SECOND ANNUAL
OPERATION AND MONITORING REPORT
MAY 2002 TO APRIL 2003

GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

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GRATWICK-RIVERSIDE PARK SITE
NORTH TONAWANDA, NEW YORK

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1.0 INTRODUCTION

This report is the second 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 2002 to April 2003 and was prepared pursuant to Section 7.0 of the report entitled "Operation and Maintenance Manual" (O&M Manual) dated March 2002. It is noted that New York State Department of Environmental Conservation (NYSDEC) approval for the O&M Manual has not been received as of the date of this O&M Report. Nonetheless, all O&M activities have been performed in accordance with the methods and frequencies specified in the O&M Manual, as though it were an approved document.

In addition, this report evaluates the results of the first two years of monitoring and proposes the recommended scope of the groundwater, river water, and effluent monitoring for the next 5-year period.

2.0 GROUNDWATER WITHDRAWAL SYSTEM (GWS)

Full-time operation of the Groundwater Withdrawal System (GWS) at the Gratwick-Riverside Park Site (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 the four 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 during this second year of O&M.

The monitoring frequency is currently up for review and is discussed in this report.

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; and

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.

The short periods of outward gradient in the first year are not anticipated to 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.

Regarding the elevated water levels in MH6 during the second year, the valves in MH6 were inspected on November 18, 2002 and were found to be closed. This was responsible for the elevated water levels within MH6. The valves were opened that day and the water level dropped approximately 6 feet in 10 minutes. This rapid drop in water level confirmed that the elevated water levels were present only within the manhole itself and that the water levels in the GWS on both sides of MH6 were on the order of 558.5 to 559.0 feet for the June through November 2002 time period. These levels were below the River North levels which ranged from 564.58 to 565.04 during this time period. Thus, the groundwater levels in the vicinity of MH6 have always been below the Niagara River water levels, thereby maintaining an inward gradient.

It is observed that for the time period from October 2002 to March 2003, the river level was too low to measure a river water level at the River North 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, except for October and November within MH6 as described above.

The results for the vertical gradient evaluation showed that the vertical gradients are predominantly upward (35 of 38 data pairs for the first year and 32 of 36 data pairs for the second year) at 3 of the 4 monitoring pair locations. The vertical gradients at the fourth monitoring pair (MH14/MW-9) are typically slightly downward with occasional periods of slight upward or neutral gradient (3 of 13 data pairs for the first year and 3 of 12 data pairs for the second year were upward). It is possible that the upward gradients at this monitoring pair were created by the pumping/monitoring cycle on these measurement events. This may have been caused if the water levels were being monitored when the water levels in MH15 (Pump Station No. 3), located downstream of MH14, were near the pump start elevation of 561.0 ft amsl. To check if this was the case, the following were performed:

i) the water levels in MH15 were monitored starting May 2002;

ii) the float settings in MH15 were checked and found to be at the design elevations; and

iii) the correlation among the water levels in MH15, MH14, and MW-9 was evaluated.

Review of the water levels in MH14, MH15, and MW-9 showed that generally the water levels in MH15 are:

i) lower than in MH14 and MW-9, as expected because MH15 is the pumped wet well; and

ii) the water levels in MH15 ranged from 561.62 to 562.28 ft amsl and in MW-9 ranged from 562.57 to 563.36 ft amsl for the same time period. These levels consistently showed an upward gradient.

The water levels in MH15 are above the design pump start elevation of 561.0 ft amsl. Given that MW-9 is located between MH14 and MH15 and that comparison of the MW-9 and MH15 water levels showed a continual upward gradient, suggests that a slight lowering of the pump start elevation should achieve a continual upward gradient when the water levels in MW-9 and MH14 are compared to each other. Thus, reducing the pump start elevation to 560.5 ft amsl may be sufficient to create an upward gradient in this area. The City of North Tonawanda is to make this adjustment.

2.2 GROUNDWATER QUALITY MONITORING

Groundwater quality monitoring consists of the collection of water samples from on-Site overburden monitoring wells (OGC1 through OGC8 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 (OGC1 through OGC4); 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 are listed in Table 2.5. Pursuant to Section 4.1.1.3 of the O&M Manual, groundwater samples were collected and analyzed quarterly, starting in May 2001.

The sampling frequency for the initial 2-year period after GWS startup was quarterly. Thereafter, the frequency is to be based on the 2-year results. The sampling frequency is currently under review and is discussed in this report.

2.2.1 SAMPLE RESULTS

A summary of compounds detected in the quarterly 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 volatile organic compounds (VOCs) and semi-volatile organic compounds (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, can be used to determine the monitoring frequency for the upcoming 5-year period.

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

i) TVOCs:

- decreasing concentrations in 6 of the 12 wells (MW-9, OGC-1, OGC-2, OGC-3, OGC-5, and OGC-8);

- relatively constant concentrations with random fluctuations in 3 of the 12 wells (MW-7, OGC-4, and OGC-7);
- increasing concentrations in 2 of the 12 wells (MW-6 and OGC-6); and
- increasing then relatively constant concentrations in 1 of the 12 wells (MW-8).

ii) TVOCs:

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

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 and then increased to 64 µg/L in May 2003. 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. MW-6 is located on the inside of the barrier wall and an inward gradient has always been maintained in the vicinity of this well. Thus, the relatively large increase in the TVOC concentrations in May 2003 is not migrating to the Niagara River and future trends in the concentration in MW-6 can be observed with less frequent monitoring. The narrow range at low level concentrations for the TSVOC support sampling less frequently than quarterly.

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 8.9 and 5 µg/L, respectively by May. The continual slow decline from May 2002 supports sampling less frequently.

The TVOC concentrations for MW-8 on Figure 2.4 show that the trend in the TVOC concentrations is a slow increase with some fluctuations. The TSVOC concentrations after August 2001 ranged between 200 and 280 µg/L, which is a relatively narrow range. The continual slow increase in TVOC and the narrow range of the TSVOC concentrations support sampling less frequently.

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, a fluctuation on the order of a factor of 2. The narrow range of the TVOC concentrations and the relatively small factor of fluctuation (i.e., 2) of the TSVOC concentrations suport sampling less frequently.

The TVOC concentrations for OGC-1 on Figure 2.6 show that the concentrations since February ranged between 4 and 13 µg/L. The TSVOC concentrations after November 2001, fluctuated between 59 and 6 µg/L. These narrow ranges and low level concentrations support sampling less frequently.

Since February 2002, the TVOC concentrations for OGC-2 on Figure 2.7 have fluctuated randomly between non-detect and 3 µg/L, with non-detect concentrations since November 2002. The TSVOC concentrations were all non-detect. The low level concentrations support sampling less frequently.

The TVOC concentrations for OGC-3 on Figure 2.8 ranged from 21 to 57 µg/L with the peak in November 2001 and decreasing to 37 µg/L by May 2003. The TSVOC concentrations fluctuated randomly from 207 to 411 µg/L (a factor of 2). The narrow range and decreasing trend of the TVOC concentrations and the relatively small factor of fluctuation (i.e., 2) of the TSVOC concentrations suport sampling less frequently.

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 in May 2001 to 2426 µg/L in February 2003 and then decreased to 1880 µg/L in May 2003. The single compound responsible for this increase is phenol which increased from 310 to 2350 µg/L and then decreased to 1800 µg/L in May 2003. The narrow range of the TVOC concentrations support sampling less frequently. However, the increasing TSVOC trend needs to continue to be tracked on a more regular basis.

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 over the entire 2-year period. These narrow ranges at low level concentrations support sampling less frequently.

The TVOC concentrations for OGC-6 on Figure 2.11 have increased continually from 3 µg/L in May 2001 to 165 µg/L in May 2003. 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 27 µg/L from May 2002 to May 2003. The relatively rapid increase in TVOC concentration from February 2003 (40 µg/L) to May 2003 (165 µg/L) needs to continue

to be tracked on a regular basis. The relatively low level TSVOC concentrations support sampling less frequently.

The TVOC concentrations for OGC-7 on Figure 2.12, since August 2001, ranged between 59 and 95 µg/L and the TSVOC concentrations ranged between non-detect and 2 µg/L with non-detect concentrations for the last 4 sampling events. The relatively narrow range of the TVOC concentrations and the low level TSVOC concentrations support sampling less frequently.

The TVOC concentrations for OGC-8 on Figure 2.13, since February 2002, ranged between 54 and 165 µg/L and the TSVOC concentrations ranged between 18 and 54 µg/L. These narrow ranges support sampling less frequently.

QA/QC reviews of these quarterly groundwater results, except for May 2003, have been submitted to the NYSDEC in the monthly progress reports. Thus, only the May 2003 QA/QC review is being submitted with this O&M Report (see Appendix B).

2.2.2 PROPOSED MONITORING FREQUENCY FOR NEXT 5-YEAR PERIOD

The previous discussion shows that, in general, the ranges of concentration fluctuation are small and in most cases the concentrations themselves are low. Consequently, it is recommended that the groundwater sampling and analysis be revised from quarterly to semi-annual for all wells for the next year and to annually for the four years thereafter.

The two exceptions to this are OGC-4 and OGC-6. At OGC-4 the increasing trend of phenol suggests that the quarterly monitoring continue for at least the next year. Samples only need to be collected for the SVOCs. The VOCs can be monitored in accordance with the frequency for the rest of the wells.

At OGC-6, the increasing trend of TVOCs suggests that quarterly monitoring for VOCs continue for at least one year. The SVOCs can be monitored in accordance with the frequency for the rest of the wells.

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.

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). A 24-hour composite sample was collected for semi-volatile compounds, metals, and wet chemistry parameters. Three grab samples were collected for volatile compounds 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 2.9 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. 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 but are slowly decreasing with time.

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

2.3.2 PROPOSED MONITORING PROGRAM FOR NEXT 5-YEAR PERIOD

2.3.2.1 SAMPLING FREQUENCY

To assist in evaluating the frequency, 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 the 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. 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 slowly decreasing with time. This slow decrease supports less frequent sampling than monthly.

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. Because TSS may be related to the discharge flow rate, the monthly discharge volume (see Table 2.10) 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. These trends suggest that semi-annual sampling is appropriate.

The general trend in TSS concentration is slowly decreasing with time from a high of 19 mg/L in September 2001 to 6 mg/L in February 2003. This continual decrease further supports less frequent sampling than monthly.

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 9 to 14 mg/L from May 2002 to February 2003. The BOD concentrations were compared with the discharge volume but showed no apparent correlation. The recent 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 suggested that the semi-annual sampling be performed in the spring and fall.

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. These parameters are: chloride, ammonia, nitrate, sulfate, sulfide, phosphorus, and cyanide. Of these parameters, chloride, ammonia, sulphate, sulfide, and phosphorus have exceeded their respective levels (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 will 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 analyzed for under the SVOC parameter list.

A summary of the proposed effluent monitoring program for the next 5-year period is presented in Table 2.11.

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 quarterly, concurrent with the groundwater samples over the first 2 years following the GWS startup. The sampling frequency is currently under review and is discussed in this report.

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 one exception to this occurred in May 2002 at the North River location. The May 2002 North River analytical results show ethylbenzene (20 µg/L), toluene (63 µg/L), and total xylenes (80 µg/L). 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 river water concentrations; and

iv) the concentrations for these three compounds were non-detect in all other quarterly samples at this location.

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

QA/QC reviews of the quarterly river water results have been submitted to the NYSDEC in the monthly progress reports. Thus, they are not being resubmitted with this O&M Report.

2.4.2 PROPOSED MONITORING FREQUENCY FOR NEXT 5-YEAR PERIOD

Given the infrequent and low level concentrations of VOCs and SVOCs, it is proposed that the frequency for river water sampling and analyses be semi-annual for one year and annual thereafter, 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 2.10 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 230,000 to 1,280,000 gallons, with the lower monthly volumes typically occurring during the drier summer/fall months.

The total volume of water discharged from the Site for the time period May 2001 to April 2002 was 14,192,900 gallons and from May 2002 to April 2003 was 8,603,500 gallons for a total of 22,796,400 gallons.

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 such shutdown occurred in the time period from May 2002 to April 2003.

Furthermore, 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

No maintenance or service repairs were needed on the GWS components during the May 2002 to April 2003 time period.

3.0 SITE INSPECTIONS

Site inspections were performed on a monthly basis. Copies of the inspection logs for the time period May to October 2002 were submitted on December 9, 2002, and thus are not being resubmitted with this O&M Report. The monthly inspection logs for November 2002 to April 2003 are included as Appendix A. In summary, the inspections identified the following items that required maintenance:

i) the water levels in MH6 were high from June to November 2002 (see Section 2.1 for additional details);

ii) the areas of the cap with minimal vegetative cover are the same as observed during the prior six-month period (these areas are to be reseeded);

iii) replace dead trees and bushes;

iv) place additional boulders to protect wet well covers;

v) replace hydric soil in a small portion of the Island 1 area;

vi) the lid for the piezometer on MH14 is loose;

vii) the cover on MH8 has been detached; and

viii) some erosion of the shoreline has occurred.

The City is pursuing the completion of these items with Haseley's bonding company in addition to repairing of the shoreline erosion described below.

The NYSDEC performed a Site inspection on June 26, 2002 during which they identified erosion occurring along portions of the shoreline. A work plan to address the erosion was submitted to the NYSDEC on August 23, 2002 and NYSDEC comments were received on September 16, 2002. A revised work plan was submitted on October 21, 2002. Bid documents were submitted on January 2, 2003. NYSDEC comments on the Bid Documents were received on February 14, 2003 and revised pages were submitted on February 28, 2003. Final Bid Documents were submitted on March 20, 2003. A pre-bid meeting was held on April 1, 2003 and Notice of Award to the apparent low bidder was issued on April 25, 2003. The repairs to the shoreline erosion and all of the deficiencies identified during the site inspections will be addressed over the next two months (pending NYSDEC approval to proceed).

4.0 CONCLUSIONS/RECOMMENDATIONS

4.1 OPERATION AND MAINTENANCE

The constructed remedy is achieving the remedial action objectives except for the occasional presence of a small downward vertical gradient in the vicinity of monitoring pair MH14/MW-9.

It is recommended to:

i) lower the pump start elevation by approximately 0.5 feet from 561.0 to 560.5 ft amsl.

Furthermore, the following items identified during the Site inspections need to be addressed and are planned to be addressed over the next 2 months.

i) tighten the piezometer lid on MH14 and reattach the lid on MH8;
ii) reseed some bare areas with grass;
iii) replace dead trees and bushes;
iv) place additional boulders to protect wet well covers;
v) replace hydric soil in a small portion of the Island 1 area; and
vi) repair of shoreline erosion.

4.2 MONITORING

As described in Section 2.2, the trends in the groundwater analytical results are relatively consistent with time. Thus, the recommended frequency for the groundwater monitoring is semi-annual for one year followed by annually thereafter except for SVOCs in well OGC-4 and VOCs in well OGC-6 which will continue to be monitored quarterly for at least the next year.

Only a few VOCs and SVOCs were infrequently detected at very low level concentrations in the river water samples. Thus, the recommended frequency for the river water monitoring is semi-annual for one year followed by annually thereafter.

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 exceeded 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.

FIGURES

0 200 400ft

START OF BARRIER WALL

WITMER ROAD

RIVER ROAD

MH1 MH2 MH3 MW-6 MH4 MH5 MH6 MH7 MW-7 MH8 MH9 MH10 MH11 MW-8 MH12 MH13 MH14 MW-9 MH15 MH16 MH17

OGC-1 OGC-5 OGC-6 OGC-2 OGC-7 OGC-3 OGC-8 OGC-4

RIVER NORTH

RIVER MIDDLE

RIVER SOUTH

START OF FORCEMAIN

PUMP STN. No.1 (MH3)

POTENTIAL FUTURE PUMP STATION (MH6)

CONTROL BUILDING

PUMP STN. No.2 (MH9)

POTENTIAL FUTURE PUMP STATION (MH12)

PUMP STN. No.3 (MH15)

METER BUILDING

END OF BARRIER WALL

END OF COLLECTION PIPE

FORCEMAIN DISCHARGE TO CITY SANITARY MANHOLE

NIAGARA RIVER

LEGEND

- BARRIER WALL
- MH11 — GROUNDWATER COLLECTION SYSTEM
- ● OGC-1 MW-1 — MONITORING WELL LOCATION
- ⊠ RIVER SOUTH — SURFACE WATER LEVEL MONITORING LOCATION
- △ — SURFACE WATER CHEMICAL MONITORING LOCATION

figure 2.1

MONITORING NETWORK
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(029)GN-WA001 MAY 23/2003

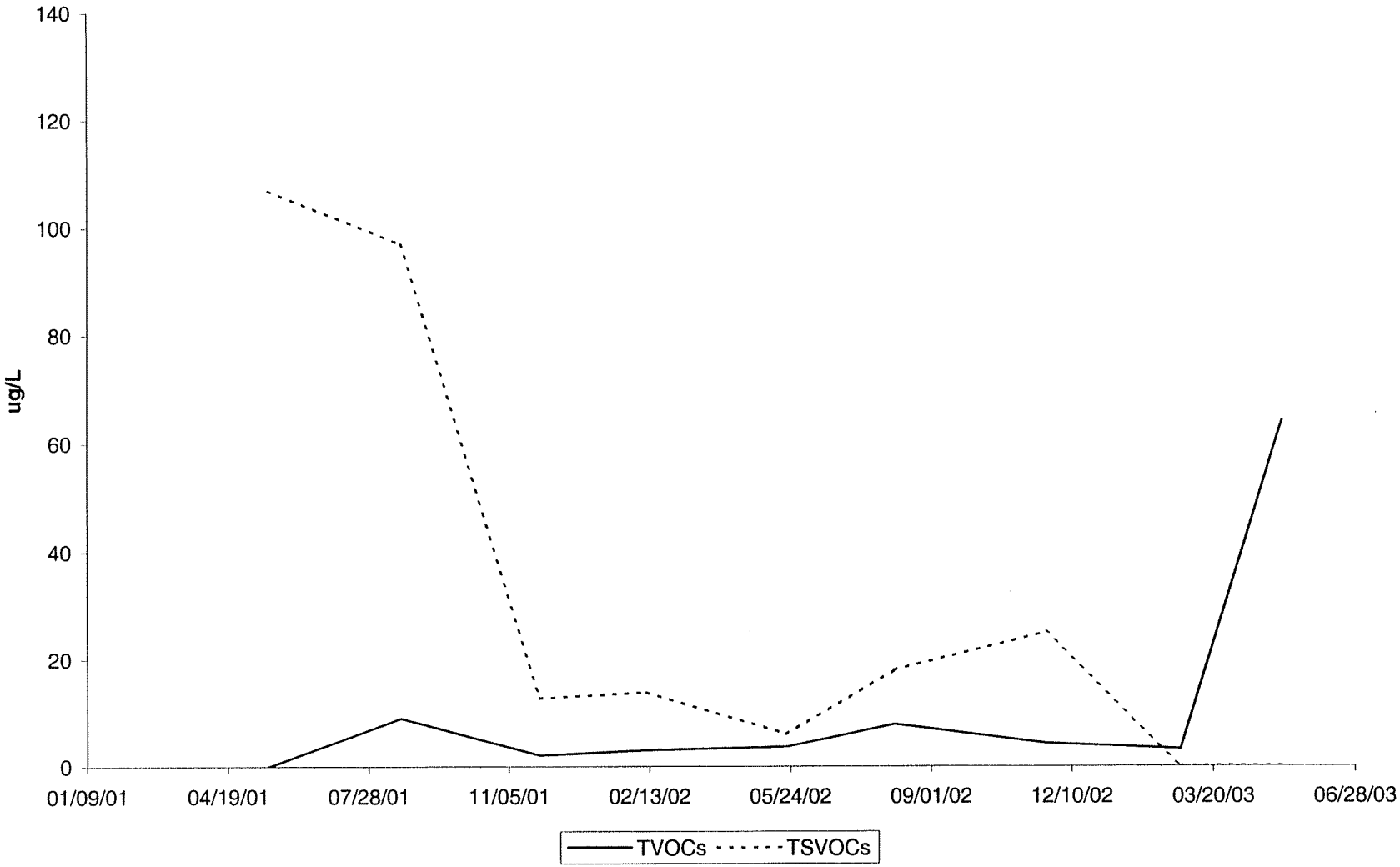

figure 2.2

MW-6 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(029)GN-WA002 JUN 06/2003

