA 310.2
Nitrate	EPA 353.2
Sulfide	EPA 376.1
Total Dissolved Solids (TDS)	EPA 160.1
Total Hardness	EPA 130.2

The analytical results are summarized in Table 1. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "USEPA Contract Laboratory National Functional Guidelines for Organic Data Review" (October 1999), and the "National Functional Guidelines for Inorganic Data Review" (February 1994).

Data assessment was based on information obtained from final data sheets, blank data, duplicate results, surrogate recoveries, and spike recoveries.

¹ "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79-220, March 1983.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times.

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for VOCs and SVOCs. All VOC and SVOC surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Method blanks were extracted and/or analyzed for all parameters and all results were non-detect for the compounds of interest, indicating that no analytes were introduced to the sample during analysis.

Blank spikes (BS) were prepared and analyzed for all parameters. All recoveries were acceptable indicating good analytical accuracy.

A matrix spike (MS) was prepared and analyzed for chloride. The recovery was high and the sample result was qualified as estimated. A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for metals. All results were acceptable indicating good analytical accuracy and precision.

CONCLUSION

Based on the preceding assessment, the data were acceptable with the qualification noted.

TABLE 1

Page 1 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
FEBRUARY 2005**

<i>Sample Location:</i>	<i>Effluent</i>	
<i>Sample ID:</i>	GRATWICK RIVERSIDE	
<i>Sample Date:</i>	2/3/2005	
Parameters		Units
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	2.6 U
1,1-Dichloroethane	µg/L	1.7 U
1,2-Dichloroethane	µg/L	1.7 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	9.3 U
Acetone	µg/L	21 U
Benzene	µg/L	2.2 U
Chlorobenzene	µg/L	18
Ethylbenzene	µg/L	2.2
Methylene chloride	µg/L	7.0 U
Styrene	µg/L	5.2 U
Tetrachloroethene	µg/L	2.5 U
Toluene	µg/L	2.4 U
trans-1,2-Dichloroethene	µg/L	3.0 U
Trichloroethene	µg/L	2.4 U
Vinyl chloride	µg/L	2.8 U
Xylene (total)	µg/L	14 U
Semi-Volatile Organic Compounds		
1,2-Dichlorobenzene	µg/L	16 U
1,4-Dichlorobenzene	µg/L	14 U
2,4-Dimethylphenol	µg/L	12 U
2-Methylphenol	µg/L	15 U
4-Methylphenol	µg/L	15 U
Di-n-octyl phthalate	µg/L	26 U
Naphthalene	µg/L	17 U
Phenol	µg/L	6 U
Metals		
Aluminum	mg/L	0.20 U
Antimony	mg/L	0.020 U
Arsenic	mg/L	0.010 U
Barium	mg/L	0.069
Beryllium	mg/L	0.0020 U
Cadmium	mg/L	0.0010 U
Chromium Total	mg/L	0.0040 U
Copper	mg/L	0.010 U
Iron	mg/L	0.54
Lead	mg/L	0.0050 U
Magnesium	mg/L	5.7
Manganese	mg/L	0.035
Mercury	mg/L	0.00020 U
Nickel	mg/L	0.010 U
Selenium	mg/L	0.015 U
Silver	mg/L	0.0030 U
Sodium	mg/L	422
Zinc	mg/L	0.020 U

TABLE 1

Page 2 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
FEBRUARY 2005**

<i>Sample Location:</i>	<i>Effluent</i>
<i>Sample ID:</i>	GRATWICK RIVERSIDE
<i>Sample Date:</i>	2/3/2005
<i>Parameters</i>	<i>Units</i>
<i>General Chemistry</i>	
Alkalinity, Total (As CaCO ₃)	mg/L
Ammonia	mg/L
Bicarbonate (as CaCO ₃)	mg/L
Biochemical Oxygen Demand (BOD)	mg/L
Chemical Oxygen Demand (COD)	mg/L
Chloride	mg/L
Cyanide (total)	mg/L
Hardness	mg/L
Nitrate (as N)	mg/L
Oil and Grease	mg/L
pH (water)	s.u.
Phenolics (Total)	mg/L
Phosphorus	mg/L
Sulfate	mg/L
Sulfide	mg/L
Total Dissolved Solids (TDS)	mg/L
Total Kjeldahl Nitrogen (TKN)	mg/L
Total Organic Carbon (TOC)	mg/L
Total Suspended Solids (TSS)	mg/L
Volatile Suspended Solids	mg/L

Notes:

J Estimated.