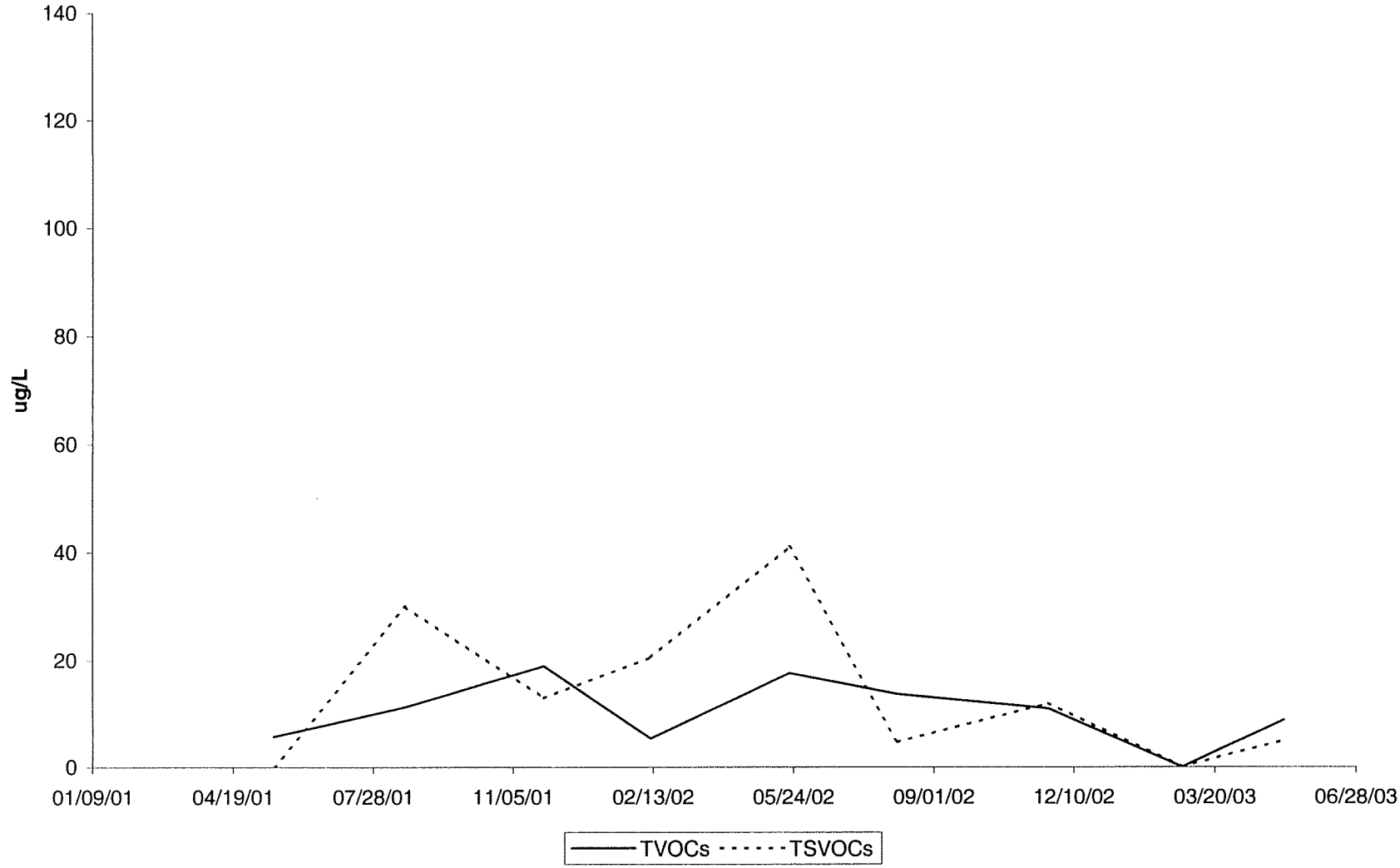

figure 2.3

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

07987-00(029)GN-WA003 JUN 06/2003

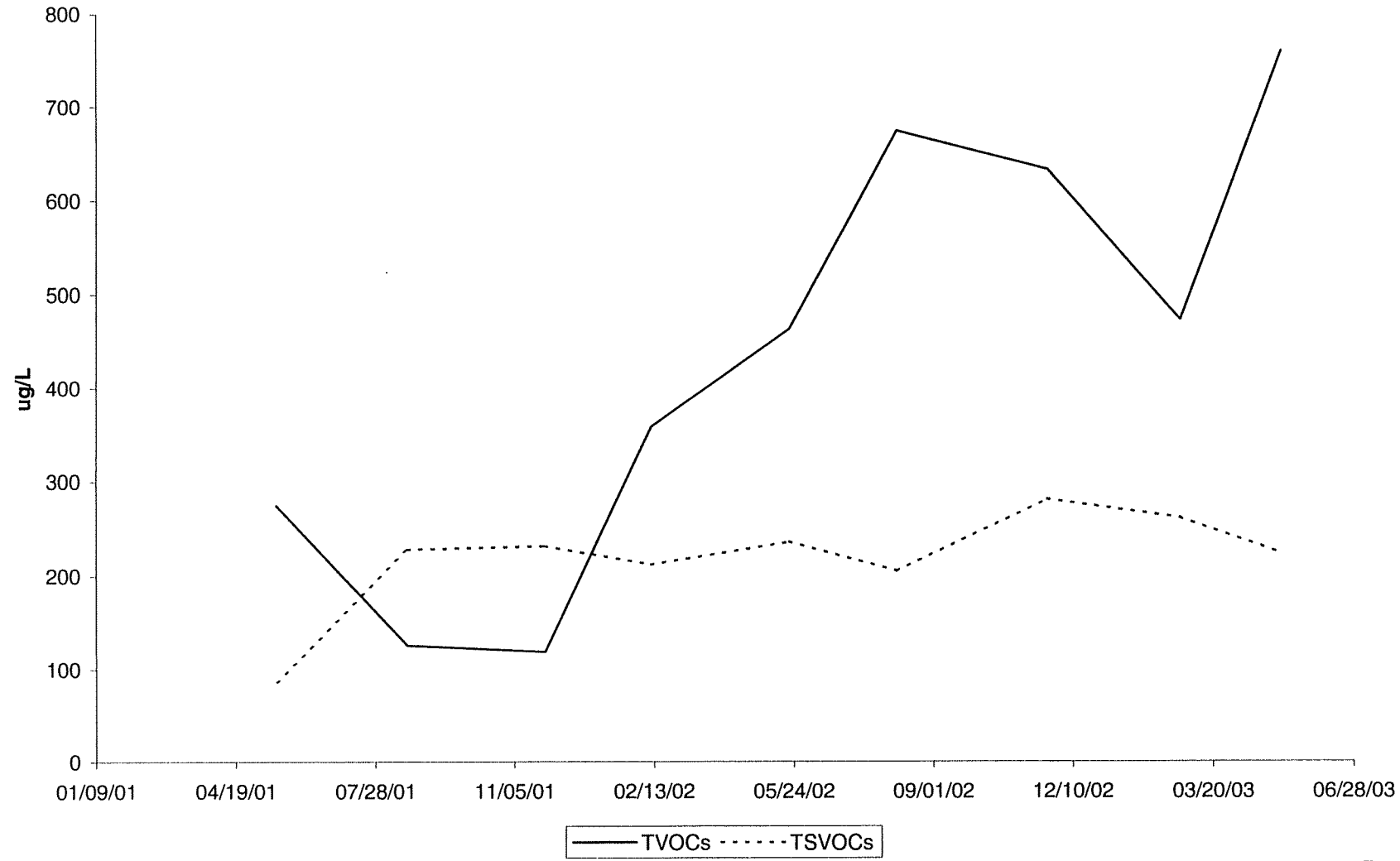

figure 2.4

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

07987-00(029)GN-WA004 JUN 06/2003

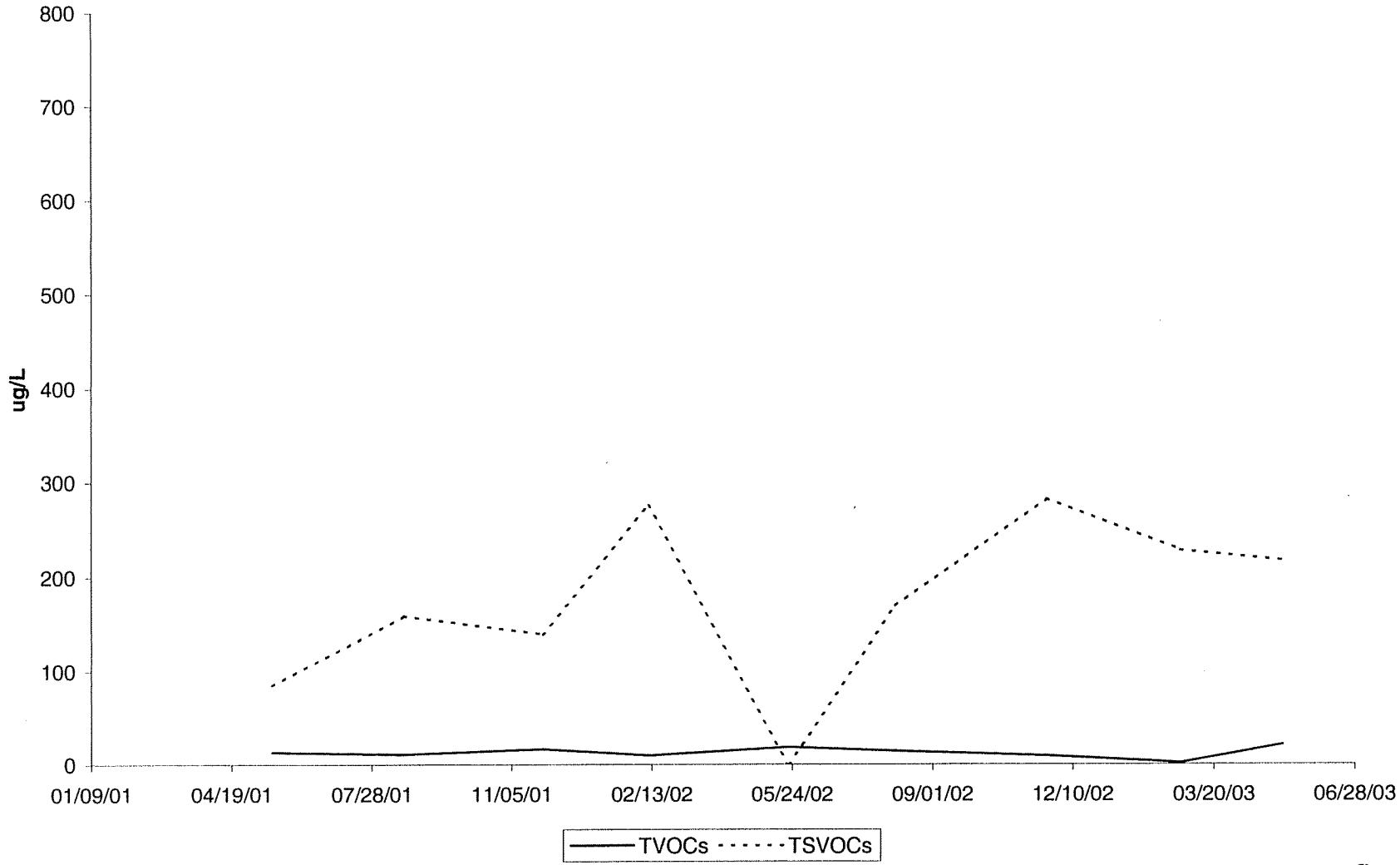

figure 2.5

MW-9 TVOC AND TSVOC CONCENTRATIONS
GRATWICK-RIVERSIDE PARK SITE
North Tonawanda, New York

07987-00(029)GN-WA005 JUN 06/2003

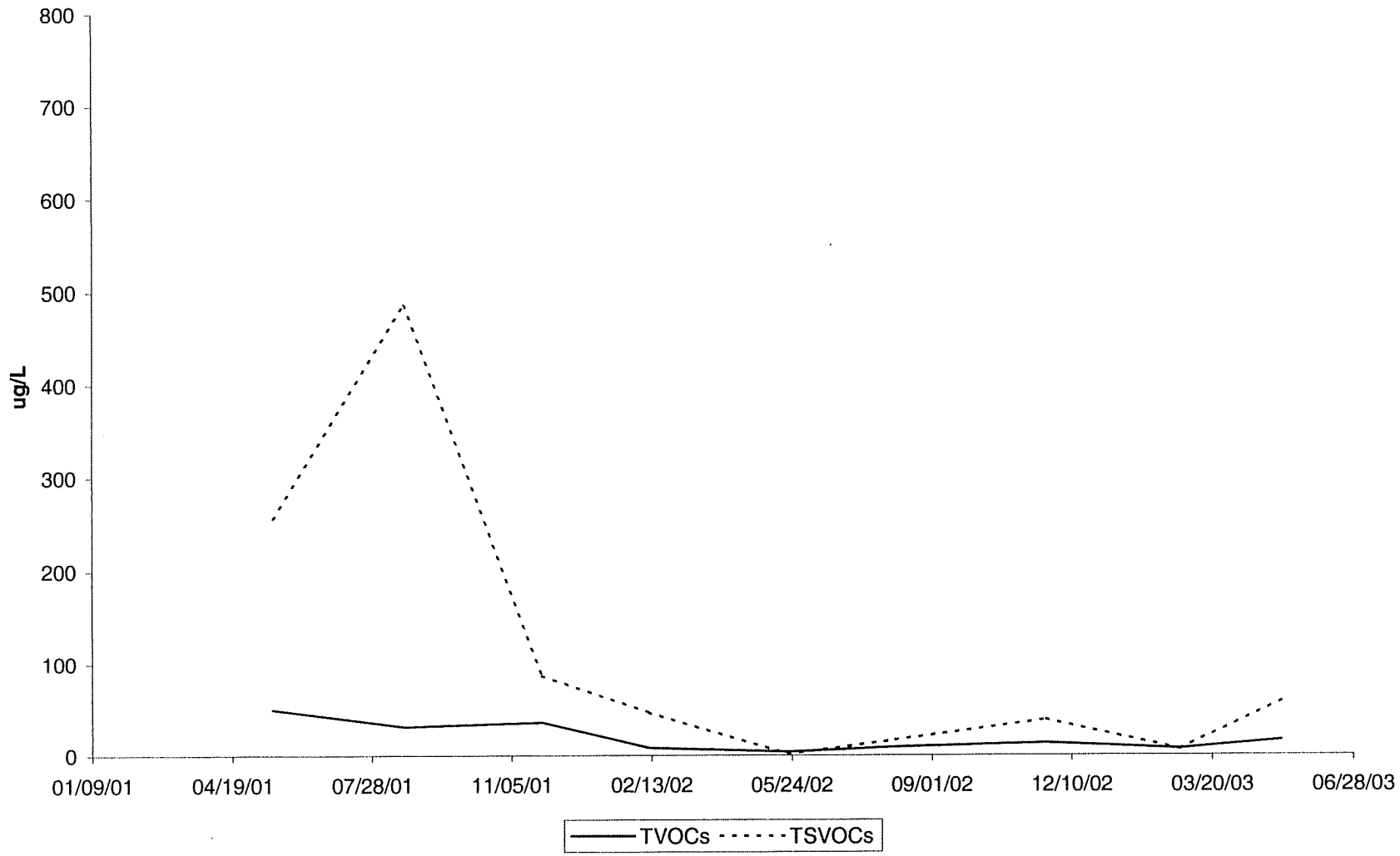

figure 2.6

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

07987-00(029)GN-WA006 JUN 06/2003

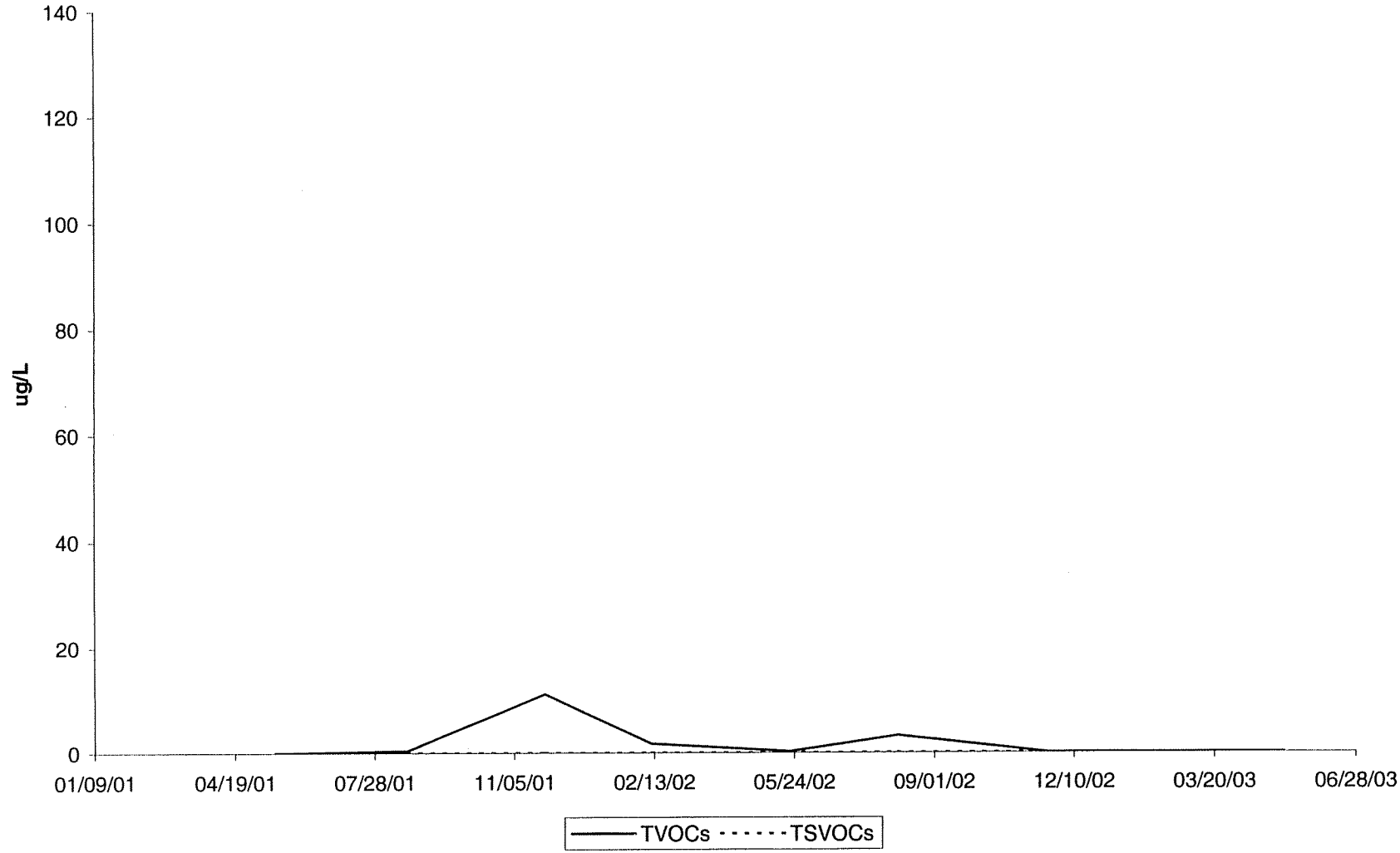

figure 2.7

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

07987-00(029)GN-WA007 JUN 06/2003

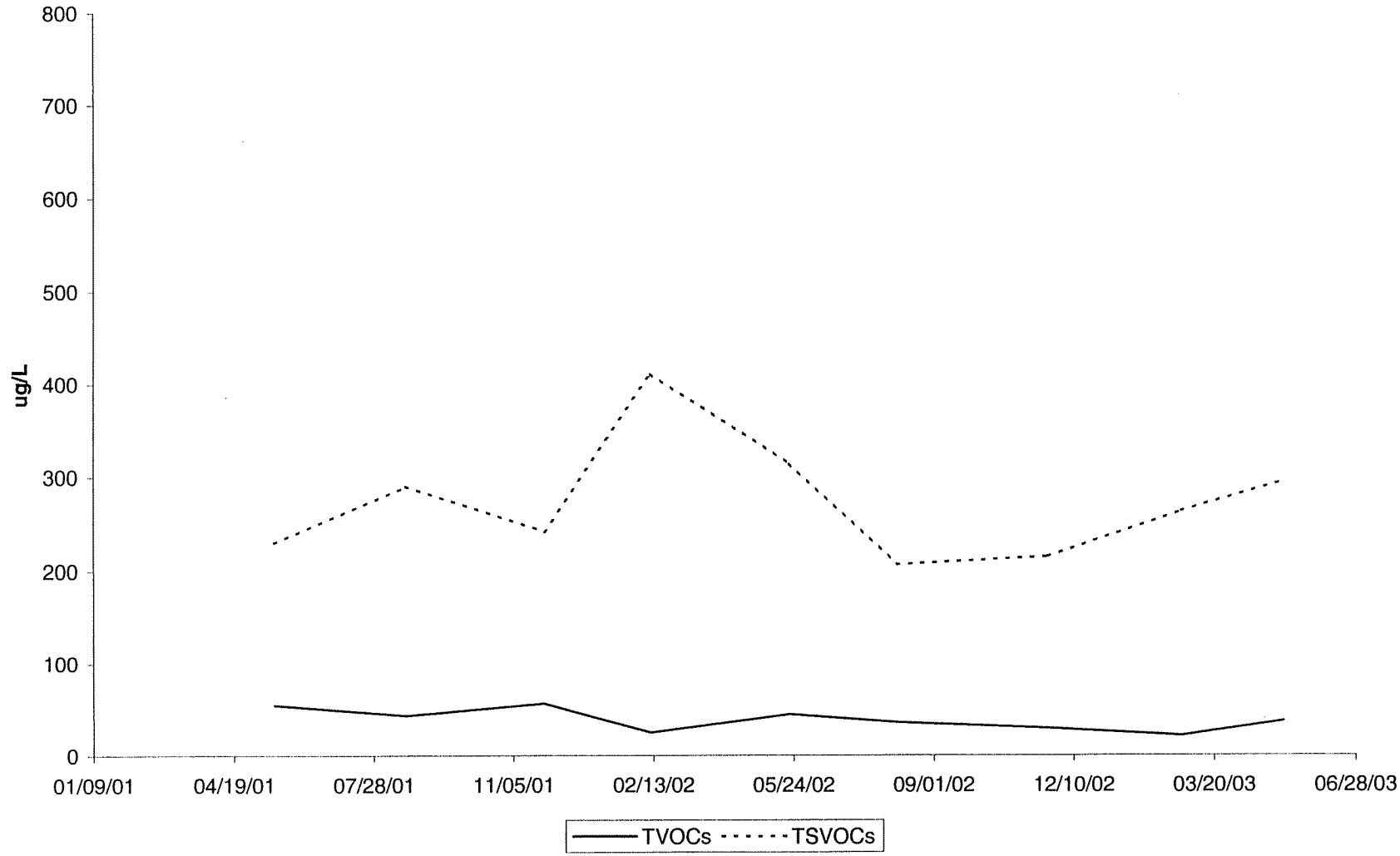

figure 2.8

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

07987-00(029)GN-WA008 JUN 06/2003

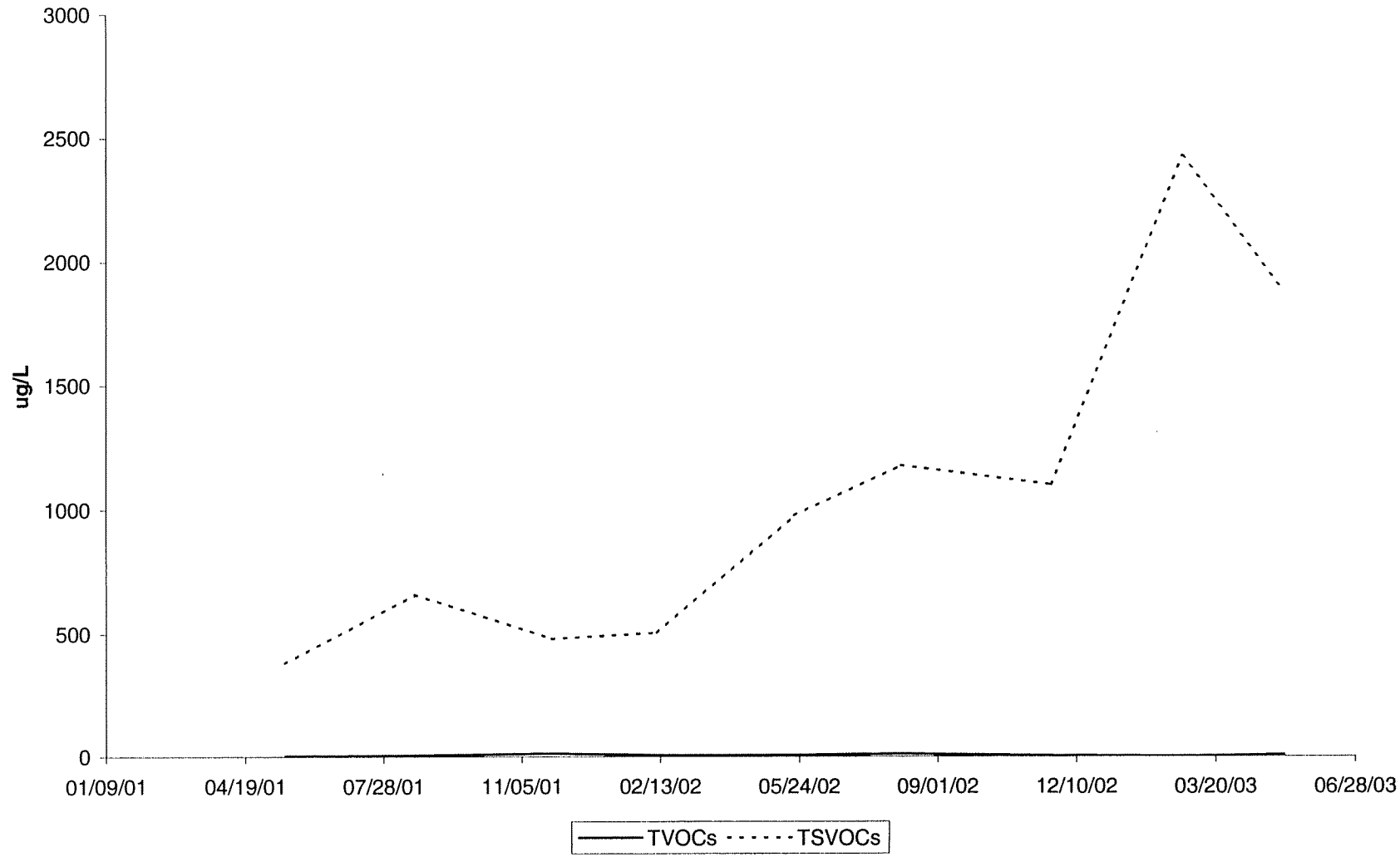

figure 2.9

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

07987-00(029)GN-WA009 JUN 06/2003

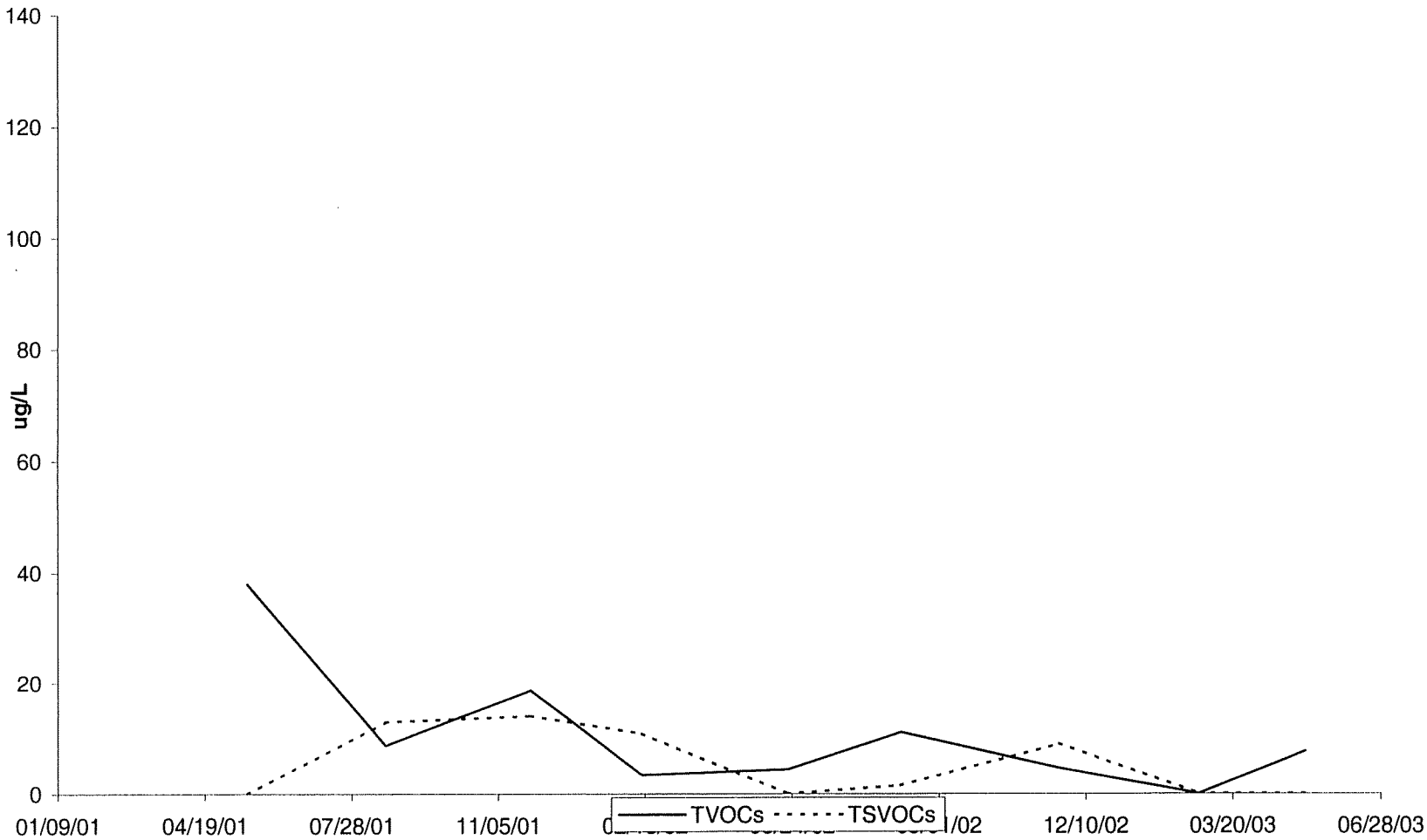

figure 2.10

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

07987-00(029)GN-WA010 JUN 06/2003

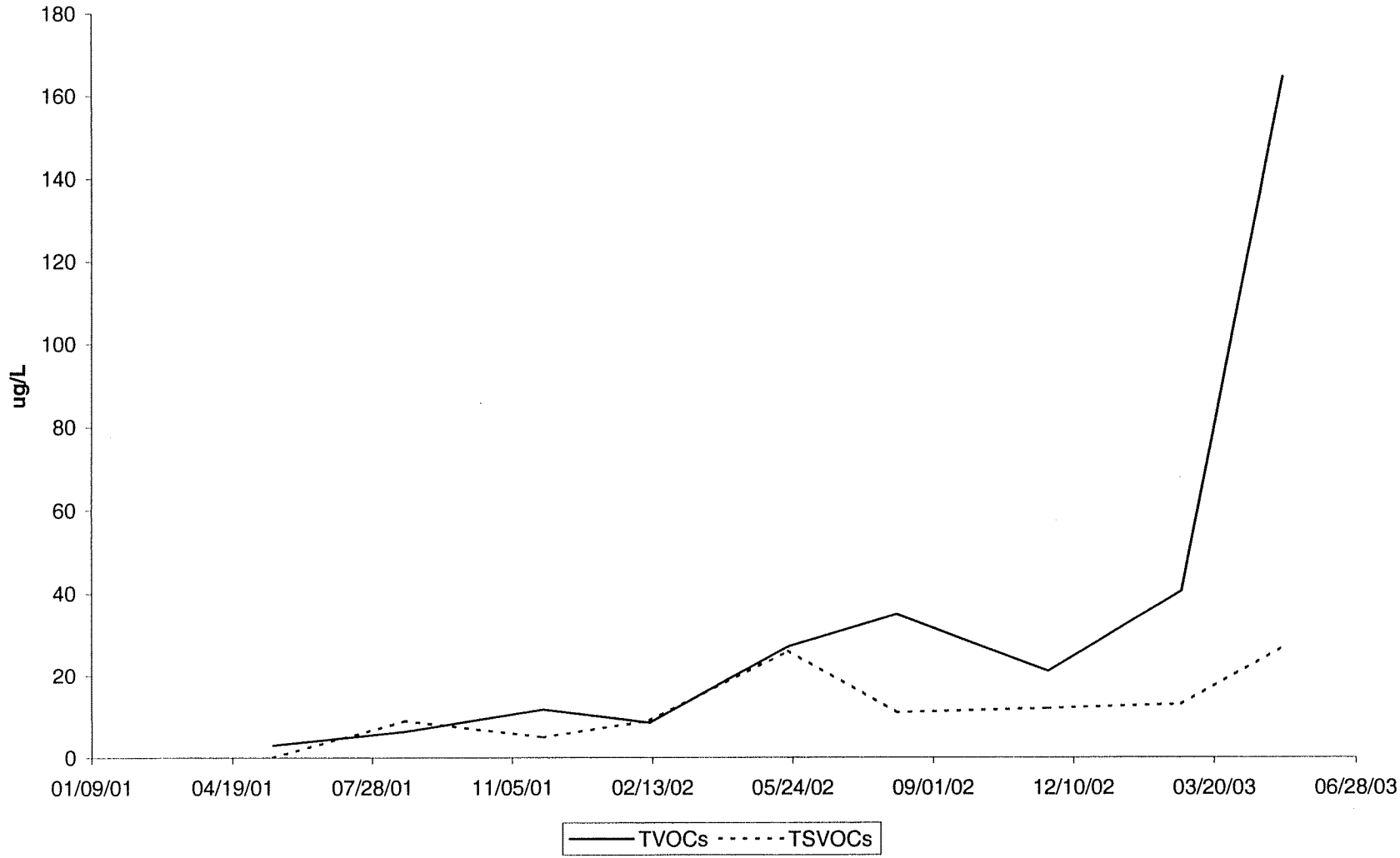

figure 2.11

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

07987-00(029)GN-WA011 JUN 06/2003

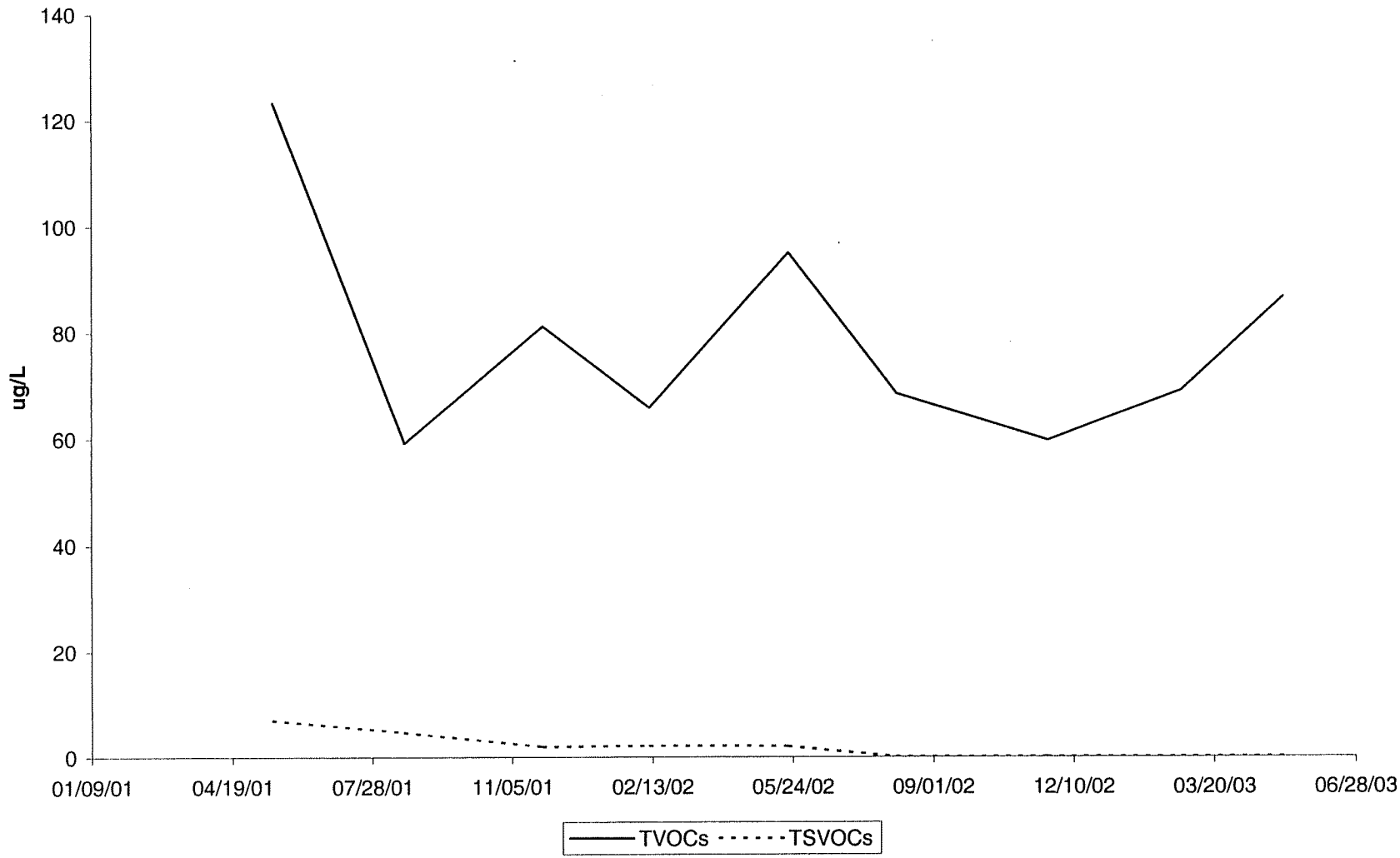

figure 2.12

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

07987-00(029)GN-WA012 JUN 06/2003

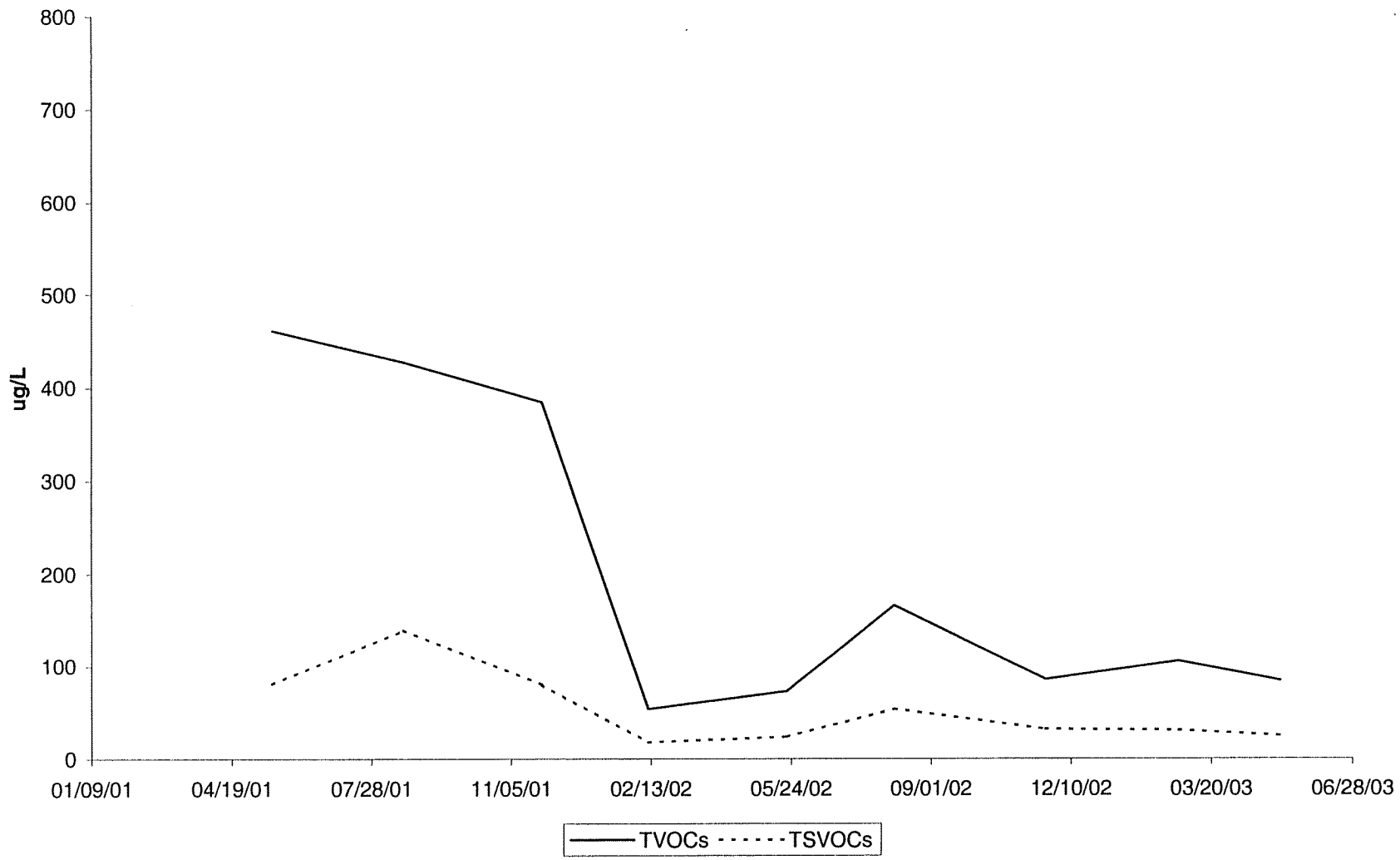

figure 2.13

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