U Non-detect at associated value.



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MEMORANDUM

TO: Klaus Schmidtke

REF. NO.: 7987

FROM: Susan C. Scrocchi/js/64 *SCS/J*

DATE: May 6, 2005

E-Mail and Interoffice Mail

RE: **Analytical Results and QA/QC Review
Monthly Wastewater Treatment Plant Sampling
March 2005**

**PREVIOUSLY TRANSMITTED
BY E-MAIL**

INTRODUCTION

One effluent sample was collected in support of the Monthly Wastewater Treatment Plant Sampling at the Gratwick-Riverside Park Site (Site) during March 2005. The sample was submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

<i>Parameter</i>	<i>Methodology</i> ¹
Site-Specific Volatile Organic Compounds (VOCs)	EPA 624
Site-Specific Semi-Volatile Organic Compounds (SVOCs)	EPA 625
Target Compound List (TCL) Metals	EPA 200.7
Sulfate	EPA 300.0
Chloride	EPA 300.0
Alkalinity	EPA 310.2
Nitrate	EPA 353.2
Sulfide	EPA 376.1
Total Dissolved Solids (TDS)	EPA 160.1
Total Hardness	EPA 130.2

The analytical results are summarized in Table 1. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "USEPA Contract Laboratory National Functional Guidelines for Organic Data Review" (October 1999), and the "National Functional Guidelines for Inorganic Data Review" (February 1994).

Data assessment was based on information obtained from final data sheets, blank data, duplicate results, surrogate recoveries, and spike recoveries.

¹ "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79-220, March 1983.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times.

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for VOCs and SVOCs. All VOC and SVOC surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Method blanks were extracted and/or analyzed for all parameters and all results were non-detect for the compounds of interest with the exception of manganese present at 0.003 mg/L. The sample results were significantly greater than the blank and would not have been impacted.

Blank spikes (BS) were prepared and analyzed for all parameters. All recoveries were acceptable indicating good analytical accuracy.

A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for SVOCs. All results were acceptable indicating good analytical accuracy and precision.

CONCLUSION

Based on the preceding assessment, the data were acceptable without qualification.

TABLE 1

Page 1 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK
MARCH 2005**

Sample Location: *Effluent*
Sample ID: **GRATWICK RIVERSIDE**
Sample Date: **3/4/2005**

Parameters **Units**

Volatile Organic Compounds

1,1,1-Trichloroethane	µg/L	2.6 U
1,1-Dichloroethane	µg/L	1.7 U
1,2-Dichloroethane	µg/L	1.7 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	9.3 U
Acetone	µg/L	21 U
Benzene	µg/L	2.2 U
Chlorobenzene	µg/L	16
Ethylbenzene	µg/L	0.056 U
Methylene chloride	µg/L	7.0 U
Styrene	µg/L	5.2 U
Tetrachloroethene	µg/L	3.5
Toluene	µg/L	5.3
trans-1,2-Dichloroethene	µg/L	3.0 U
Trichloroethene	µg/L	12
Vinyl chloride	µg/L	2.8 U
Xylene (total)	µg/L	14 U

Semi-Volatile Organic Compounds

1,2-Dichlorobenzene	µg/L	16 U
1,4-Dichlorobenzene	µg/L	15 U
2,4-Dimethylphenol	µg/L	13 U
2-Methylphenol	µg/L	16 U
4-Methylphenol	µg/L	16
Di-n-octyl phthalate	µg/L	27 U
Naphthalene	µg/L	33
Phenol	µg/L	130

Metals

Aluminum	mg/L	0.20 U
Antimony	mg/L	0.020 U
Arsenic	mg/L	0.010 U
Barium	mg/L	0.085
Beryllium	mg/L	0.0020 U
Cadmium	mg/L	0.0010 U
Chromium Total	mg/L	0.0040 U
Copper	mg/L	0.010 U
Iron	mg/L	0.37
Lead	mg/L	0.0050 U
Magnesium	mg/L	5.6
Manganese	mg/L	0.033

TABLE 1

Page 2 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK
MARCH 2005**

<i>Sample Location:</i>	<i>Effluent</i>
<i>Sample ID:</i>	GRATWICK RIVERSIDE
<i>Sample Date:</i>	3/4/2005

<i>Parameters</i>	<i>Units</i>
-------------------	--------------

Metals (Cont'd.)