07987-00(029)GN-WA013 JUN 06/2003

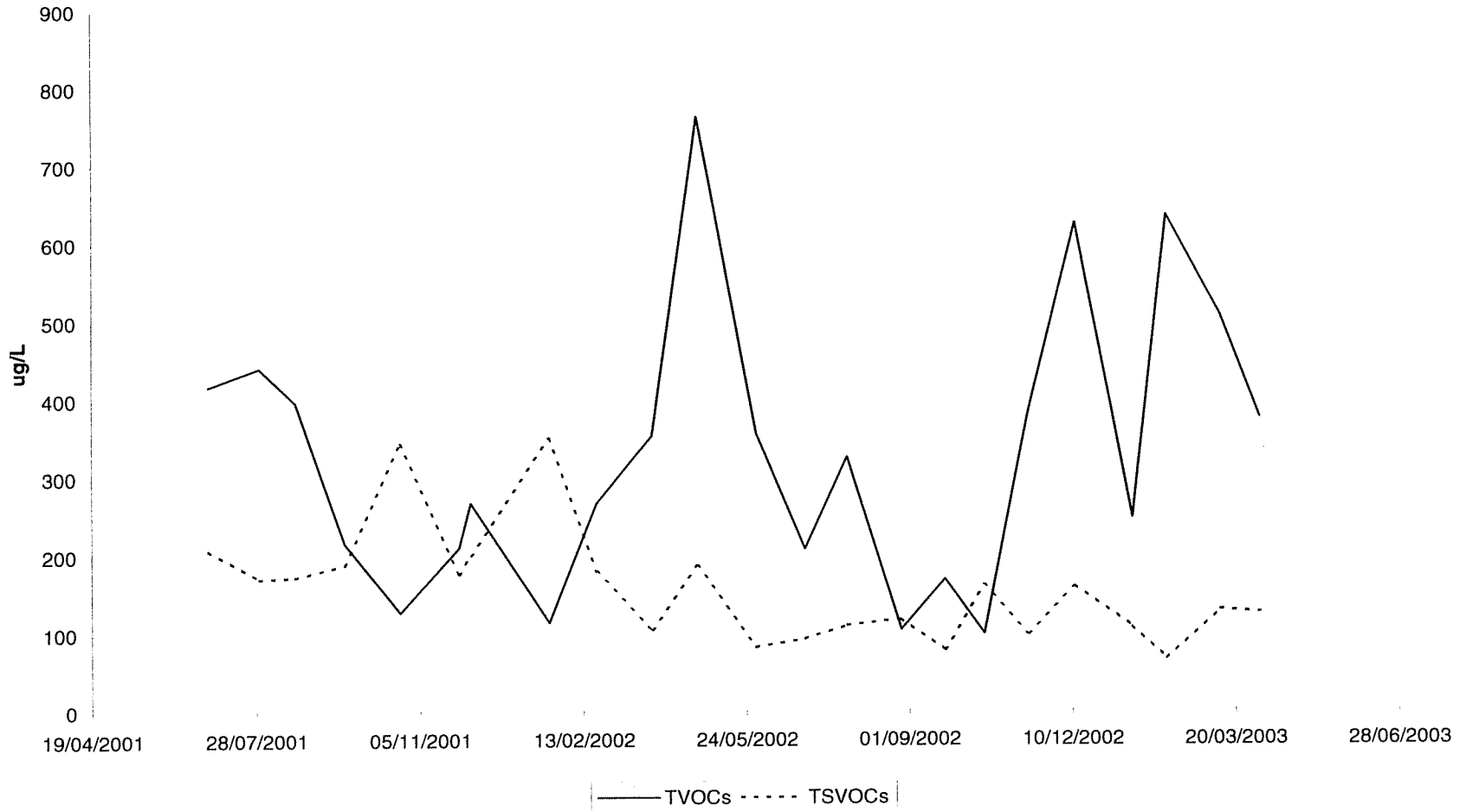

figure 2.14

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

07987-00(029)GN-WA014 MAY 30/2003

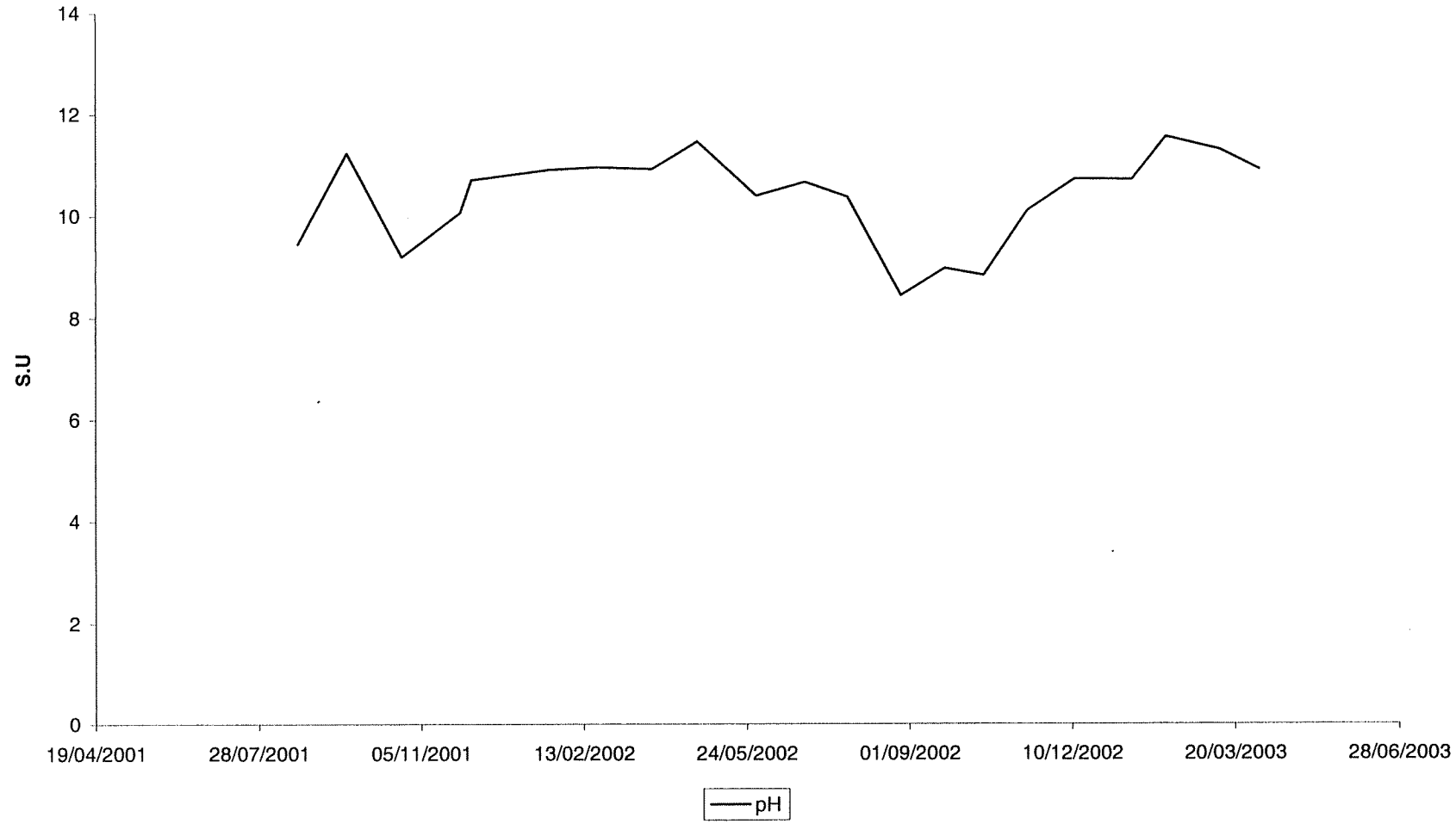

figure 2.15

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

07987-00(029)GN-WA015 JUN 06/2003

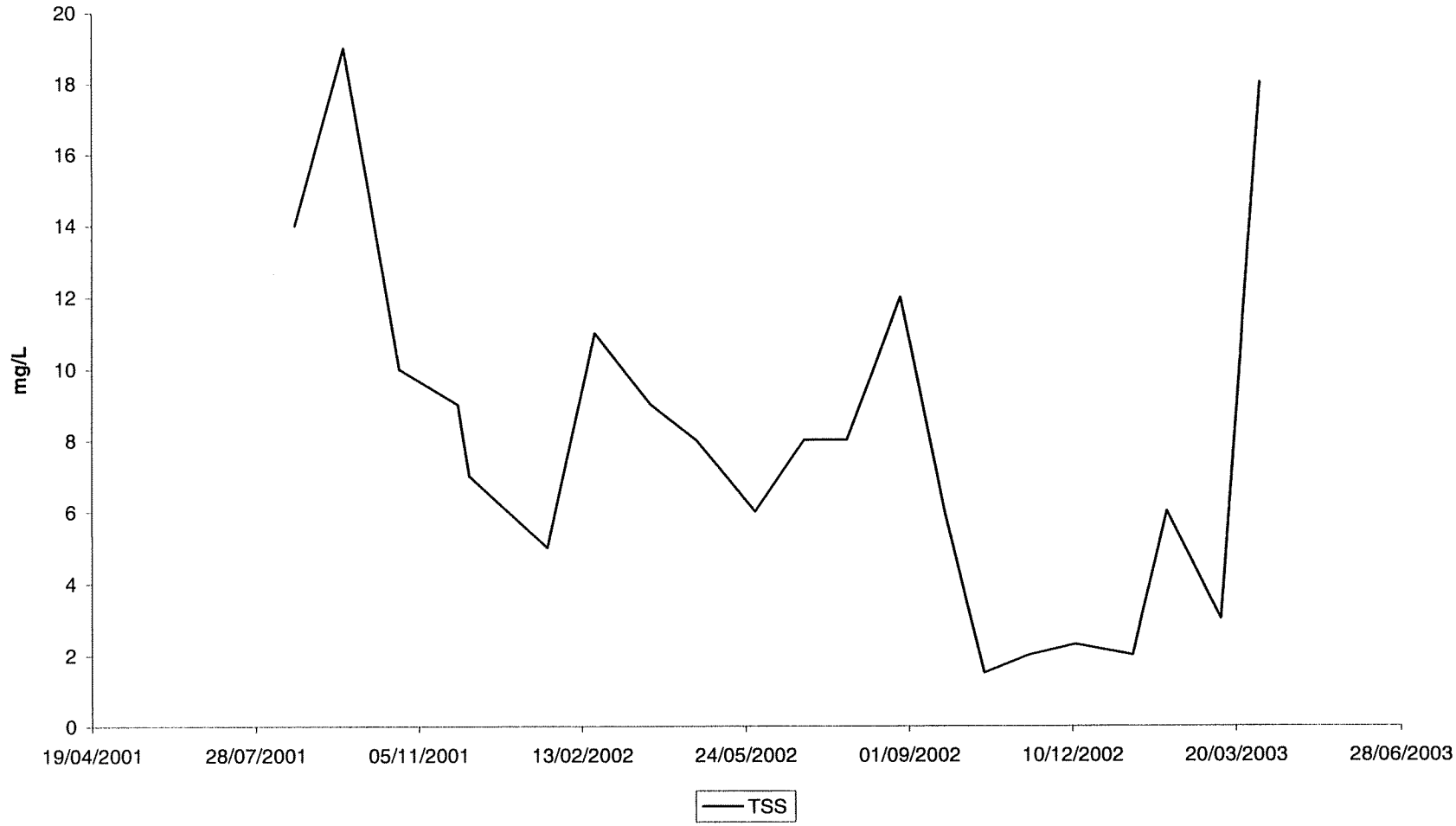

figure 2.16

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

07987-00(029)GN-WA016 JUN 06/2003

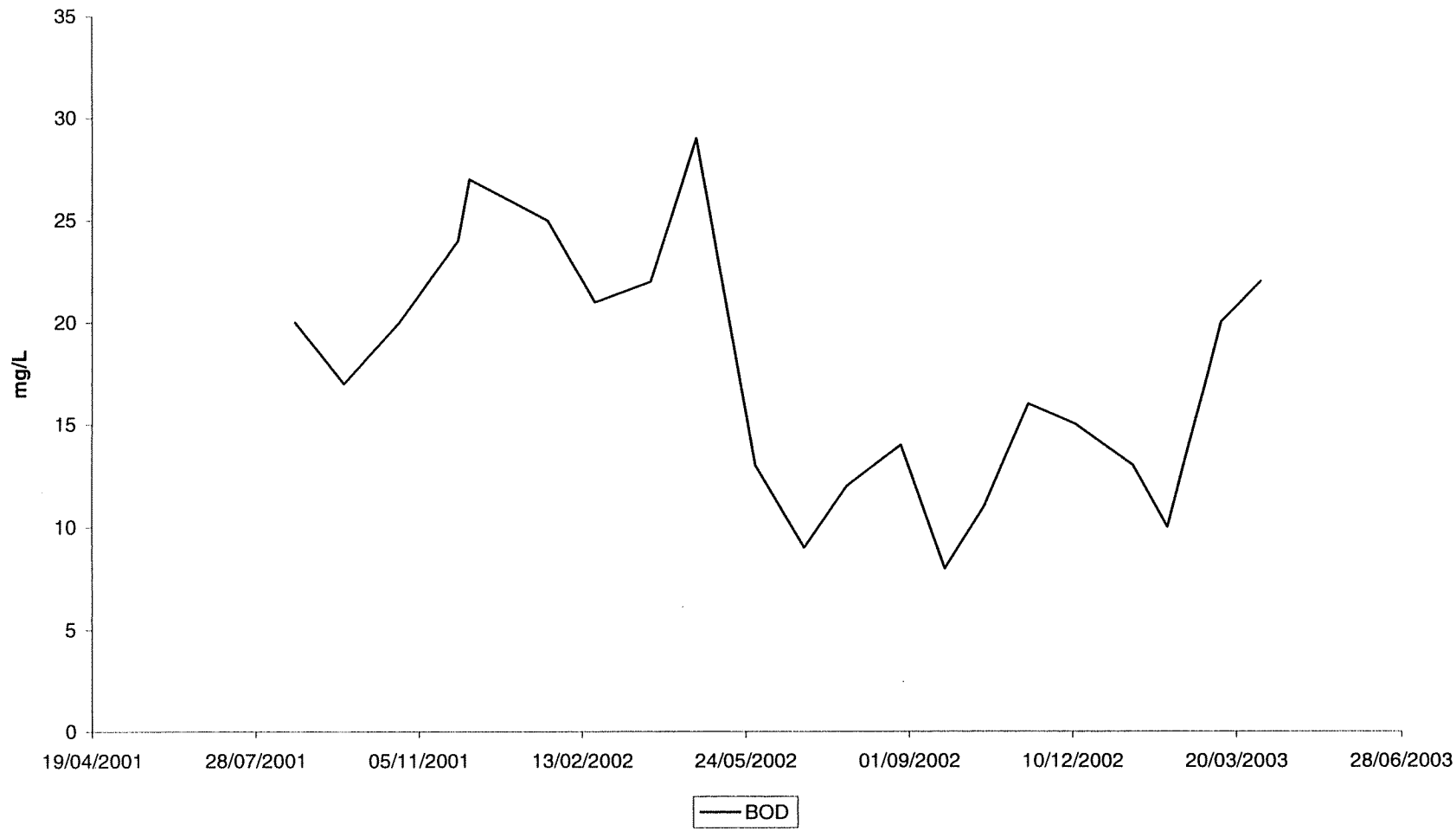

figure 2.17

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

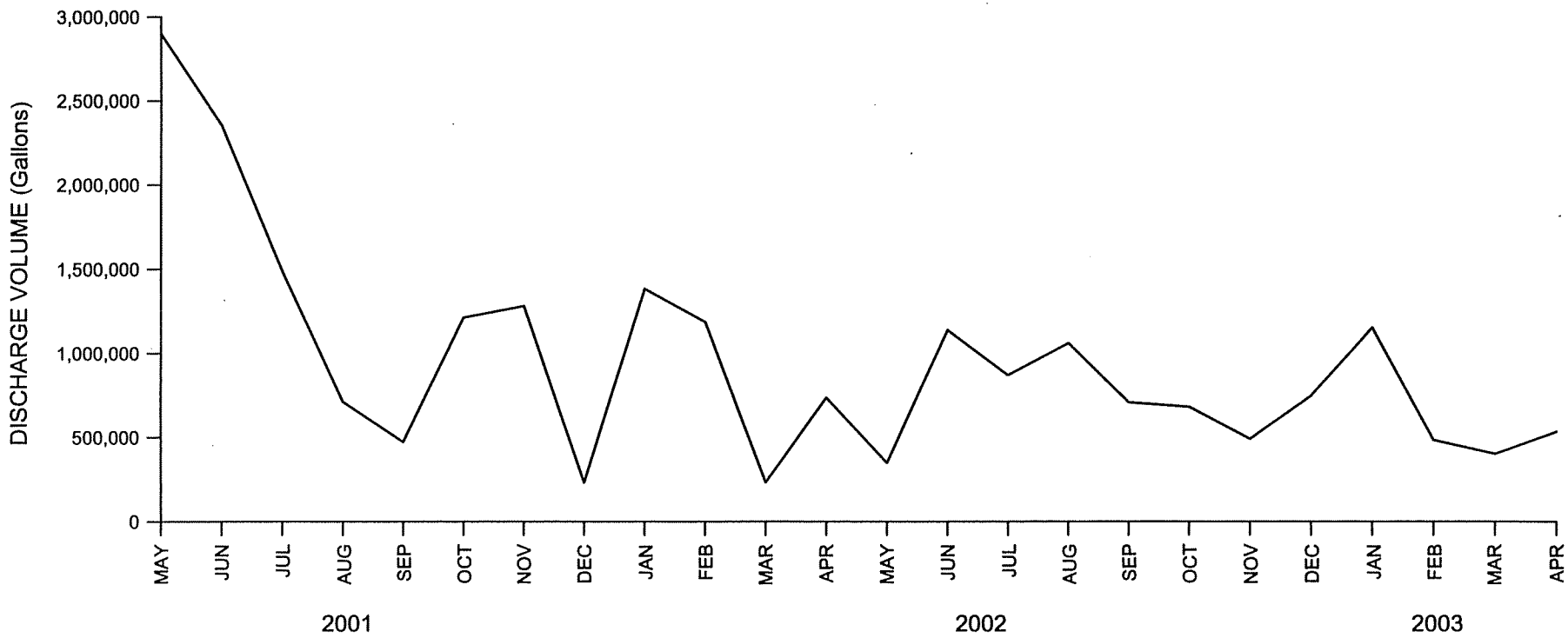

figure 2.18

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

07987-00(029)GN-WA018 JUN 06/2003

TABLES

TABLE 2.1

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

INWARD HYDRAULIC GRADIENT MONITORING LOCATIONS

Inner [1]	Outer
MH2	Niagara River North (Downstream)
MH6	Niagara River North (Downstream)
MH8	Niagara River Middle
MH12	Niagara River South (Upstream)

UPWARD HYDRAULIC GRADIENT MONITORING LOCATIONS

Upper [1]	Lower
MH3	MW-6
MH8	MW-7
MH11	MW-8
MH14	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).

Note:

(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.

TABLE 2.2

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

Date	*MH2*	*MH3*	*MH6*		*OGC-1*	*MW-6*	*OGC-5*	*River North*	*OGC-6*	*MH8*	*MW-7*	*OGC-2*	*River Middle*	*OGC-7*
RIM Elevation	573.28	573.81	572.03							572.37				
TOC Elevation (ft amsl)					575.01	575.40	573.82	566.80	576.65		575.57	574.08	566.48	572.49
December 12, 2000	NM				564.26	567.05	563.84	NM	564.24		567.20	564.58	NM	565.24
January 8, 2001	NM		NM		563.94	567.21	563.82	NM	563.84		567.30	564.01	NM	563.90
March 29, 2001	NM		NM		564.19	567.80	563.82	NM	564.10		566.89	564.28	NM	564.12
May 11, 2001	559.31		561.98		564.39	563.53	564.54	564.54	564.25		561.60	564.53	564.38	564.50
May 18, 2001	NM		562.03		564.21	563.08	564.54	564.49	564.25		561.97	564.53	564.33	564.55
May 25, 2001	NM		NM		564.46	562.80	564.52	563.80	564.22		561.71	564.28	563.63	564.50
June 1, 2001	559.34		561.97		564.51	562.74	564.52	563.52	564.20		561.77	564.18	563.47	564.49
June 8, 2001	NM		562.49		564.63	562.65	564.82	564.75	564.36		561.59	564.60	564.68	564.78
June 15, 2001	560.79	560.59	562.60		564.67	562.54	564.76	564.71	564.53	560.53	561.48	564.77	564.71	564.79
June 22, 2001	560.77	560.55	562.53		564.65	562.50	564.72	564.90	564.43	560.44	561.41	564.66	564.86	564.72
June 29, 2001	560.62	560.40	562.42		564.51	562.42	564.66	564.52	564.35	560.38	561.39	564.57	564.48	564.59
July 31, 2001	559.87	559.21	562.90		564.49	562.19	564.71	564.66	564.35	560.25	561.30	564.60	564.68	565.70
August 20, 2001	561.49	561.07	565.23	(1)	564.60	562.09	563.82	564.69	564.46	560.25	561.29	564.77	564.64	564.81
September 28, 2001	561.03	560.56	563.03		564.61	562.13	564.25	564.68	564.48	560.27	561.32	564.79	564.68	564.99
October 22, 2001	561.38	562.36	567.06	(3)	564.61	562.08	564.41	(2)	564.33	560.43	561.37	564.58	564.26	564.33
November 27, 2001	561.45	560.94	564.53		563.95	561.88	563.65	(2)	563.83	560.45	561.36	564.04	563.54	563.87
December 20, 2001	560.96	560.50	564.39		564.47	561.83	564.78	564.69	564.27	559.75	561.25	564.72	564.45	564.86
January 29, 2002	560.74	560.15	563.75		564.09	561.83	563.87	563.89	563.99	560.98	561.89	564.12	563.74	564.01
February 11, 2002	560.80	560.28	564.19		564.22	561.73	563.84	564.03	564.07	561.06	561.50	564.18	563.97	564.19
March 25, 2002	560.55	560.10	563.25		564.10	561.72	563.51	(2)	564.03	560.65	561.60	564.02	563.59	563.83
April 24, 2002	562.54	562.05	564.12		564.60	561.88	564.70	564.61	564.49	561.13	561.95	564.67	564.19	564.72
May 21, 2002	561.74	561.28	564.10		564.79	561.97	564.84	564.76	564.68	560.05	561.38	564.85	564.66	564.84
June 20, 2002	561.67	561.24	565.58		564.74	561.92	564.56	564.58	564.62	560.68	561.54	564.85	564.68	564.80
July 18, 2002	561.46	560.99	564.99		564.78	561.89	565.00	564.89	564.66	560.79	561.65	564.90	564.90	564.93
August 6, 2002	561.26	560.79	565.89		564.86	561.92	564.70	564.65	564.71	561.05	561.93	564.90	564.59	564.85
September 12, 2002	561.60	561.14	565.60		564.80	561.82	565.05	565.04	564.67	561.10	561.99	564.87	564.95	564.97
October 30, 2002	561.63	561.21	566.24		564.18	561.97	563.95	(2)	564.07	561.07	561.95	564.10	563.75	564.00
November 21, 2002	561.12	560.67	554.47	(4)	564.05	562.05	563.94	(2)	563.98	558.03	561.41	564.20	563.71	564.06
December 11, 2002	561.55	561.08	555.09		563.99	562.04	563.85	(2)	563.84	559.95	561.25	563.94	563.72	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		572.11			572.37				574.30	575.84	574.82
TOC Elevation (ft amsl)	573.35		574.37	568.46		574.01	574.66	576.23			
December 12, 2000	565.07		567.08	NM		564.45	564.85	567.15			
January 8, 2001	563.95		567.29	NM	NM	564.01	564.00	567.35			567.29
March 29, 2001	564.21		567.96	NM	NM	564.24	564.25	568.06			NM
May 11, 2001	564.58		561.95	564.70	564.15	564.63	564.59	562.53			562.45
May 18, 2001	564.59		562.49	564.65	564.12	564.66	564.66	563.05			562.55
May 25, 2001	564.57		561.99	564.80	564.17	564.63	564.60	562.54			562.48
June 1, 2001	564.59		562.06	565.00	564.19	564.66	564.60	562.57			562.51
June 8, 2001	564.87		561.89	565.05	562.45	564.96	564.89	562.47			562.42
June 15, 2001	564.91	561.12	561.69	565.05	562.34	564.93	564.88	562.45	562.32		562.29
June 22, 2001	564.87	561.05	561.54	565.18	562.29	565.00	564.80	562.19	562.32		562.14
June 29, 2001	564.68	560.97	561.46	564.83	561.80	564.75	564.68	562.11	562.45		562.06
July 31, 2001	564.78	560.73	561.19	564.96	560.77	564.85	564.76	562.45	562.45		561.69
August 20, 2001	564.83	560.50	561.05	564.99	560.42	564.88	564.85	561.55	561.72		561.54
September 28, 2001	564.85	560.61	561.07	564.95	560.36	564.87	564.84	561.58	561.70		561.52
October 22, 2001	564.58	560.51	561.27	564.61	560.42	564.61	564.62	561.75	562.10		561.72
November 27, 2001	563.89	559.51	561.30	564.05	560.06	563.89	563.94	561.71	561.87		563.82
December 20, 2001	564.96	561.31	560.73	564.96	560.23	564.99	565.05	561.77	561.89		561.71
January 29, 2002	564.06	Blocked	561.91	563.92	560.29	564.03	564.08	562.31	562.53		562.31
February 11, 2002	564.28	561.23	561.93	564.53	560.24	564.35	564.35	562.52	562.18		562.54
March 25, 2002	563.87	560.97	561.60	564.15	560.34	563.85	563.95	562.45	562.77		562.61
April 24, 2002	564.79	561.41	561.95	564.86	560.63	564.86	564.84	562.96	563.09		562.95
May 21, 2002	564.95	560.35	560.89	565.07	560.89	565.03	564.98	563.11	563.25	562.17	563.10
June 20, 2002	564.85	560.98	561.50	564.88	561.04	564.90	564.94	562.91	562.98	562.00	562.90
July 18, 2002	565.09	561.07	561.80	565.22	560.95	565.17	565.08	562.84	561.83	561.93	562.83
August 6, 2002	564.88	561.33	561.88	564.90	561.07	564.95	564.91	562.75	562.08	561.86	562.75
September 12, 2002	565.09	561.34	561.91	565.25	561.09	565.20	565.05	562.66	562.11	561.75	562.63
October 30, 2002	564.03	561.36	561.95	564.16	561.31	564.14	564.00	562.57	562.68	561.62	562.56
November 21, 2002	564.04	561.49	560.99	564.15	561.44	564.19	564.18	562.74	562.88	561.82	562.73
December 11, 2002	564.01	561.51	560.73	564.14	561.45	564.09	564.02	562.91	563.07	562.01	562.94

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

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

Date	*MH2*	*MH3*	*MH6*	*OGC-1*	*MW-6*	*OGC-5*	*River North*	*OGC-6*	*MH8*	*MW-7*	*OGC-2*	*River Middle*	*OGC-7*
RIM Elevation	573.28	573.81	572.03						572.37				
TOC Elevation (ft amsl)				575.01	575.40	573.82	566.80	576.65		575.57	574.08	566.48	572.49
January 16, 2003	561.65	561.20	556.15	564.03	562.27	563.88	(2)	564.12	561.04	561.95	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	563.34	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	563.24	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

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		572.11			572.37				574.30	575.84	574.82
TOC Elevation (ft amsl)	573.35		574.37	568.46		574.01	574.66	576.23			
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

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 2.3

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

Date Monitored		*5/11/01*		*5/18/01*		*5/25/01*		*6/1/01*		*6/8/01*		*6/15/01*	
		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	564.54	Inward	564.49	NA	563.80	NA	563.52	Inward	564.75	NA	564.71	Inward
Inner	MH2	559.31		NM		NM		559.34		NM		560.79	
Outer	River North	564.54	Inward	564.49	Inward	563.80	NA	563.52	Inward	564.75	Inward	564.71	Inward
Inner	MH6	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	MH8	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	

Date Monitored		*6/22/801*		*6/29/01*		*7/31/01*		*8/20/01*		*9/28/01*		*10/22/01*	
		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	564.90	Inward	564.52	Inward	564.66	Inward	564.69	Inward	564.68	Inward	564.36 (2)	Inward
Inner	MH2	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	MH6	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	MH8	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.
NM - Not Measured
NA - Not Applicable

TABLE 2.3

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

Date Monitored		*11/27/01*		*12/20/01*		*1/29/02*		*2/11/02*		*3/25/02*		*4/24/02*	
		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	563.80 (2)	Inward	564.69	Inward	563.89	Inward	564.03	Inward	563.90 (2)	Inward	564.61	Inward
Inner	MH2	561.45		560.96		560.74		560.80		560.55		562.54	
Outer	River North	563.80 (2)	Outward	564.69	Inward	563.89	Inward	564.03	Outward	563.90 (2)	Inward	564.61	Inward
Inner	MH6	564.53		564.39		563.75		564.19		563.25		564.12	
Outer	River Middle	563.54	Inward	564.45	Inward	563.74	Inward	563.97	Inward	563.59	Inward	564.19	Inward
Inner	MH8	560.45		559.75		560.98		561.06		560.65		561.13	
Outer	River South	564.05	Inward	564.96	Inward	563.92	Inward	564.53	Inward	564.15	Inward	564.86	Inward
Inner	MH12	560.06		560.23		560.29		560.28		560.34		560.63	

Date Monitored		*5/21/02*		*6/20/02*		*7/18/02*		*8/6/02*		*9/12/02*		*10/30/02*	
		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	564.76	Inward	564.58	Inward	564.89	Inward	564.65	Inward	565.04	Inward	563.91 (2)	Inward
Inner	MH2	561.74		561.67		561.46		561.26		561.60		561.63	
Outer	River North	564.76	Inward	564.58	Outward	564.89	Outward	564.65	Outward	565.04	Outward	563.91 (2)	Outward
Inner	MH6	564.10		565.58		564.99		565.89		565.60		566.24	
Outer	River Middle	564.66	Inward	564.68	Inward	564.90	Inward	564.59	Inward	564.95	Inward	563.75	Inward
Inner	MH8	560.05		560.68		560.79		561.05		561.10		561.07	
Outer	River South	565.07	Inward	564.88	Inward	565.22	Inward	564.90	Inward	565.25	Inward	564.16	Inward
Inner	MH12	560.84		561.04		560.95		561.07		561.09		561.31	

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.
NM - Not Measured
NA - Not Applicable

TABLE 2.3

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

Date Monitored		*11/21/02*		*12/11/02*		*1/16/03*		*2/25/03*		*3/14/03*		*4/14/03*	
		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	563.90 (2)	Inward	563.89 (2)	Inward	563.86 (2)	Inward	563.96 (2)	Inward	563.86 (2)	Inward	564.30	Inward
Inner	MH2	561.12		561.55		561.65		561.58		561.65		561.68	
Outer	River North	563.90 (2)	Inward	563.89 (2)	Inward	563.86 (2)	Inward	563.96 (2)	Inward	563.86 (2)	Inward	564.30	Inward
Inner	MH6	554.47 (3)		555.09		556.15		555.74		555.75		554.54	
Outer	River Middle	563.71	Inward	563.72	Inward	563.52	Inward	563.34	Inward	563.24	Inward	564.24	Inward
Inner	MH8	558.03		559.95		561.04		560.60		560.61		558.65	
Outer	River South	564.15	Inward	564.14	Inward	564.11	Inward	564.21	Inward	564.11	Inward	564.45	Inward
Inner	MH12	561.44		561.45		561.83		561.26		561.54		561.56	

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.
NM - Not Measured
NA - Not Applicable

TABLE 2.4

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

Date Monitored		*6/15/01*		*6/22/01*		*6/29/01*		*7/31/01*		*8/20/01*		*9/28/01*		*10/22/01*	
Monitoring Location		*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*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	560.59	Upward	560.55	Upward	560.40	Upward	559.21	Upward	561.07	Upward	560.56	Upward	562.36	Downward
Lower	MW-6	562.54		562.50		562.42		562.90		562.09		562.13		562.08	
Upper	MH8	560.53	Upward	560.44	Upward	560.38	Upward	560.25	Upward	560.25	Upward	560.27	Upward	560.43	Upward
Lower	MW-7	561.48		561.41		561.39		561.30		561.29		561.32		561.31	
Upper	MH11	561.12	Upward	561.05	Upward	560.97	Upward	560.73	Upward	560.50	Upward	560.61	Upward	560.51	Upward
Lower	MW-8	561.69		561.54		561.46		561.19		561.05		561.07		561.27	
Upper	MH14	562.32	Upward	562.32	Downward	562.45	Downward	562.45	Neutral	561.72	Downward	561.70	Downward	562.10	Downward
Lower	MW-9	562.45		562.19		562.11		562.45		561.55		561.58		561.77	

Date Monitored		*11/27/01*		*12/20/01*		*1/29/02*		*2/11/02*		*3/25/02*		*4/24/02*		*5/21/02*	
Monitoring Location		*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*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	560.94	Upward	560.50	Upward	560.15	Upward	560.28	Upward	560.10	Upward	562.05	Downward	561.28	Upward
Lower	MW-6	561.88		561.83		561.83		561.73		561.72		561.88		561.97	
Upper	MH8	560.45	Upward	559.75	Upward	560.98	Upward	561.06	Upward	560.65	Upward	561.13	Upward	560.05	Upward
Lower	MW-7	561.36		561.25		561.89		561.50		561.60		561.95		561.38	
Upper	MH11	559.51	Upward	561.31	Downward	NM	--	561.23	Upward	560.97	Upward	561.41	Upward	560.35	Upward
Lower	MW-8	561.30		560.73		561.91		561.93		561.60		561.95		560.91	
Upper	MH14	561.87	Downward	561.89	Downward	562.53	Downward	562.18	Upward	562.77	Downward	563.09	Downward	563.25	Downward
Lower	MW-9	561.71		561.77		562.31		562.52		562.64		562.96		563.11	

Note:

NM - Not monitored. MH11 was blocked and could not be accessed.

TABLE 2.4

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

Date Monitored		*6/20/02*		*7/18/02*		*8/6/02*		*9/12/02*		*10/30/02*		*11/21/02*		*12/11/02*	
Monitoring Location		*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*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.24	Upward	560.99	Upward	560.79	Upward	561.14	Upward	561.21	Upward	560.67	Upward	561.08	Upward
Lower	MW-6	561.92		561.89		561.92		561.82		561.97		562.05		562.04	
Upper	MH8	560.68	Upward	560.79	Upward	561.05	Upward	561.10	Upward	561.07	Upward	558.03	Upward	559.95	Upward
Lower	MW-7	561.54		561.65		561.93		561.99		561.95		561.41		561.25	
Upper	MH11	560.98	Upward	561.07	Upward	561.33	Upward	561.34	Upward	561.36	Upward	561.49	Downward	561.51	Downward
Lower	MW-8	561.50		561.60		561.88		561.91		561.95		560.99		560.73	
Upper	MH14	562.98	Downward	561.83	Upward	562.08	Upward	562.11	Upward	562.68	Downward	562.88	Downward	563.07	Downward
Lower	MW-9	562.91		562.84		562.75		562.66		562.57		562.74		562.91	

Note:

NM - Not monitored. MH11 was blocked and could not be accessed.

TABLE 2.4

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

Date Monitored		*1/16/03*		*2/25/03*		*3/14/03*		*4/14/03*	
Monitoring Location		*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*	*Water Level (ft amsl)*	*Gradient Direction*
Upper	MH3	561.20	Upward	561.10	Upward	561.17	Upward	561.22	Upward
Lower	MW-6	562.27		561.85		561.69		562.42	
Upper	MH8	561.04	Upward	560.60	Upward	560.61	Upward	558.65	Upward
Lower	MW-7	561.95		561.49		561.49		561.42	
Upper	MH11	561.68	Upward	561.60	Downward	561.57	Downward	558.53	Upward
Lower	MW-8	562.00		561.48		561.46		560.98	
Upper	MH14	563.37	Downward	563.07	Downward	563.09	Downward	563.54	Downward
Lower	MW-9	563.17		562.89		562.90		563.36	

Note:

NM - Not monitored. MH11 was blocked 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 (review after 2 years).