Mercury	mg/L	0.00020 U
Nickel	mg/L	0.010 U
Selenium	mg/L	0.015 U
Silver	mg/L	0.0030 U
Sodium	mg/L	448
Zinc	mg/L	0.020 U

General Chemistry

Alkalinity, Total (As CaCO ₃)	mg/L	40.0
Ammonia	mg/L	0.70
Bicarbonate (as CaCO ₃)	mg/L	40.0
Biochemical Oxygen Demand (BOD)	mg/L	12
Chemical Oxygen Demand (COD)	mg/L	52
Chloride	mg/L	1060
Cyanide (total)	mg/L	0.005 U
Hardness	mg/L	398
Nitrate (as N)	mg/L	0.050 U
Oil and Grease	mg/L	1.0 U
pH (water)	s.u.	9.27
Phenolics (Total)	mg/L	0.010 U
Phosphorus	mg/L	0.11
Sulfate	mg/L	431
Sulfide	mg/L	5.2
Total Dissolved Solids (TDS)	mg/L	1620
Total Kjeldahl Nitrogen (TKN)	mg/L	0.56
Total Organic Carbon (TOC)	mg/L	9
Total Suspended Solids (TSS)	mg/L	27

Note:

U Non-detect at associated value.



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MEMORANDUM

TO: Klaus Schmidtke
FROM: Susan C. Scrocchi/js/65 SC5/JP

REF. NO.: 7987
DATE: June 1, 2005
E-Mail and Interoffice Mail

RE: Analytical Results and QA/QC Review
Monthly Wastewater Treatment Plant Sampling
April 2005

PREVIOUSLY TRANSMITTED
BY E-MAIL

INTRODUCTION

One effluent sample was collected in support of the Monthly Wastewater Treatment Plant Sampling at the Gratwick-Riverside Park Site (Site) during April 2005. The sample was submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

<i>Parameter</i>	<i>Methodology</i> ¹
Site-Specific Volatile Organic Compounds (VOCs)	EPA 624
Site-Specific Semi-Volatile Organic Compounds (SVOCs)	EPA 625
Target Compound List (TCL) Metals	EPA 200.7
Sulfate	EPA 300.0
Chloride	EPA 300.0
Alkalinity	EPA 310.2
Nitrate	EPA 353.2
Sulfide	EPA 376.1
Total Dissolved Solids (TDS)	EPA 160.1
Total Hardness	EPA 130.2

The analytical results are summarized in Table 1. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods, the "USEPA Contract Laboratory National Functional Guidelines for Organic Data Review" (October 1999), and the "National Functional Guidelines for Inorganic Data Review" (February 1994).

Data assessment was based on information obtained from final data sheets, blank data, duplicate results, surrogate recoveries, and spike recoveries.

¹ "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79-220, March 1983.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times.

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for VOCs and SVOCs. All VOC and SVOC surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Method blanks were extracted and/or analyzed for all parameters and all results were non-detect for the compounds of interest indicating that no compounds were introduced to the samples during preparation and/or analysis.

Blank spikes (BS) were prepared and analyzed for all parameters. All recoveries were acceptable indicating good analytical accuracy.

A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for SVOCs. All results were acceptable indicating good analytical accuracy and precision with the exception of high phenol recoveries. The sample results for phenol were qualified as estimated.

CONCLUSION

Based on the preceding assessment, the data were acceptable with the qualifications noted.

TABLE 1
ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK
APRIL 2005

	<i>Sample Location:</i>	<i>Effluent</i>
	<i>Sample ID:</i>	GRATWICK RIVERSIDE
	<i>Sample Date:</i>	4/8/2005
Parameters		Units
Volatile Organic Compounds		
1,1,1-Trichloroethane	µg/L	2.6 U
1,1-Dichloroethane	µg/L	1.7 U
1,2-Dichloroethane	µg/L	1.7 U
2-Butanone (Methyl Ethyl Ketone)	µg/L	9.3 U
Acetone	µg/L	21 U
Benzene	µg/L	2.2 U
Chlorobenzene	µg/L	6.4
Ethylbenzene	µg/L	0.056 U
Methylene chloride	µg/L	7.0 U
Styrene	µg/L	5.2 U
Tetrachloroethene	µg/L	2.5 U
Toluene	µg/L	3.1
trans-1,2-Dichloroethene	µg/L	3.0 U
Trichloroethene	µg/L	8.5
Vinyl chloride	µg/L	2.8 U
Xylene (total)	µg/L	14 U
Semi-Volatile Organic Compounds		
1,2-Dichlorobenzene	µg/L	16 U
1,4-Dichlorobenzene	µg/L	15 U
2,4-Dimethylphenol	µg/L	13 U
2-Methylphenol	µg/L	16 U
4-Methylphenol	µg/L	16 U
Di-n-octyl phthalate	µg/L	27 U
Naphthalene	µg/L	18 U
Phenol	µg/L	120 J
Metals		
Aluminum	mg/L	0.20 U
Antimony	mg/L	0.020 U
Arsenic	mg/L	0.010 U
Barium	mg/L	0.15
Beryllium	mg/L	0.0020 U
Cadmium	mg/L	0.0010 U
Chromium Total	mg/L	0.0040 U
Copper	mg/L	0.010 U
Iron	mg/L	3.4
Lead	mg/L	0.0050 U
Magnesium	mg/L	14.2
Manganese	mg/L	0.34
Mercury	mg/L	0.00020 U
Nickel	mg/L	0.010 U
Selenium	mg/L	0.015 U

TABLE 1

Page 2 of 2

**ANALYTICAL RESULTS SUMMARY
MONTHLY WASTER WATER SAMPLING
GRATWICK
APRIL 2005**

<i>Sample Location:</i>	<i>Effluent</i>	
<i>Sample ID:</i>	GRATWICK RIVERSIDE	
<i>Sample Date:</i>	4/8/2005	
<i>Parameters</i>		<i>Units</i>
Metals (Cont'd.)		
Silver	mg/L	0.0030 U
Sodium	mg/L	504
Zinc	mg/L	0.020 U
General Chemistry		
Alkalinity, Total (As CaCO ₃)	mg/L	105
Ammonia	mg/L	0.35
Bicarbonate (as CaCO ₃)	mg/L	105
Biochemical Oxygen Demand (BOD)	mg/L	11
Chemical Oxygen Demand (COD)	mg/L	65
Chloride	mg/L	1200
Cyanide (total)	mg/L	0.005 U
Hardness	mg/L	468
Nitrate (as N)	mg/L	0.050 U
Oil and Grease	mg/L	1.0 U
pH (water)	s.u.	8.18
Phenolics (Total)	mg/L	0.014 U
Phosphorus	mg/L	0.10
Sulfate	mg/L	256
Sulfide	mg/L	1.0 U
Total Dissolved Solids (TDS)	mg/L	2010
Total Kjeldahl Nitrogen (TKN)	mg/L	0.28
Total Organic Carbon (TOC)	mg/L	10
Total Suspended Solids (TSS)	mg/L	82

Notes:

J Estimated.

U Non-detect at associated value.



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MEMORANDUM

TO: Klaus Schmidtke

REF. NO.: 7987

FROM: Susan C. Scrocchi/js/67

DATE: July 5, 2005

E-Mail and Interoffice Mail

RE: Analytical Results and QA/QC Review
Annual Groundwater Sampling
Gratwick-Riverside Park Site
May 2005

INTRODUCTION

Sixteen (16) samples, including one field duplicate, were collected in support of the Annual Groundwater Sampling at the Gratwick-Riverside Park Site (Site) during May 2005. Samples were submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

<i>Parameter</i>	<i>Methodology</i>
Site-Specific Volatile Organic Compounds (VOCs)	SW-846 8260 ¹
Site-Specific Semi-Volatile Organic Compounds (SVOCs)	SW-846 8270 ¹

The sample collection and analysis summary is presented in Table 1. The analytical results are summarized in Table 2. The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods and the "National Functional Guidelines for Organic Data Review" (October 1999).

Data assessment was based on information obtained from final data sheets, blank data, duplicate results, surrogate recoveries, and spike recoveries.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times. All samples were received in good condition and properly preserved.

¹ "Test Methods for Solid Waste Physical/Chemical Methods", SW-846, 3rd Edition, September 1986 (with all subsequent revisions).

Surrogates were added to all samples, blanks, and QC samples prior to extraction and/or analysis for VOCs and SVOCs. All VOC and SVOC surrogate recoveries met the method criteria indicating acceptable analytical efficiency.

Method blanks were extracted and/or analyzed for all parameters. The results were non-detect for the compounds of interest indicating acceptable analytical procedures.