PARAMETERS

Volatiles

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

Semi-Volatiles

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

TABLE 2.6

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

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

Notes:

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

TABLE 2.6

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

Location		*OGC-4*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50			7.9J			4.0J			
Benzene	1		0.21J	0.2J						
2-Butanone	50									
Chlorobenzene	5		0.49J	0.66J		0.83J/0.79J		0.46J		0.83J
trans-1,2-Trichloroethene	5			0.22J						
Ethylbenzene	5		0.41J	0.39J		0.54J/0.53J	0.48J	0.39J		0.77J
Methylene Chloride	5				5.1J/4.9J					
Tetrachloroethene	5	1.0J	1.2J	0.87J		0.86J/0.84J	1.1	0.78J		0.77J
Toluene	5			1.0J		1.0/0.98J	1.4	0.72J		1.2
Trichloroethene	5	1.6J	1.4J	1.5J		1.5/1.4	1.7	0.96J		1.5
Vinyl Chloride	2									
Total Xylenes	5		1.0J	0.94J		0.84J/0.82J	1.1J			0.95J
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*									
1,4-Dichlorobenzene	3*									
2,4-Dimethylphenol	50	8J	12	6J	8J/6J	7J/7J	8J		7J/7J	8J
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
Naphthalene	10									
Di-n-octyl phthalate	50									
Phenol	1	310	560	400	420/460	710/1100	1100	1100	2400/2300	1800

Notes:

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

TABLE 2.6

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

Location		*OGC-8*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50	78	31/29	19J		4.7J	3.6J			
Benzene	1	11	14/14	14		2.6	5.3	3.3	3.6	3.1
2-Butanone	50	4.0J								
Chlorobenzene	5	3.7J	4.1J/4.1J	4.0J		0.87J	1.7	1.1		1.1
trans-1,2-Trichloroethene	5	4.3J	3.2J/3.1J	4.0J		0.76J	1.5	0.88J		1.0
Ethylbenzene	5	13	16/16	15	1.6J	2.8	5.8	3.1	3.9	3.1
Methylene Chloride	5		0.52J/0.48J	0.62J	1.8J					
Tetrachloroethene	5	40	51/52	59	7.7J	9.9	22	12	14	11
Toluene	5	140	140/140	110	17J	21	53	28	38	27
Trichloroethene	5	120	110/110	110	20J	22	53	27	35	27
Vinyl Chloride	2	3.7J	3.4/3.6	3.1	1.1J		1.4	0.70J		0.78J
Total Xylenes	5	43	55/54	46	4.8J	8.3	18	9.5	11	9.9
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*									
1,4-Dichlorobenzene	3*									
2,4-Dimethylphenol	50	2J	4J/2J	4J	0.8J	0.8J	3J	1J		
2-Methylphenol	NL	18	30/25	16	4J	5J	13	7J	11	7J
4-Methylphenol	NL	30	51/45	28	8J	10	26	14	20	14J
Naphthalene	10	1J	3J/25	1J			0.9J			
Di-n-octyl phthalate	50		0.1J/ND							
Phenol	1	30	49/44	31	5J	8J	11	10		4J

Notes:

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

TABLE 2.6

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

Location		*River South*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50						3.0J			
Benzene	1									
2-Butanone	50									
Chlorobenzene	5									
trans-1,2-Trichloroethene	5									
Ethylbenzene	5									
Methylene Chloride	5									
Tetrachloroethene	5						0.30J			
Toluene	5			0.29J			0.72J	0.35J		
Trichloroethene	5						0.44J			
Vinyl Chloride	2						0.27J			
Total Xylenes	5									
Semi-Volatiles (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
QUARTERLY SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*MW-8*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50	52	12J	11J	75J	67	20			73
Benzene	1	6.5	4.3	4.1		8.6	12	12	8.1	12
2-Butanone	50									
Chlorobenzene	5	1.8J	1.0J	1.0J		3.2	4.9	4.4	3.6	6.2
trans-1,2-Trichloroethene	5	2.2J	1.8J	2.9J	4.8J	7.3	11	16	12	13
Ethylbenzene	5	5.7	3.7J	4.4J	8.2J	12	18	18	15	23
Methylene Chloride	5	1.1J	0.58J	0.66J	4.4J	1.2	1.4	1.6		1.3
Tetrachloroethene	5	21	12	9.8	23J	32	61	58	54	80
Toluene	5	75	36	31	80	100	140	160	100	120
Trichloroethene	5	82	40	35	110	180	320	280	210	320
Vinyl Chloride	2	5.2	1.6J	3.3	23	12	18	14	12	18
Total Xylenes	5	22	13	16	30J	40	68	69	58	93
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*				2J	2J		2J		4J
1,4-Dichlorobenzene	3*			0.6J	2J	1J	1J	2J		4J
2,4-Dimethylphenol	50	1J	11	16	19	18	15	27	20	27
2-Methylphenol	NL	33	55	41	48	44	38	56	37	35
4-Methylphenol	NL	10	32	34	55	60	59	83	64	75
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

Notes:

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

TABLE 2.6

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

Location		*OGC-3*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50	13J / 19J	3.8J	15J		7.1	6.7			5.6
Benzene	1	1.6J / 1.6J	1.6	1.8		1.8	1.2	1.5		1.6
2-Butanone	50									
Chlorobenzene	5		0.24J	0.28J		0.28J		0.22J		
trans-1,2-Trichloroethene	5	1.6J / 1.6J	1.0J	1.4J	1.1J	1.1	0.98J	0.44J		1.0
Ethylbenzene	5	1.6J / 1.5J	2.0J	2.3J	1.5J	2.4	1.7	1.8		2.0
Methylene Chloride	5				1.9J					
Tetrachloroethene	5	2.4J / 2.2J	3.0J	2.2J	1.7J	2.2	1.8	1.8		1.5
Toluene	5	5.7 / 5.1	5.9	5.3		5.1	3.7	4.6	4.0	4.3
Trichloroethene	5	20 / 20	18	19	14J	17	14	13	12	14
Vinyl Chloride	2	ND / 1.0J	0.4	0.72						0.62J
Total Xylenes	5	5.6J / 5.4J	7.5	8.7	4.8J	7.8	5.8	5.8	5.0	6.6
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*				1J					
1,4-Dichlorobenzene	3*				0.7J		0.5J			
2,4-Dimethylphenol	50	5J / 5J	9	8J	11	11	7J	8J	11	12
2-Methylphenol	NL	98 / 96	120	87	160	140	100	100	120	140
4-Methylphenol	NL	13 / 13	21	17	28	23	14	15	22	23
Naphthalene	10									
Di-n-octyl phthalate	50									
Phenol	1	120 / 110	140	130J	210	140	85	92	110	120

Notes:

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

TABLE 2.6

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

Location		*GW-5S*		*OGC-7*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	293		21J	0.25J	8.2J			3.6J			
Benzene	1	2				0.30J		0.28J	0.20J	0.26J		
2-Butanone	50	27										
Chlorobenzene	5											
trans-1,2-Trichloroethene	5	180	89	6.3	3.1J	5.4	4.9J	4.8J	4.2	4.7	4.0	5.4
Ethylbenzene	5	9	7J	1.1J	0.80J	1.0J		1.3	0.84J	0.91J		1.4
Methylene Chloride	5	1										
Tetrachloroethene	5	11	7J	4.3J	3.6J	3.4J	2.9J	4.0	3.4	2.7	2.8	4.1
Toluene	5	75	49	12	5.8	6.7	5.7J	6.9	5.2	6.0	6.7	8.6
Trichloroethene	5	287	220	70	40	48	45	68	44	38	50	56
Vinyl Chloride	2	7	4J	2.6J	0.84	1.7J	3.5J	2.2	1.8	1.8		2.3
Total Xylenes	5	54	37	6.0J	4.8J	6.5	3.9J	7.6	5.3	5.3	5.5	8.7
Semi-Volatiles (µg/L)												
1,2-Dichlorobenzene	3*		2J									
1,4-Dichlorobenzene	3*											
2,4-Dimethylphenol	50	10	11		2J							
2-Methylphenol	NL	24	24	3J	2J	1.0J	0.8J	1J				
4-Methylphenol	NL	38				0.9J	0.7J	1J				
Naphthalene	10											
Di-n-octyl phthalate	50						0.6J					
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
QUARTERLY SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*River Middle*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50						3.1J			
Benzene	1									
2-Butanone	50									
Chlorobenzene	5									
trans-1,2-Trichloroethene	5									
Ethylbenzene	5									
Methylene Chloride	5									
Tetrachloroethene	5									
Toluene	5									
Trichloroethene	5							0.21J		
Vinyl Chloride	2									
Total Xylenes	5									
Semi-Volatiles (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				0.7J					
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
QUARTERLY SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*MW-7*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50	5.7J		6.5J		4.3J	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		0.82J	1.1J		0.98J	0.89J	1		
Ethylbenzene	5		0.85J	0.81J		1.0	0.61J	0.75J		
Methylene Chloride	5				1.6J					
Tetrachloroethene	5			0.27J						
Toluene	5		3.5J	3.6J		3.3	1.9	3		1.1
Trichloroethene	5		0.55J	0.63J		0.43J	0.45J	0.36J		
Vinyl Chloride	2		1.6J	2.0	3.8J	2.9	1.7	2.2		1.3
Total Xylenes	5		2.1J	2.1J		2.7J	1.5J	1.9J		0.76J
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*									
1,4-Dichlorobenzene	3*									
2,4-Dimethylphenol	50			2J	2J	3J	0.7J	2J		
2-Methylphenol	NL		3J	2J	4J	6J	1J	2J		
4-Methylphenol	NL		3J	2J	4J	6J	1J	2J		
Naphthalene	10									
Di-n-octyl phthalate	50				0.6J					
Phenol	1		24	7J	10	26	2J	6J		5J

Notes:

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

TABLE 2.6

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

Location		*OGC-2*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50						3.0J			
Benzene	1			11J						
2-Butanone	50									
Chlorobenzene	5									
trans-1,2-Trichloroethene	5									
Ethylbenzene	5									
Methylene Chloride	5				1.7J					
Tetrachloroethene	5									
Toluene	5									
Trichloroethene	5		0.39J							
Vinyl Chloride	2			0.26J		0.25J	0.26J			
Total Xylenes	5									
Semi-Volatiles (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
QUARTERLY SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		OGC-6								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50			6.6J			5.0			3.7J
Benzene	1									0.71
2-Butanone	50									
Chlorobenzene	5									
trans-1,2-Trichloroethene	5			0.23J	0.23J	0.37J	0.45J	0.55J		1.4
Ethylbenzene	5					0.31J				0.85J
Methylene Chloride	5				2.1J					
Tetrachloroethene	5		1.4J	0.73J		6.6	7.4	5	12	49
Toluene	5			0.55J		2.0	1.6	1.5	2.4	9.3
Trichloroethene	5	3.0J	4.7J	3.1J	5.9	16	19	13	26	95
Vinyl Chloride	2					0.22J	0.25J			0.45J
Total Xylenes	5		0.22J	0.53J	0.26J	1.7J	1.2J	1.0J		4.1
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*									
1,4-Dichlorobenzene	3*									
2,4-Dimethylphenol	50							1J		
2-Methylphenol	NL		2J	2J	5J	11	8J	9J	13	22
4-Methylphenol	NL			1J	0.02J	10				
Naphthalene	10									
Di-n-octyl phthalate	50									
Phenol	1		7J	2J	4J	5J	3J	2J		5J

Notes:

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

TABLE 2.6

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

Location		*River North*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50						2.4J		NS	
Benzene	1					0.21J				
2-Butanone	50									
Chlorobenzene	5					1.3				
trans-1,2-Trichloroethene	5					0.25J				
Ethylbenzene	5					20				
Methylene Chloride	5				1.6J					
Tetrachloroethene	5					3.8				
Toluene	5			0.39J		63				0.96J
Trichloroethene	5			0.35J		4.5				
Vinyl Chloride	2					3.7				
Total Xylenes	5					80				0.96J
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*									
1,4-Dichlorobenzene	3*									
2,4-Dimethylphenol	50							1J		
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
QUARTERLY SITE GROUNDWATER AND RIVER WATER
GRATWICK-RIVERSIDE PARK
NORTH TONAWANDA, NEW YORK

Location		*OGC-5*								
Date		*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*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50	38J		11J			6.4			4.9J
Benzene	1		1.5	1.4		0.87	0.92	0.87		0.77
2-Butanone	50									
Chlorobenzene	5									
trans-1,2-Trichloroethene	5		0.65J	0.76J		0.42J	0.57J	0.52J		
Ethylbenzene	5		0.21J	0.23J						
Methylene Chloride	5				3.4J					
Tetrachloroethene	5		0.38J	0.27J						
Toluene	5		2.5J	2.2J		0.99J	0.87J	1.2		0.80J
Trichloroethene	5		0.87J	0.66J		0.36J	0.41J	0.40J		
Vinyl Chloride	2		1.6J	1.2J		1.1	1.5	1.2		1.1
Total Xylenes	5		1.0J	1.0J		0.67J	0.37J	0.40J		
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*									
1,4-Dichlorobenzene	3*									
2,4-Dimethylphenol	50		8J	6J	5J		1J	6J		
2-Methylphenol	NL		1J	1J	1J					
4-Methylphenol	NL		2J	5J	4J			2J		
Naphthalene	10		1J	1J			0.5J	1J		
Di-n-octyl phthalate	50			1J	0.8J					
Phenol	1		0.9J							

Notes:

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

TABLE 2.6

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

Location		*GW-6S*		*MW-6*								
Date		*12/15/87*	*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*
Volatiles (µg/L)	*Class GA Level*											
Acetone	50	684	4.9J						4.4J			44
Benzene	1	3			0.64J			0.65J	0.59J	0.56J		0.57J
2-Butanone	50											
Chlorobenzene	5		3.3J		1.5J	1.3J		0.65J		0.54J		0.81J
trans-1,2-Trichloroethene	5	58	4.4J		1.1J			0.37J	0.32J	0.34J		1.4
Ethylbenzene	5	2			0.21J							
Methylene Chloride	5						1.8J					
Tetrachloroethene	5	43			0.44J							0.67J
Toluene	5	16	3.0J		2.2J	0.29J		1.3	0.91J	1.1		2.1
Trichloroethene	5	62	5.1		2.0J		1.2J		1.1	1.5	3.2	14
Vinyl Chloride	2	11	1.7J					0.29J	0.24J	0.22J		0.52J
Total Xylenes	5	7			0.90J	0.44J		0.36J	0.27J			
Semi-Volatiles (µg/L)												
1,2-Dichlorobenzene	3*											
1,4-Dichlorobenzene	3*			1J		0.7J	2J					
2,4-Dimethylphenol	50	5		5J	5J	3J	2J	1J	0.9J	9J		
2-Methylphenol	NL	3		5J	6J	2J	2J	2J	1J	0.9J		
4-Methylphenol	NL	4		15	13	5J	4J	3J	2J	2J		
Naphthalene	10			67	69		1J		14	13		
Di-n-octyl phthalate	50						2J					
Phenol	1	3		14	4J	2J	0.8J					

Notes:

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

TABLE 2.6

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

Location		*OGC-1*								
Date		*05/18/01*	*8/21/2001*	*11/27/01*	*02/11/02*	*05/21/02*	*08/06/02*	*11/22/02*	*02/25/03*	*05/08/03*
Volatiles (µg/L)	*Class GA Level*									
Acetone	50	20J		11J			4.8J			
Benzene	1		0.64J	0.55J				0.26J		
2-Butanone	50	1.1J								
Chlorobenzene	5	2.2J	2.0J	1.7J		0.24J		0.78J		0.91J
trans-1,2-Trichloroethene	5	5.6	3.7J	4.6J	1.8J	0.48J	0.58J	2.7		2.8
Ethylbenzene	5		0.52J	0.43J				0.21J		
Methylene Chloride	5				1.6J					
Tetrachloroethene	5		0.78J	0.54J		0.42J	0.53J	0.30J		
Toluene	5	5.2	5.4	4.2J		0.48J	0.43J	1.9	1.7	2.6
Trichloroethene	5	15	16	11	4.5J	2.2	2.7	6.1	5.1	8.4
Vinyl Chloride	2	1.3J	0.51J	0.72J				0.42J		0.64J
Total Xylenes	5		2.1J	1.6J				0.49J		0.86J
Semi-Volatiles (µg/L)										
1,2-Dichlorobenzene	3*									
1,4-Dichlorobenzene	3*	1J	3J	2J	1J			1J		
2,4-Dimethylphenol	50	9J	16	8J	3J		0.6J	9J		4J
2-Methylphenol	NL	6J	12	5J	2J			2J		3J
4-Methylphenol	NL	20	35	15J	5J		1J	5J	6J	8J
Naphthalene	10	71	130		21		7J	18		25
Di-n-octyl phthalate	50									
Phenol	1	150	290	57	15	1J	8J	4J		19

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						7.8					10.3				
10/24/00						7.7					10.5				
03/29/01				7.60	10.82		NM			12.55		8.68		9.80	
05/11/01	*	*	*	*	*	*	*	8.30	8.17	8.50	10.16	8.90	11.22	9.22	11.26
05/18/01				11.05	11.14		10.42		10.00	10.50		8.19		8.70	
06/08/01	9.25						9.35		6.90	8.24		7.33		8.40	
06/15/01		10.1	10.38	9.6	9.6		9.4		6.91	8.22		7.43	10.65	8.46	
06/22/01		*	*	*	*										
06/29/01		10.9	10.8	11	10.9		10.56		7	8.97		9.27	11.33	8.63	
07/31/01		10.82	10.81	10.97	11.25		10.54		7.92	8.55		9.2	11.28	9.35	
08/20/01		11	11	9.86	10.95		10.44		7.9	8.31		7.71	11.45	8.49	
09/28/01		10.75	10.97	9.89	11.01		10.6		7.93	8.3		9.0	11.15	8.75	
10/22/01		10.7	10.45	10.5	11		7.86		6.1	9.32		8.97	8.49	8.87	
11/27/01		10.61	10.46	10.12	11.65		10.3			10.54		10.01	8.61	8.63	
12/20/01		10.17	10.11	9.97	11.22		10.19		9.98	10.37		9.68	8.42	8.51	
01/29/02		11.8	11.62	11.15	11.82		10.48		9.91	10.86		10.56	11.91	10.23	
02/11/02		10.26	10.16	10.5	10.4				7.79	11.44		10.04	11.74	8.33	
03/25/02		10.62	10.45	11.22	10.69		10.36		9.94	11.4		10.03	12.21	9.65	
04/24/02		10.37	10.22	10.68	11.36		9.97		9.46	11.15		9.73	11.3	9.52	
05/21/02		9.96	9.81	10.76	10.42		9.85		9.25	11.91		9.38	9.69	9.2	
06/20/02		10.64	9.4	10.91	11.19		9.77		9.46	11.4		10.59	11.76	9.46	
07/18/02		10.89	10.69	10.87	11.75		9.63		9.32	11.24		10.24	11.76	9.51	
08/06/02		10.62	10.47	8.21	5.67		7.25		8.79	8.78		7.46	11.24	7.83	
09/12/02		10.92	11.23	11.17	11.85		9.61		9.27	11.29		10.26	11.9	9.51	
10/30/02		10.1	11.22	10.74	10.89		9.68		9.82	10.63		9.95	11.97	9.64	
11/21/02		9.06	9.3	10.09	11.89		10.72		9.17	12.42		9.76	9.31	9.6	
12/11/02		8.92	9.17	10.16	11.03		9.87		9.02	10.39		10.19	9.5	9.18	
01/16/03		10.9	11.76	11.02	11.59		10.31		10.01	11.52		11.01	12.37	9.83	
02/25/03		10.72	11.12	10.51	11.81		10.22		9.87	12.31		9.42	9.32	8.92	
03/14/03		11.77	11.92	10.07	11.93		10.09		9.71	11.92		10.19	9.28	9.44	
04/14/03		9.78	9.71	9.67	10.82		9.74		9.21	10.45		9.74	10.48	9.01	

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						10.6		9.5				7.4	
10/24/00			8.38						7.76				8.15	
03/29/01		8.37		6.41	9.41			9.77		8.17	10.41			
05/11/01	10.9	11.51		11.55	11.59	8.25	7.5	11.58		7.37	11.16	11.21	8.83	9.27
05/18/01		10.93		11.2	11.21	8.25		11.4		10.60	11.32		12.27	
06/08/01		9.68		10.1	10.34	6.99		10.32		10.03	10.44		7.25	
06/15/01		10.0	10.3	10.7	10.8	7.03		10.54	8.75	10.34	10.55		7.27	8.88
06/22/01	*	*	*	*	10.92	7.3		11	8.98	10.47	11.1		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	7.72	7.22	
06/20/02		11.92		12.26	12.34	8.07		12.28	8.12	11.63	12.2	7.89	7.84	
07/18/02		11.78		12.11	12.16	8.11		12.13	9.82	11.31	11.96	7.81	7.36	
08/06/02		6.95	11.76	7.88	7.63	8.02		8.87	9.76	8.89	9.03	7.64	7.49	
09/12/02		11.93	12.19	12.23	12.32	8.76		12.3	10.81	11.77	12.04	8.16	8.17	
10/30/02		11.91	12.2	12.21	12.24	NM		12.22	8.34	11.89	12.01	7.95	7.63	
11/21/02		11.79	9.46	12.53	12.46	7.64		12.62	7.71	12.42	12.5	7.95	7.37	
12/11/02		11.26	9.41	11.39	11.54	7.56		11.51	7.86	10.76	11.29	7.35	7.18	
01/16/03		12.39		12.55	12.74	8.47		12.82	8.76	12.3	12.52	7.98	8.16	
02/25/03		11.94		12.46	12.49	8.42		12.51	8.71	12.19	12.52	7.89	8.13	
03/14/03		12.16		12.33	12.56	8.26		12.44	8.79	12.11	12.35	8.01	7.79	
04/14/03		11.02		11.63	11.18	7.92		11.62	7.87	10.89	11.89	7.62	7.42	

TABLE 2.7

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

Monitoring Location	*City MH1*	*City MH2*	*City MH3*
Date			
07/24/00	6.3	7.3	
10/24/00	7.08	7.52	7.41
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

Notes:

* - pH meter malfunctioned
NM - Not Measured

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

Semi-Volatiles

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

Inorganics

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

Wet Chemistry

Alkalinity (Bicarbonate)
Alkalinity (Total)
BOD
Chloride
COD
Cyanide
Hardness
NH3
NO3
Oil and Grease
pH
Phosphorous
Sulfate
Sulfide
TDS
TKN
TOC
TSS

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:		*Discharge Sample Port GRATWICK-RIVERSIDE*							
Sample Date:		*6/29/01*	*7/30/01*	*8/21/01*	*9/20/01*	*10/24/01*	*11/29/01*	*12/6/01*	
Parameter	*Unit*								*Surface Water Standard* [1]
Volatiles									
1,1,1-Trichloroethane	ug/L	3.0J	1.8J	1.1J	7.6U	7.6U	3.8U	3.8U	5
1,1-Dichloroethane	ug/L	8.8	7.3	5.8	3.4J	2.1U	2.6J	3.5J	5
1,2-Dichloroethane	ug/L	5.0U	5.0U	5.0U	10U	10U	5.0U	5.0U	0.6
2-Butanone	ug/L	7.6J	10	10U	20U	20U	6.8J	6.7J	50
Acetone	ug/L	77	93	140	36	26	55	55	50
Benzene	ug/L	6.4	7.2	6.2	3.5J	3.2J	3.1J	4.0J	1
Chlorobenzene	ug/L	3.7J	4.9J	5.0J	3.4J	16	3.5J	5.4J	5
Ethylbenzene	ug/L	8.9	11	9	8.6J	3.6J	4.8J	6.8J	5
Methylene chloride	ug/L	1.1J	2.8U	2.8U	5.6U	5.6U	2.8U	2.8U	5
Styrene	ug/L	1.0J	5.0U	5.0U	10U	10U	5.0U	5.0U	5
Tetrachloroethene	ug/L	22	33	25	16	8.3	15	23	0.7 [2]
Toluene	ug/L	74	84	68	42	20	37	50	5
trans-1,2-Dichloroethene	ug/L	2.6	2.1	2.8	3.3J	1.8J	1.5J	2.4	5
Trichloroethene	ug/L	150J	130	87	55	32	56	72	5
Vinyl chloride	ug/L	11	13	13	13J	5.6J	8.0J	13	0.3 [2]
Xylene (total)	ug/L	40	44	34	32	11	17	26	5
Semi-Volatiles									
1,2-Dichlorobenzene	ug/L	9U	2U	1J	6	0.6J	0.9J	9U	3
1,4-Dichlorobenzene	ug/L	21U	4U	1J	2J	1J	4U	1J	3
2,4-Dimethylphenol	ug/L	14	13	19	12	8	17	13	50 [2]
2-Methylphenol	ug/L	49	46	38	28	15	38	37J	NL
4-Methylphenol	ug/L	58	47	46	30	21	46	40J	NL
Di-n-octyl phthalate	ug/L	12U	2U	2U	2U	1J	2U	12U	50 [2]
Naphthalene	ug/L	1J	1J	1J	1J	67J	0.8J	8U	10
Phenol	ug/L	86	64	67	110	230	74	110	1

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:		*Discharge Sample Port GRATWICK-RIVERSIDE*							
Sample Date:		*6/29/01*	*7/30/01*	*8/21/01*	*9/20/01*	*10/24/01*	*11/29/01*	*12/6/01*	
Parameter	*Unit*								*Surface Water Standard* [1]
Metals									
Aluminum	mg/L	0.31	0.24	0.24	0.34	0.20U	0.20	0.20U	NL
Antimony	mg/L	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.003
Arsenic	mg/L	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.050
Barium	mg/L	0.059	0.063	0.061	0.081	0.067	0.064	0.064	1.0
Beryllium	mg/L	0.0050U	0.0050U	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	0.0010U	0.0010U	0.005
Chromium	mg/L	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.050
Copper	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.023 [3]
Iron	mg/L	0.050U	0.050U	0.050U	0.16	0.095	0.057	0.062	0.30
Lead	mg/L	0.010U	0.010U	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	0.94	35
Manganese	mg/L	0.0030U	0.0030U	0.0036	0.012	0.028	0.0043	0.004	0.30
Mercury	mg/L	0.00020U	0.00020U	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	0.010U	0.010U	0.10
Selenium	mg/L	0.010U	0.010U	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	0.0030U	0.0030U	0.050
Sodium	mg/L	273	271	262	310	290	293	286	NL
Zinc	mg/L	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	2.0 [2]
General Chemistry									
pH	S.U.	NA	NA	9.45	11.23	9.20	10.06	10.71	NL
Hardness	mg/L	524	488	465	529	301	456	410	NL
Total Dissolved Solids (TDS)	mg/L	1500	1450	1530	1520	1280	1200	1200	NL
Total Suspended Solids (TSS)	mg/L	NA	NA	14	19	10	9.0	7.0	NL
Chloride	mg/L	497	123	497	820	577	436	389	250
BOD	mg/L	NA	NA	20	17	20	24	27	NL
COD	mg/L	NA	NA	155	240	240	50	49	NL
Oil and Grease	mg/L	NA	NA	0.60U	1.0	0.87U	1.0U	1.0U	NL
Organic Carbon	mg/L	NA	NA	16	10	18	9.0	11	--
Alkalinity, Total (As CaCO3)	mg/L	131	115	120	115	20.9	22.2	57	NL
Bicarbonate (as CaCO3)	mg/L	5.0U	5.0U	5.0U	5.0U	20.9	22.2	57	NL
Ammonia	mg/L	NA	NA	6	4.9	4.9	21	11.6	2.0
Nitrate (as N)	mg/L	0.050U	0.050U	0.50U	0.20	0.050U	0.050U	0.050U	10

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:		*Discharge Sample Port GRATWICK-RIVERSIDE*							
Sample Date:		*6/29/01*	*7/30/01*	*8/21/01*	*9/20/01*	*10/24/01*	*11/29/01*	*12/6/01*	
Parameter	*Unit*								*Surface Water Standard* (1)
General Chemistry									
TKN	mg/L	NA	NA	10	7.6	7.6	14.8	10.6	NL
Sulfate	mg/L	281	20.4	307	196	329	245	263	250
Sulfide	mg/L	13.2	16.0	14.3	5.6	2.5	10.6	14	0.002
Phenol	mg/L	NA	NA	0.28	0.24	0.28	0.15	0.11	0.001
Phosphorous	mg/L	NA	NA	0.29	NA	0.05	0.13	0.06	0.020 (2)
Cyanide	mg/L	NA	NA	0.005U	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

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID: / *Sample Date:*		1/23/02	2/21/02	3/27/02	4/24/02	5/30/02	6/29/02	6/29/02	7/25/02	8/27/02	9/23/02	10/17/02	11/13/02	12/12/02	
Parameter	*Unit*														*Surface Water Standard* [1]
Volatiles															
1,1,1-Trichloroethane	ug/L	7.3U	7.6U	7.6U	7.6U	7.6U	7.6U	7.6U	7.6U	3.8U	3.8U	3.8U	3.8U	7.6U	5
1,1-Dichloroethane	ug/L	2.3J	4.1J	4.9J	9.9	9.4U	9.4U	9.4U	2.7J	1.4J	1.8J	1.2J	4.5J	7.3J	5
1,2-Dichloroethane	ug/L	10U	10U	10U	10U	10U	10U	10U	10U	5.0U	5.0U	5.0U	5.0U	10U	0.6
2-Butanone	ug/L	20U	20U	20U	110	20U	20U	20U	20U	10U	10U	2.1J	10U	5.2J	50
Acetone	ug/L	42	53	56	98	52	25	25	130	7.0J	28	15	48	96	50
Benzene	ug/L	2.1J	3.2J	4.6J	9.1	4.7J	2.1J	2.1J	3.3J	1.9J	3.3J	2.1J	5.3	7.8J	1
Chlorobenzene	ug/L	3.8J	6.6J	5.2J	4.4J	8.9J	5.8J	5.8J	5.4J	6.9	4.0J	5.6J	6.1	4.3J	5
Ethylbenzene	ug/L	2.0J	7.6J	9.6J	18	10J	5.3J	5.3J	7.8J	6.4J	7.2	4.6J	13	18	5
Methylene chloride	ug/L	6.4U	5.6U	5.6U	2.9J	5.6U	5.6U	5.6U	3.2J	3.5U	3.5U	3.5U	3.5U	2.2J	5
Styrene	ug/L	10U	10U	10U	10U	10U	10U	10U	10U	5.0U	5.0U	5.0U	5.0U	10U	5
Tetrachloroethene	ug/L	4.9J	23	28	46	48	27	27	19	9.6	12	6.0	42	48	0.7 [2]
Toluene	ug/L	15	46	57	110	42	33	33	41	18	30	14	64	110	5
trans-1,2-Dichloroethene	ug/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	5
Trichloroethene	ug/L	27	92	140	260	140	80	80	74	20	48	20	130	230	5
Vinyl chloride	ug/L	8.4J	20U	5.1J	14J	13J	8.6J	8.6J	6.6J	11	10	11	18	15J	0.3 [2]
Xylene (total)	ug/L	7.3J	29	40	76	37	21	21	30	20	24	15	50	78	5
Semi-Volatiles															
1,2-Dichlorobenzene	ug/L	2J	1J	1J	3	9U	0.8J	0.8J	1J	0.6J	0.6J	1J	0.9J	3	3
1,4-Dichlorobenzene	ug/L	2J	2J	1J	3J	2J	1J	1J	1J	1J	0.8J	2J	1J	3J	3
2,4-Dimethylphenol	ug/L	11J	9J	8	14	5J	4	4	9	6	7	8	12	21	50 [2]
2-Methylphenol	ug/L	28J	21J	17	36	10J	8J	8J	18	8J	13	15	19	32	NL
4-Methylphenol	ug/L	40J	27J	24	57	19J	13	13	27	13	20	21	30	61	NL
Di-n-octyl phthalate	ug/L	14U	12U	2U	2U	12U	2U	2U	2U	2U	0.3J	3U	2U	2U	50 [2]
Naphthalene	ug/L	57	24	12	1J	7U	15	15	13	23	8	29	2U	1J	10
Phenol	ug/L	210	96	42	73	46	51	51	41	66	28	84	35	38	1

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:														
Sample Date:		1/23/02	2/21/02	3/27/02	4/24/02	5/30/02	6/29/02	6/29/02	7/25/02	8/27/02	9/23/02	10/17/02	11/13/02	12/12/02	
Parameter	*Unit*														*Surface Water Standard* [1]
Metals															
Aluminum	mg/L	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	0.20U	NL
Antimony	mg/L	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.020U	0.003
Arsenic	mg/L	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.0070U	0.050
Barium	mg/L	0.077	0.075	0.078	0.095	0.064	0.058	0.058	0.059	0.073	0.054	0.064	0.068	0.096	1.0
Beryllium	mg/L	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	0.0050U	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	0.0010U	0.0010U	0.0010U	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	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.0020U	0.050
Copper	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.023[3]
Iron	mg/L	0.050U	0.050U	0.050U	0.050U	0.090	0.050U	0.050U	0.050U	0.050U	0.050U	0.050U	0.10	0.050U	0.30
Lead	mg/L	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.012
Magnesium	mg/L	1.5	1.4	0.92	0.34	2.5	1.7	1.7	1.8	8.8	3.5	6.4	1.9	0.43	35
Manganese	mg/L	0.0034	0.0042	0.0049	0.003U	0.0090	0.0030U	0.0030U	0.0030U	0.0094	0.0030U	0.0098	0.0030U	0.0030U	0.30
Mercury	mg/L	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	0.00020U	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	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	0.10
Selenium	mg/L	0.010U	0.010UJ	0.010U	0.010U	0.010U	0.010U	0.010U	0.010U	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	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.0030U	0.050
Sodium	mg/L	317	336	360	242	329	318	318	270	189	195	204	289	272	NL
Zinc	mg/L	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	0.026U	2.0[2]
General Chemistry															
pH	S.U.	10.91	10.96	10.92	11.46	10.4	10.66	10.66	10.37	8.44	8.97	8.84	10.11	10.72	NL
Hardness	mg/L	415	449	440	484	349	300	300	300	316	277	274	372	507	NL
Total Dissolved Solids (TDS)	mg/L	1450	1490	1640	1610	1530	1130	1130	1100	868	1040	945	1330	1410	NL
Total Suspended Solids (TSS)	mg/L	5.0	11.0	9	8	6	8	8	8	12	6	1.5	2	2.3	NL
Chloride	mg/L	514	545	577	545	518	452	452	424	377	320	329	502	489	250
BOD	mg/L	25	21	22	29	13	9	9	12	14	8	11	16	15	NL
COD	mg/L	45	58	255	50	23	26	26	58	49	19	46	16	64	NL
Oil and Grease	mg/L	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	1.0U	NL
Organic Carbon	mg/L	14	6	10	12	9	11	11	8	6.9	10	7	(5)	(5)	NL
Alkalinity, Total (As CaCO3)	mg/L	62.4	53.8	102	126	36.3	43.1	43.1	16.7	27.2	5.0U	22.4	14.3	110	NL
Bicarbonate (as CaCO3)	mg/L	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	5.0U	16.7	27.2	5.0U	22.4	14.3	5.0U	NL
Ammonia	mg/L	9.1	6.0	6.0	5.2	SL	2.0	2.0	1.7	9.1	10.5	9.4	9.4	7.0	2.0
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	0.050U	0.050U	10

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:														
Sample Date:		*1/23/02*	*2/21/02*	*3/27/02*	*4/24/02*	*5/30/02*	*6/29/02*	*6/29/02*	*7/25/02*	*8/27/02*	*9/23/02*	*10/17/02*	*11/13/02*	*12/12/02*	
Parameter	*Unit*														*Surface Water Standard* [1]
General Chemistry															
TKN	mg/L	8.1	4.5	5.0	4.8	SL	2.0	2.0	1.7	5.6	6.2	7.8	10.5	10.8	NL
Sulfate	mg/L	261	250	262	239	239	226	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	1.0U	1.4	1.0U	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	0.16	0.12	0.12	0.001
Phosphorous	mg/L	0.09	0.08	0.09	0.17	0.02	0.10	0.10	0.04	0.018	0.04	0.06	0.12	0.10	0.020[2]
Cyanide	mg/L	0.005U	0.005U	0.040J	0.005U	0.005	0.005U	0.005U	0.005U	0.005U	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 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:							
Sample Date:		*1/16/03*	*2/06/03*	*3/11/03*	*4/04/03*	*Surface Water Standard*	(1)
Parameter	*Unit*						
Volatiles							
1,1,1-Trichloroethane	ug/L	2.6U	2.6U	2.6U	5.2U	5	
1,1-Dichloroethane	ug/L	4.1	9.6	5.6	6.4	5	
1,2-Dichloroethane	ug/L	1.7U	1.7U	1.7U	3.4U	0.6	
2-Butanone	ug/L	9.3U	9.3U	9.3U	19U	50	
Acetone	ug/L	21	56	51	42	50	
Benzene	ug/L	3.4	7.9	6.2	4.4U	1	
Chlorobenzene	ug/L	6.1	6.6	6.9	7.5	5	
Ethylbenzene	ug/L	9.9	2.3	15	12	5	
Methylene chloride	ug/L	7.0U	7.0U	7.0U	14U	5	
Styrene	ug/L	5.2U	5.2U	5.2U	10U	5	
Tetrachloroethene	ug/L	22	59	46	31	0.7	(2)
Toluene	ug/L	37	110	81	56	5	
trans-1,2-Dichloroethene	ug/L	3.0U	4.3	3.0U	6.0U	5	
Trichloroethene	ug/L	92	260	220	160	5	
Vinyl chloride	ug/L	10	20	11	9.6	0.3	(2)
Xylene (total)	ug/L	41	99	64	50	5	
Semi-Volatiles							
1,2-Dichlorobenzene	ug/L	4U	20U	20U	20U	3	
1,4-Dichlorobenzene	ug/L	4U	18U	19U	19U	3	
2,4-Dimethylphenol	ug/L	10	18U	19U	19U	50	(2)
2-Methylphenol	ug/L	12	16U	22	16U	NL	
4-Methylphenol	ug/L	24	35	45	31	NL	
Di-n-octyl phthalate	ug/L	4U	19U	20U	19U	50	(2)
Naphthalene	ug/L	3U	18U	18U	18U	10	
Phenol	ug/L	61	30	62	94	1	

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:							
Sample Date:		*1/16/03*	*2/06/03*	*3/11/03*	*4/04/03*	*Surface Water Standard*	(1)
Parameter	*Unit*						
Metals							
Aluminum	mg/L	0.20U	0.20U	0.20U	0.20U	NL	
Antimony	mg/L	0.020U	0.020U	0.020U	0.020U	0.003	
Arsenic	mg/L	0.0070U	0.0070U	0.0070U	0.0070U	0.050	
Barium	mg/L	0.091	0.097	0.090	0.094	1.0	
Beryllium	mg/L	0.0050U	0.0050U	0.0050U	0.0050U	0.003	(2)
Cadmium	mg/L	0.0010U	0.0010U	0.0010U	0.0010U	0.005	
Chromium	mg/L	0.0020U	0.0020U	0.0020U	0.0020U	0.050	
Copper	mg/L	0.010U	0.010U	0.010U	0.010U	0.023	(3)
Iron	mg/L	0.050U	0.050U	0.050U	0.11	0.30	
Lead	mg/L	0.010U	0.010U	0.010U	0.010U	0.012	
Magnesium	mg/L	1.4	0.26	0.31	3.6	35	
Manganese	mg/L	0.0030U	0.0030U	0.0030U	0.012	0.30	
Mercury	mg/L	0.00020U	0.00020U	0.00020U	0.00020U	0.0000026	(4)
Nickel	mg/L	0.010U	0.010U	0.010U	0.010U	0.10	
Selenium	mg/L	0.010U	0.010U	0.010U	0.010U	0.0046	(4)
Silver	mg/L	0.0030U	0.0030U	0.0030U	0.0030U	0.050	
Sodium	mg/L	343	391	195	401	NL	
Zinc	mg/L	0.026U	0.026U	0.026U	0.026U	2.0	(2)
General Chemistry							
pH	S.U.	10.71	11.55	11.3	10.91	NL	
Hardness	mg/L	388	435	459	430	NL	
Total Dissolved Solids (TDS)	mg/L	1500	1580	1590	1750	NL	
Total Suspended Solids (TSS)	mg/L	2.0	6.0	3.0	18.0	NL	
Chloride	mg/L	511	512	628	778	250	
BOD	mg/L	13	10	20	22	NL	
COD	mg/L	55	73	46	44	NL	
Oil and Grease	mg/L	1.0U	0.28	1.0U	1.0	NL	
Organic Carbon	mg/L	6	13	12	12	NL	
Alkalinity, Total (As CaCO3)	mg/L	104	155	121	48	NL	
Bicarbonate (as CaCO3)	mg/L	22.5	5.0U	5.0U	5.0U	NL	
Ammonia	mg/L	7.35	3.15	2.10	5.6	2.0	
Nitrate (as N)	mg/L	0.050U	0.050U	0.050U	0.050U	10	