A trip blank was submitted with the samples for VOC analysis. All VOC results were non-detect for the compounds of interest.

Blank spikes (BS) were prepared and analyzed for all parameters. All recoveries showed acceptable analytical accuracy.

A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for VOCs and SVOCs. All recoveries were acceptable indicating adequate analytical accuracy and precision with the exception of low trichloroethene recoveries. The sample results were qualified as estimated (see Table 3).

A field duplicate was submitted "blind" to the laboratory for analysis as specified in Table 1. All the results showed good precision outside of the estimated regions of detection, indicating acceptable analytical and sampling precision.

CONCLUSION

Based on the preceding assessment, the data were acceptable with the qualifications noted.

TABLE 1
SAMPLE COLLECTION AND ANALYSIS SUMMARY
ANNUAL GROUNDWATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK
MAY 2005

Sample I.D.	Location I.D.	Collection Date (mm/dd/yy)	Collection Time (hr:min)	Analysis/Parameters	
				SSPL VOCs	SSPL SVOCs
WG-7987-052705-001	MW-7	05/27/05	9:15	X	X
WG-7987-052705-002	River Middle	05/27/05	9:30	X	X
WG-7987-052705-003	OGC-7	05/27/05	10:00	X	X
WG-7987-052705-004	OGC-3	05/27/05	10:45	X	X
WG-7987-052705-005	OGC-3	05/27/05	10:50	X	X
WG-7987-052705-006	MW-8	05/27/05	11:05	X	X
WG-7987-052705-007	River South	05/27/05	11:10	X	X
WG-7987-052705-008	OGC-8	05/27/05	12:25	X	X
WG-7987-052705-009	OGC-2	05/27/05	12:40	X	X
WG-7987-052705-010	OGC-5	05/27/05	12:45	X	X
WG-7987-052705-011	MW-6	05/27/05	12:50	X	X
WG-7987-052705-012	OGC-4	05/27/05	13:00	X	X
WG-7987-052705-013	MW-9	05/27/05	13:10	X	X
WG-7987-052705-014	OGC-6	05/27/05	14:20	X	X
WG-7987-052705-015	OGC-1	05/27/05	15:15	X	X
WG-7987-052705-016	River North	05/27/05	15:00	X	X
TB-7987-052705-DMC	Trip Blank	05/27/05	-	-	-

Notes:

- MS Matrix Spike.
- MSD Matrix Spike Duplicate.
- SSPL Site-Specific Parameter List.
- SVOCs Semi-Volatile Organic Compounds.
- VOCs Volatile Organic Compounds.

TABLE 2

ANNUAL GROUNDWATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK
MAY 2005

Sample Location:	Middle River	MW6	MW7	MW8	MW9	NORTH RIVER	OGC1	OGC2
Sample ID:	WG-7987-052705-002	WG-7987-052705-011	WG-7987-052705-006	WG-7987-052705-013	WG-7987-052705-016	WG-7987-052705-015	WG-7987-052705-009	
Sample Date:	5/27/2005	5/27/2005	5/27/2005	5/27/2005	5/27/2005	5/27/2005	5/27/2005	
Parameters:	5/27/2005							
	Units							
<i>Volatile Organic Compounds</i>								
2-Butanone (Methyl Ethyl Ketone)	µg/L	5.0 U	11 U	5.0 U	5.7 U	11 U	5.0 U	5.0 U
Acetone	µg/L	5.0 U	13	4.3 J	26	17	3.6 J	11 U
Benzene	µg/L	0.70 U	1.1 U	0.36 J	4.2	1.1 U	0.70 U	3.1 J
Chlorobenzene	µg/L	1.0 U	1.0 U	1.0 U	2.4	1.7	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.3 U	0.32 J	7.4	1.3 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	2.1	1.0 U	1.7	1.6	1.0 U	1.8
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	62	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.4 U	0.93 J	30	2.6	2.2	1.4 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.3 U	0.36 J	4.6	1.3 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.5	1.0 U	180	3.0	1.0 U	1.2
Vinyl chloride	µg/L	1.0 U	2.4 U	0.80 J	5.8	3.6	1.0 U	2.4 U
Xylene (total)	µg/L	3.0 U	3.0 U	3.0 U	32	3.0 U	3.0 U	3.0 U
					37	3.0 U		
<i>Semi-Volatile Organic Compounds</i>								
1,2-Dichlorobenzene	µg/L	19 U	10 U	9 U	19 U	9 U	10 U	9 U
1,4-Dichlorobenzene	µg/L	19 U	10 U	9 U	19 U	2 J	9 U	9 U
2,4-Dimethylphenol	µg/L	19 U	10 U	9 U	4 J	50	9 U	9 U
2-Methylphenol	µg/L	19 U	10 U	9 U	7 J	8 J	10 U	9 U
4-Methylphenol	µg/L	19 U	10 U	9 U	18 J	260	9 U	9 U
Di-n-octyl phthalate	µg/L	19 U	10 U	9 U	19 U	9 U	10 U	9 U
Naphthalene	µg/L	19 U	5 J	9 U	19 U	9 U	10 U	9 U
Phenol	µg/L	19 U	10 U	1 J	11 J	27	9 U	9 U