TABLE 2.9

ANALYTICAL RESULTS SUMMARY
MONTHLY SITE EFFLUENT
GRATWICK-RIVERSIDE PARK SITE

Sample ID:							
Sample Date:		*1/16/03*	*2/06/03*	*3/11/03*	*4/04/03*	*Surface Water Standard*	(1)
Parameter	*Unit*						
General Chemistry							
TKN	mg/L	9.24	2.52	1.1	4.48	NL	
Sulfate	mg/L	202	177	184	230	250	
Sulfide	mg/L	3.2	4.0	8.0	10	0.002	
Phenol	mg/L	0.11	0.10	0.009	0.006	0.001	
Phosphorous	mg/L	0.12	0.10	0.18	0.10	0.020	(2)
Cyanide	mg/L	0.005U	0.005U	0.005U	0.005	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 2.10

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

Month	*Volumes (gallons)*	
	Monthly	*Total*
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

Notes:

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

TABLE 2.11

PROPOSED EFFLUENT SAMPLING SUMMARY - NEXT 5-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
Benzene
2-Butanone
Chlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
trans-1,2-Dichloroethene
Ethylbenzene
Methylene Chloride
Styrene
Tetrachloroethene
Toluene
1,1,1-Trichloroethane
Trichloroethene
Vinyl Chloride
Xylenes (Total)

Semi-Volatiles

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

Wet Chemistry

Chloride
Cyanide
NH3
NO3
Phosphorous
Sulfate
Sulfide

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)

PARAMETERS

Volatiles

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

Semi-Volatiles

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

APPENDIX A

MONTHLY INSPECTION LOGS (NOVEMBER 2002 TO APRIL 2003)

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11 | 24 | 07 (MM DD YY)

INSPECTOR(S): J Ramer

	Item	*Inspect For*	*Action Required*	*Comments*
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely		
		- condition of cover	PZ @ MH 14 - Pro Casing is loose	
		- condition of inside of manhole		
		- flow conditions		
X	Wet Wells	- cover on securely	none	
		- condition of cover		
		- condition of inside of wet well		
2.	**Landfill Cap**			
X	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

LOCATION: Wheatfield, New York

DATE: 11/24/04 (MM DD YY)

INSPECTOR(S): J. Rauer

Item	*Inspect For*	*Action Required*	*Comments*
2. **Landfill Cap (continued)**			
X 7/06 Access Roads	- bare areas, dead/dying veg.	none	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. **Wetlands (Area "F")**	- dead/dying vegetation	none	
	- 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

LOCATION: Wheatfield, New York

DATE: 11/24/92 (MM DD YY)

INSPECTOR(S): G. Rauer

	Item	*Inspect For*	*Action Required*	*Comments*
4.	**Other Site Systems (continued)**			
[X]	Drainage Ditches/ Swale Outlets	- sediment build-up	none	
[X]		- erosion		
[X]		- condition of erosion protection		
[X]		- flow obstructions		
[X]		- dead/dying vegetation		
[X]		- cable concrete/gabion mats and riprap		
[ ]	Culverts	- sediment build-up		
[ ]		- erosion		
[ ]		- condition of erosion protection		
[ ]		- flow obstructions		
[ ]	Gas Vents	- intact / damage		
[X]	Wells	- locks secure	none	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11/12/07 (MM DD YY)

INSPECTOR(S): Scott

	Item	Inspect For	Action Required	Comments
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely		
X		- condition of cover	PZ MH 14 is loose	
X		- condition of inside of manhole		
X		- flow conditions		
X	Wet Wells	- cover on securely	none	
X		- condition of cover		
X		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	none	
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 11/12/12/07 (MM DD YY)

INSPECTOR(S): D. Manuel

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
X Access Roads	- bare areas, dead/dying veg.	none	
X	- erosion		
X	- potholes or puddles		
X	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	none	
	- 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

LOCATION: Wheatfield, New York

DATE: 12/12/24 (MM DD YY)

INSPECTOR(S): S. Raner

	Item	Inspect For	Action Required	Comments
4.	**Other Site Systems (continued)**			
X	Drainage Ditches/ Swale Outlets	- sediment build-up	none	
X		- erosion		
X		- condition of erosion protection		
X		- flow obstructions		
X		- dead/dying vegetation		
X		- cable concrete/ gabion mats and riprap		
	Culverts	- sediment build-up		
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
	Gas Vents	- intact / damage		
X	Wells	- locks secure	none	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 01/16/03 (MM DD YY)

INSPECTOR(S): John Raner

	Item	Inspect For	Action Required	Comments
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	none	
		- condition of cover	perimeter ring loose	
		- condition of inside of manhole	none	
		- flow conditions		
X	Wet Wells	- cover on securely	none	
		- condition of cover		
		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	none	
		- 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

LOCATION: Wheatfield, New York

DATE: 01/16/03 (MM DD YY)

INSPECTOR(S): John Raner

Item	*Inspect For*	*Action Required*	*Comments*
2. Landfill Cap (continued)			
X	Access Roads - bare areas, dead/dying veg.	none	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	none	
	- 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

LOCATION: Wheatfield, New York

DATE: 01/16/13 (MM DD YY)

INSPECTOR(S): John Lauer

	Item	Inspect For	Action Required	Comments
4.	**Other Site Systems (continued)**			
☑	Drainage Ditches/ Swale Outlets	- sediment build-up	none	
		- 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	none	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 0|7|2|5|0|3 (MM DD YY)

INSPECTOR(S): J. Ranck

	Item	Inspect For	Action Required	Comments
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	PZ to 14 is loose/ PZ lid to MH8 is missing	
X		- condition of cover		
X		- condition of inside of manhole		
X		- flow conditions		
	Wet Wells	- cover on securely		
		- condition of cover		
		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	snow covered, no apparent problems	
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 01/15/03 (MM DD YY)

INSPECTOR(S): J. Raner

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
Access Roads	- bare areas, dead/dying veg.	snow covered, no visible problems	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	mostly iced over	
	- 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

LOCATION: Wheatfield, New York

DATE: 01/25/03 (MM DD YY)

INSPECTOR(S): J. Raver

	Item	Inspect For	Action Required	Comments
4.	**Other Site Systems (continued)**			
[X]	Drainage Ditches/ Swale Outlets	- sediment build-up	snow covered, no visible problems	
		- 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		
[X]	Wells	- locks secure	none	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 03 / 14 / 03 (MM DD YY)

INSPECTOR(S): John Raner

	Item	Inspect For	Action Required	Comments
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	PZ to mh 14 is loose	
X		- condition of cover	PZ lid to mh 8 is missing	
X		- condition of inside of manhole		
X		- flow conditions		
X	Wet Wells	- cover on securely		
X		- condition of cover		
X		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	snow covered no visible problems	
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 03/14/03 (MM DD YY)

INSPECTOR(S): S. Raner

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
Access Roads	- bare areas, dead/dying veg.	snow covered - no visible problems	
	- erosion		
	- potholes or puddles		
	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	none	
	- 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

LOCATION: Wheatfield, New York

DATE: 10/31/14/03 (MM DD YY)

INSPECTOR(S): J. Rance

	Item	Inspect For	Action Required	Comments
4.	**Other Site Systems (continued)**			
X	Drainage Ditches/ Swale Outlets	- sediment build-up	snow covered - no visible problems	
		- 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		
X	Wells	- locks secure	none	

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 04 14 03 (MM DD YY)

INSPECTOR(S): J Raney

	Item	*Inspect For*	*Action Required*	*Comments*
1.	**Perimeter Collection System/Off-Site Forcemain**			
X	Manholes	- cover on securely	PZ to MH14 is loose	
X		- condition of cover	PZ lid to MH8 is missing	
X		- condition of inside of manhole	none	
X		- flow conditions		
X	Wet Wells	- cover on securely		
X		- condition of cover		
X		- condition of inside of wet well		
2.	**Landfill Cap**			
X	Vegetated Soil Cover	- erosion	none	
X		- bare areas		
X		- washouts		
X		- leachate seeps		
X		- length of vegetation		
X		- dead/dying vegetation		

FORM 17

GRATWICK-RIVERSIDE PARK SITE
MONTHLY INSPECTION LOG

PROJECT NAME: Gratwick-Riverside Park Site

LOCATION: Wheatfield, New York

DATE: 04/14/03 (MM DD YY)

INSPECTOR(S): J Lanet

Item	Inspect For	Action Required	Comments
2. Landfill Cap (continued)			
☑ Access Roads	- bare areas, dead/dying veg.	none	
☑	- erosion		
☑	- potholes or puddles		
☑	- obstruction		
3. Wetlands (Area "F")	- dead/dying vegetation	repairs set for May 03	
	- 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

LOCATION: Wheatfield, New York

DATE: 05/14/03 (MM DD YY)

INSPECTOR(S): J. Lane

	Item	*Inspect For*	*Action Required*	*Comments*
4.	**Other Site Systems (continued)**			
X	Drainage Ditches/ Swale Outlets	- sediment build-up	none	
X		- erosion		
X		- condition of erosion protection		
X		- flow obstructions		
X		- dead/dying vegetation		
X		- cable concrete/gabion mats and riprap		
	Culverts	- sediment build-up		
		- erosion		
		- condition of erosion protection		
		- flow obstructions		
	~~Gas Vents~~	- intact / damage		
X	Wells	- locks secure	none	

FORM 17

B

APPENDIX B

QA/QC REVIEW, MAY 2003 QUARTERLY SAMPLING EVENT

CONESTOGA-ROVERS & ASSOCIATES

2055 Niagara Falls Blvd., Suite #3
Niagara Falls, New York 14304
Telephone: (716) 297-6150 Fax: (716) 297-2265
www.CRAworld.com

MEMORANDUM

TO: Klaus Schmidtke

REF. NO.: 7987

FROM: Susan Scrocchi/js/35 SCS

DATE: June 10, 2003

RE: **Analytical Results and QA/QC Review**
Quarterly Groundwater/River Water Sampling
Gratwick-Riverside Park Site
May 2003

PREVIOUSLY TRANSMITTED BY E-MAIL

INTRODUCTION

Sixteen (16) samples were collected in support of the Quarterly Groundwater/River Water Sampling at the Gratwick-Riverside Park Site (Site) during May 2003. Samples were submitted to Severn Trent Laboratories (STL) in Amherst, New York, and analyzed for the following:

Parameter	*Methodology*
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, the "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.

QA/QC REVIEW

All samples were prepared and/or analyzed within the method specified holding times with the exception of the re-extraction of sample GW-7987-139. The sample was re-extracted outside of the holding time criteria due to poor surrogate recoveries. The SVOC results for this sample were qualified as estimated due to the holding time exceedance (see Table 3).

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 with the exception of the SVOC analysis of sample GW-7987-139. The sample was re-extracted and reanalyzed yielding acceptable recoveries.

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.

Sample MW-9 was collected in duplicate and submitted "blind" to the laboratory. All results demonstrated acceptable agreement indicating adequate sampling and analytical procedures.

A blank spike/blank spike duplicate (BS/BSD) sample was analyzed for SVOCs. All results showed acceptable analytical accuracy and precision.

A matrix spike/matrix spike duplicate (MS/MSD) was prepared and analyzed for SVOCs using sample OGC-6. All recoveries were acceptable indicating adequate analytical accuracy and precision.

CONCLUSION

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

TABLE 1

COLLECTION AND ANALYSIS SUMMAR
QUARTERLY GROUNDWATER/RIVER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
MAY 2003

Sample I.D.	*Location I.D.*	*Collection Date (mm/dd/yy)*	*Collection Time (hr:min)*	*Analysis/Parameters*	*Comment*
050803-JR-129	OGC-1	05/08/03	17:30	SSPL VOCs and SSPL SVOCs	
050803-JR-130	RIVER NORTH	05/08/03	17:45	SSPL VOCs and SSPL SVOCs	
050803-JR-131	OGC-6	05/08/03	13:00	SSPL VOCs and SSPL SVOCs	
050803-JR-132	MW-7	05/08/03	13:15	SSPL VOCs and SSPL SVOCs	
050803-JR-133	OGC-2	05/08/03	13:30	SSPL VOCs and SSPL SVOCs	
050803-JR-134	RIVER MIDDLE	05/08/03	13:45	SSPL VOCs and SSPL SVOCs	
050803-JR-135	OGC-7	05/08/03	14:00	SSPL VOCs and SSPL SVOCs	
050803-JR-136	MW-8	05/08/03	14:15	SSPL VOCs and SSPL SVOCs	
050803-JR-137	OGC-3	05/08/03	14:30	SSPL VOCs and SSPL SVOCs	
050803-JR-138	RIVER SOUTH	05/08/03	14:45	SSPL VOCs and SSPL SVOCs	
050803-JR-139	OGC-8	05/08/03	15:00	SSPL VOCs and SSPL SVOCs	
050803-JR-140	OGC-4	05/08/03	15:15	SSPL VOCs and SSPL SVOCs	
050803-JR-141	MW-9	05/08/03	15:30	SSPL VOCs and SSPL SVOCs	
050803-JR-142	MW-9	05/08/03	15:45	SSPL VOCs and SSPL SVOCs	Field duplicate of 050803-JR-141
050803-JR-143	MW-6	05/08/03	16:00	SSPL VOCs and SSPL SVOCs	
050803-JR-144	OGC-5	05/08/03	16:15	SSPL VOCs and SSPL SVOCs	

Notes:

SSPL Site-Specific Parameter List.
SVOCs Semi-Volatile Organic Compounds.
VOCs Volatile Organic Compounds.

TABLE 2

QUARTERLY GROUNDWATER/RIVER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
MAY 2003

	Sample Location:	MW6	MW7	MW8	MW9	MW9	OGC1	OGC2	OGC3
	Sample ID:	050803-JR-143	050803-JR-132	050803-JR-136	050803-JR-141	050803-JR-142	050803-JR-129	050803-JR-133	050803-JR-137
	Sample Date:	5/8/2003	5/8/2003	5/8/2003	5/8/2003	5/8/2003 Duplicate	5/8/2003	5/8/2003	5/8/2003
Parameter	Units								
Volatiles									
2-Butanone (Methyl Ethyl Ketone)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	44	4.8 J	73	12	13	5.0 U	5.0 U	5.6
Benzene	µg/L	0.57 J	0.90	12	0.70 U	0.40 J	0.70 U	0.70 U	1.6
Chlorobenzene	µg/L	0.81 J	1.0 U	6.2	0.87 J	0.91 J	0.91 J	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	23	0.38 J	0.40 J	1.0 U	1.0 U	2.0
Methylene chloride	µg/L	1.0 U	1.0 U	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	0.67 J	1.0 U	80	0.71 J	0.67 J	1.0 U	1.0 U	1.5
Toluene	µg/L	2.1	1.1	120	1.9	2.0	2.6	1.0 U	4.3
trans-1,2-Dichloroethene	µg/L	1.4	1.0 U	13	1.0 U	1.0 U	2.8	1.0 U	1.0
Trichloroethene	µg/L	14	1.0 U	320	1.8	1.8	8.4	1.0 U	14
Vinyl chloride	µg/L	0.52 J	1.3	18	1.7	1.7	0.64 J	1.0 U	0.62 J
Xylene (total)	µg/L	3.0 U	0.76 J	93	1.0 J	0.98 J	0.86 J	3.0 U	6.6
Semi-Volatiles									
1,2-Dichlorobenzene	µg/L	9 U	10 U	4 J	10 U	10 U	10 U	9 U	9 U
1,4-Dichlorobenzene	µg/L	9 U	10 U	4 J	10 U	10 U	10 U	9 U	9 U
2,4-Dimethylphenol	µg/L	9 U	10 U	27	36	35	4 J	9 U	12
2-Methylphenol	µg/L	9 U	10 U	35	6 J	6 J	3 J	9 U	140
4-Methylphenol	µg/L	9 U	10 U	75	130	130	8 J	9 U	23
Di-n-octyl phthalate	µg/L	9 U	10 U	10 U	10 U	10 U	10 U	9 U	9 U
Naphthalene	µg/L	9 U	10 U	10 U	10 U	10 U	25	9 U	9 U
Phenol	µg/L	9 U	5 J	78	46	46	19	9 U	120

TABLE 2

QUARTERLY GROUNDWATER/RIVER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
MAY 2003

	Sample Location:	OGC4	OGC5	OGC6	OGC7	OGC8	South River	North River	Middle River
	Sample ID:	050803-JR-140	050803-JR-144	050803-JR-131	050803-JR-135	050803-JR-139	050803-JR-138	050803-JR-130	050803-JR-134
	Sample Date:	5/8/2003	5/8/2003	5/8/2003	5/8/2003	5/8/2003	5/8/2003	5/8/2003	5/8/2003
Parameter	*Units*								
Volatiles									
2-Butanone (Methyl Ethyl Ketone)	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetone	µg/L	5.0 U	4.9 J	3.7 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	µg/L	0.70 U	0.77	0.71	0.70 U	3.1	0.70 U	0.70 U	0.70 U
Chlorobenzene	µg/L	0.83 J	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	0.77 J	1.0 U	0.85 J	1.4	3.1	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	0.77 J	1.0 U	49	4.1	11	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.2	0.80 J	9.3	8.6	27	1.0 U	0.96 J	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.4	5.4	1.0	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.5	1.0 U	95	56	27	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	1.1	0.45 J	2.3	0.78 J	1.0 U	1.0 U	1.0 U
Xylene (total)	µg/L	0.95 J	3.0 U	4.1	8.7	9.9	3.0 U	0.96 J	3.0 U
Semi-Volatiles									
1,2-Dichlorobenzene	µg/L	10 U	9 U	10 U	10 U	10 UJ	10 U	10 U	9 U
1,4-Dichlorobenzene	µg/L	10 U	9 U	10 U	10 U	10 UJ	10 U	10 U	9 U
2,4-Dimethylphenol	µg/L	8 J	9 U	10 U	10 U	10 UJ	10 U	10 U	9 U
2-Methylphenol	µg/L	3 J	9 U	22	10 U	7 J	10 U	10 U	9 U
4-Methylphenol	µg/L	73	9 U	10 U	10 U	14 J	10 U	10 U	9 U
Di-n-octyl phthalate	µg/L	10 U	9 U	10 U	10 U	10 UJ	10 U	10 U	9 U
Naphthalene	µg/L	10 U	9 U	10 U	10 U	10 UJ	10 U	10 U	9 U
Phenol	µg/L	1800	9 U	5 J	10 U	4 J	10 U	10 U	9 U

Notes:

J Estimated.

U Non-detect at associated value.

UJ The analyte was not detected above the sample quantitation limit. The reported quantitation is an estimated quantity.

TABLE 3

QUALIFIED SAMPLE DATA DUE TO HOLDING TIME EXCEEDANCES
QUARTERLY GROUNDWATER/RIVER WATER SAMPLING
GRATWICK-RIVERSIDE PARK SITE
MAY 2003

Parameter	*Sample ID*	*Holding Time (days)*	*Holding Time Criteria (days)*	*Analyte*	*Sample Result*	*Units*	*Qualifier*
SVOCs	050803-JR-139	12	7	1,2-Dichlorobenzene	10 U	µg/L	J
				1,4-Dichlorobenzene	10 U	µg/L	J
				2,4-Dimethylphenol	10 U	µg/L	J
				2-Methylphenol	7 J	µg/L	*
				4-Methylphenol	14	µg/L	J
				Di-n-octyl phthalate	10 U	µg/L	J
				Naphthalene	10 U	µg/L	J
				Phenol	4 J	µg/L	*

Notes:

*

J Estimated.

SVOCs Semi-Volatile Compounds.

U Non-detect at associated value.