Notes:
 J Estimated.
 U Non-detect at associated value.

TABLE 2

**ANNUAL GROUNDWATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK
MAY 2005**

Sample Location:	OGC3	OGC4	OGC5	OGC6	OGC7	OGC8	South River
Sample ID:	WG-7987-052705-004	WG-7987-052705-005	WG-7987-052705-010	WG-7987-052705-014	WG-7987-052705-003	WG-7987-052705-008	WG-7987-052705-007
Sample Date:	5/27/2005	5/27/2005	5/27/2005	5/27/2005	5/27/2005	5/27/2005	5/27/2005
Parameters:	Duplicate						
	Units						
<i>Volatile Organic Compounds</i>							
2-Butanone (Methyl Ethyl Ketone)	µg/L	5.7 U	5.7 U	11 U	11 U	5.0 U	3.9 J
Acetone	µg/L	10	84	9.2 U	9.2 U	5.0 U	3.2 J
Benzene	µg/L	1.2	1.1	1.1 U	1.1 U	5.2	0.70 U
Chlorobenzene	µg/L	1.0 U					
Ethylbenzene	µg/L	1.4	1.3	1.3 U	1.3 U	7.4	1.0
Methylene chloride	µg/L	1.2	1.0	2.0	2.4	2.2	1.0 U
Tetrachloroethene	µg/L	0.71 J	0.63 J	1.0 U	1.0 U	550	3.8
Toluene	µg/L	2.6	2.4	1.4 U	1.4 U	72	8.1
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.3 U	1.3 U	5.3	1.0 U
Trichloroethene	µg/L	6.4	6.1	1.0 U	1.0 U	610	7.7
Vinyl chloride	µg/L	1.2 U	1.2 U	2.4 U	2.4 U	3.0	1.0 U
Xylene (total)	µg/L	3.3	3.0	3.0 U	3.0 U	28	3.0 U
<i>Semi-Volatile Organic Compounds</i>							
1,2-Dichlorobenzene	µg/L	9 U	9 U	9 U	10 U	10 U	9 U
1,4-Dichlorobenzene	µg/L	9 U	9 U	9 U	10 U	10 U	9 U
2,4-Dimethylphenol	µg/L	8 J	4 J	9 U	9 U	10 U	9 U
2-Methylphenol	µg/L	83	73	9 U	9 U	10 U	2 J
4-Methylphenol	µg/L	14	12	14	9 U	10 U	6 J
Di-n-octyl phthalate	µg/L	9 U	9 U	9 U	10 U	10 U	9 U
Naphthalene	µg/L	9 U	9 U	9 U	10 U	10 U	9 U
Phenol	µg/L	78	850	8 J	10 U	10 U	9 U

Notes:
 J Estimated.
 U Non-detect at associated value.

TABLE 3

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES
 ANNUAL GROUNDWATER SAMPLING
 GRATWICK-RIVERSIDE PARK SITE
 NORTH TONAWANDA, NEW YORK
 MAY 2005

<i>Parameter</i>	<i>Associated Sample ID</i>	<i>Analyte</i>	<i>MS Recovery (percent)</i>	<i>MSD Recovery (percent)</i>	<i>RPD</i>	<i>Control Limits (percent)</i>	<i>RPD</i>	<i>Sample Result</i>	<i>Units</i>	<i>Qualifier</i>
VOCs	WG-7987-052705-003	Trichloroethene	56	67	18	71-120	14	37	µg/L	J

Notes:

- J Estimated.
- MS Matrix Spike.
- MSD Matrix Spike Duplicate.
- RPD Relative Percent Difference.
- VOCs Volatile Organic Compounds.